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Tackling the Climate Change ~~Challenge~~ Crisis

balanced energy, a 'just transition' and climate jobs

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Introduction and summary

Unite recognises the importance of addressing the climate crisis, providing energy security and delivering a sustainable environment.

The issue is the speed of this change and how this change affects our society. Over the last four years the governments of the world have been moving forward but all too often at a snail's pace. What's more, the withdrawal from the Paris accord of the United States under the Donald Trump administration and its 'America first' policy has seriously hindered progress.

Unite is redoubling its efforts to secure a just transition to a low carbon world that ensures that workers and their communities are treated fairly, protected in the event of plant closures and are central to the debate on alternative high quality jobs in their communities.

In addition, Unite will continue to campaign for:

- Investment in renewable and low-carbon energy
- Government and industry support for all our industries in the transition from old to new technologies, including enrgy, manufacturing and transport
- New build homes to be fully energy efficient
- Appropriate incentives to improve home and business insulation
- A sustainable, affordable and accessable integrated public transport system
- Businesses to audit their energy use to be as efficient as possible
- Support for trade union representatives to promote energy efficient workplaces and tackle the climate crisis.

The climate change crisis

In 2015 Unite published 'Meeting the Climate Change Challenge', which highlighted that the vast majority of scientific opinion agreed that changes to the Earth's climate and extreme weather patterns are caused by the emission of greenhouse gases into the atmosphere.

It highlighted that research by Edinburgh University examining the causes of climate change in the northern hemisphere over the past 1000 years reported that "until the year 1800, the key driver of the periodic changes in climate was volcanic eruptions... Since 1900, greenhouse gases have been the primary cause of climate change".[1]

Emissions of carbon dioxide (CO2) since 1750 up to that point had comprised just over half a trillion tonnes of carbon, and were estimated to have caused just under 1°C of global warming[2]. It was believed that the release of a further half trillion tonnes would cause a global temperature rise of around 2°C. It was also believed that a rise beyond 2°C would start to release vast quantities of trapped greenhouse gasses, changing the world's climate forever. If we continue as we are today, the world is set for at least 3°C of warming from pre-industrial levels.

1 Solar activity not a key cause of climate change, a study shows - Date:December 22, 2013 Source:University of Edinburgh http://www.sciencedaily.com/releases/2013/12/131222161813.htm

2 http://www.trillionthtonne.org/questions.html#2

Since the publication of Unite's Climate Change Challenge document, however, the science has improved with an increasing number of scientific papers and evidence suggesting that the tipping point is not a 2°C increase but 1.5°C. What is worse, even if we stopped emitting greenhouse gases today, the momentum created from these gases in the atmosphere would cause the planet to continue its path towards disaster.

As things stand, the existing pledges of all countries within the Paris Agreement[3], taken together, would lead to a temperature rise between 2.7°C and 3.7°C.[4] As one commentator has put it, winning slowly on climate change is the same as losing[5]. The latest models show that with very rapid cuts in emissions, Antarctic ice might remain largely intact for centuries; without them, we might see 11 feet of sea-level rise by century's end, enough to wipe cities like Shanghai and Mumbai off the map[6].

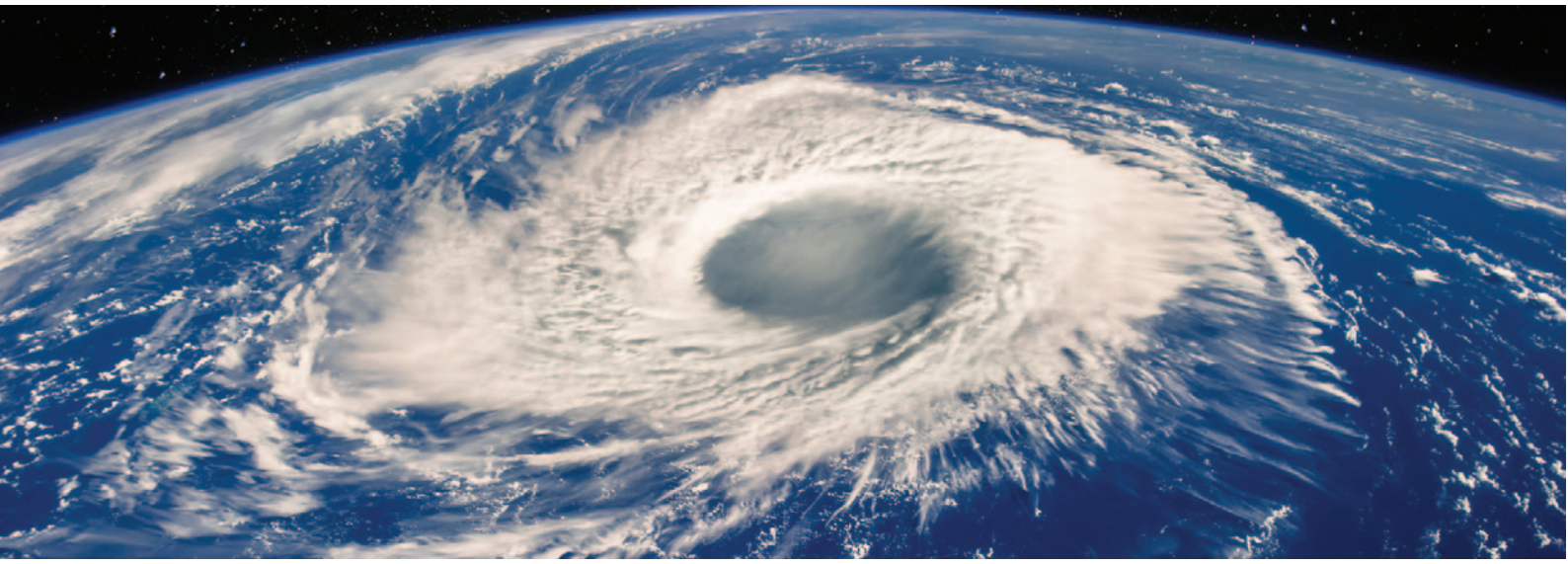
The Intergovernmental Panel on Climate Change (IPCC)[7], the scientific body established by the United Nations to inform governments of climate risks, recently issued a series of future climate projections which highlighted what a future world might look like once we cross this tipping point. In every projection, the world would see extreme weather become commonplace leading to a planet that would be uninhabitable to life as we currently know it.

An example of just one of these tipping points is the vast quantity of methane gas trapped in the frozen waste lands in Russia, Alaska and Northern Canada. There is twice as much carbon locked up under the ice in this region than there is in the atmosphere. The only thing stopping these gases from escaping is a sheet of ice which is melting far faster than has previously been expected.

The warming of the planet is far from uniform. For instance, and according to NASA, temperatures in the poles increased about twice as fast as the global average from 2000 to 2009[8]. This process is known as Polar Amplification. This makes it ever more urgent that change happens to stop or possibly reverse the damage we have done.

If we as a species cannot reverse the damage or find some way to stop these gases from escaping, then our chances of survival on this planet are limited.

The challenge therefore is to redress the balance. While we still need to run global economies, heat our homes, feed and clothe our children, ensuring a decent standard of living and freedoms for all, this must be achieved whilst protecting the planet.



3 https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

4 http://www.wri.org/blog/2015/11/latest-climate-commitments-how-much-will-world-warm-its-complicated and https://climateactiontracker.org/global/temperatures/

5 https://www.rollingstone.com/politics/politics-news/bill-mckibben-winning-slowly-is-the-same-as-losing-198205/

6 http://assets.climatecentral.org/pdfs/Strauss-PNAS-2013-v2.pdf

7 https://www.ipcc.ch/

8 https://earthobservatory.nasa.gov/images/81214/arctic-amplification

By way of example, China is heavily reliant on ice melt waters running from the Himalayas to provide their land with the water and nutrients to make it productive. Year on year measurements of the ice contained in these mountains shows that it is melting and not being replenished as fast as it was. The net result will eventually be that the ice caps will disappear altogether and with it the main water supply for this vast nation. China has realised this danger and is scrambling to provide its growing economy with the resources each of its citizens and industries demands whilst also committing to measures that will eventually tackle Paris climate change commitments.

China is not alone in facing these problems. The change in the climate is having a devastating effect globally on the size and expanse of desert terrain as weather patterns change and monsoon rains fail to materialise or fall over the course of several days, washing away crops and nutrients in the soil. These crop failures lead to wide spread starvation and migration into more highly concentrated areas of population. The resentment this can cause then leads to violence and potentially to wars over sparse resources.

Unite sees a balanced energy policy, a 'just transition' to a low carbon/no carbon economy, and the growth of climate jobs as key parts of meeting the challenge and tackling the climate crisis.

Climate change in the UK

The UK is far from immune to the problems of climate change. Two studies, published in the journal Nature, use different approaches to show that the 'Atlantic Meridional Overturning Circulation' (AMOC), more commonly known as the gulf stream, is in a weaker state now than it has been for decades – and possibly even centuries. The AMOC carries the warm waters of the Caribbean up the East Coast of the United States and across the Atlantic until it reaches Northern Europe, cools and takes with it fresh cold water back around the West Coast of Africa and on to the Caribbean. The effect of the AMOC is to provide North Western Europe with a far milder climate than the region should expect from such northerly latitudes. This is why it can be just 5°C in London while it is -40°C in Moscow (a capital that is further south).

The two studies differ on when and how they think the weakening was triggered. While one suggests it began in the mid-20th century as a response to human-caused climate change, the second proposes that it began a hundred years earlier following a natural shift in regional climate.

Despite the debate on when the weakening started, the studies agree that there has been a continued decline in AMOC over the 20th century that may be attributed to recent global warming and melting of the Greenland ice sheet that has cooled the AMOC before it reaches our shores.

The net effect of a slowed AMOC is a meandering jet stream at altitude resulting in extreme weather patterns that can stall over Western Europe and provide a heatwave in February or a snow storm in June, flooding, droughts, hurricane force storms and eventually winters that could be as cold or colder than Siberia.

One of the final acts of Theresa May's administration was to legislate for net zero carbon emissions by 2050 by amending the 2008 Climate Change Act and setting a target of an 80% carbon emission reduction, which would mean that by 2050 the UK would effectively be carbon neutral.

Boris Johnson, during the Conservative leadership race, affirmed his support for this commitment, but has so far failed to outline any longer-term policies to achieve this. With former Chancellor Philip Hammond predicting that the cost to achieve net zero would be in the region of £1 trillion, the target will require a large-scale overhaul of current policies, sweeping changes to targets and cross-departmental teamwork. It will affect that way people in the UK eat, commute, work and heat their homes. Energy, transport and housing, in particular, will be particularly important for change—as the sectors collectively account for 80% of the UK's total emissions with such transformation requiring HM Treasury backing new policies with concrete spending commitments.

The most recent report to the Government from the Committee on Climate Change[9], however, highlights that just 7 of the 24 indicators that are used to show progress towards the net zero by 2050 target were met and the government has delivered just 1 of the 25 recommended policy actions that were put out by the committee in 2018. The report highlighted that current government policies and plans are insufficient to meet the fourth or fifth carbon budgets (covering 2023-2027 and 2028-2032). Moreover they reported that the required annual rate of emissions reduction for net zero is 50% higher than under the UK's previous 2050 target and 30% higher than has been achieved on average since 1990.

The committee went on to highlight that England is not prepared for the impacts of a 2°C increase in global and UK temperature, let alone a 4°C temperature increase. They state that 12 of 33 sectors have no plans for long-term climate change at all, including aspects of agriculture, the natural environment, health, infrastructure and business. The committee also claim that none of the 33 priority areas score well in reducing vulnerability and exposure to climate risk.

This damming report states that government policy to leave adaptation responses to local communities and organisations without a strategic national plan will not manage the risks from climate change. They state that a strategic plan is still missing from this government and that they must raise the profile and ramp up resources for adaptation. It should take action on all of the urgent risks set out in the UK Climate Change Risk Assessment and improve monitoring of risk, action and the impacts of climate change.

They call on the Government to embed the net zero policy across all levels and departments of government, with strong leadership at the centre.

9 July 2019 https://www.theccc.org.uk/publication/reducing-uk-emissions-2019-progress-report-to-parliament/

Unite believes that under the Conservative leadership of the last nine years the issue of climate change adaptation has been used as a vote winner when in reality little has been done to provide a clear direction of travel or even policy to achieve a net zero position by 2050.

Even the net zero 2050 target has been seen as 'too little too late' according to some who are calling for this to be moved forward to 2035 or even sooner given the developing science. This points towards the need to reduce the maximum increase in global temperature to just 1.5oC above pre-industrial levels instead of this government's 2.0 oC target.

Given the burning of the Amazonian jungles in Brazil and the actions of Donald Trump's administration in the United States to pull out of the Paris accord the potential to achieve the 1.5oC maximum global increase is becoming increasingly unrealistic without a transformative and interventionist social, economic and political strategy.

At the 2019 Labour Conference Unite championed the demand for a Green New Deal and motions were adopted calling on the Party to "work towards a path to net zero carbon emissions by 2030" and "work towards a path of net zero carbon emissions within keeping of the IPCC advice including to keep global average temperature rises below 1.5C"[10]. The idea of a 'Just Transition' is at the heart of this approach. This means workers in key and impacted industries, including manufacturing, transport and energy, must all be directly involved and supported as the industries, workplaces and jobs transition.

A global effort

This problem cannot just be solved by personal activities such as eating less beef, taking fewer flights, driving an electric car or by insulating homes, although all these will help. Change needs to happen in every aspect of modern life and this change needs to happen now. Even the Committee on Climate Change's report states that the UK's new net zero target should be used to help encourage increased effort elsewhere, including adoption of similar targets by other developed countries in the EU and beyond.

In December 2015 the UN held a meeting of representatives of every nation to try and agree an accord which they felt could be passed by their legislators to ensure that the world would change. The meeting, also known as the 21st Conference of the Parties or COP21, produced an unprecedented call on every nation to address global warming and to try and keep the warming of the planet below 1.5°C but if that proved too difficult to ensure it did not exceed 2°C.

During the 2018 UN talks in Kotowice, Poland (COP 25) the UN countries settled on one of the most - tricky elements of the 'rulebook' for putting the 2015 Paris agreement into practice. This includes how governments will measure, report on and verify their emissions-cutting efforts, so that it is far harder to wriggle out of their commitments.

In the UK the current government has committed to a plan to reduce the release of global warming gases by 2050 to a net zero position. This means that industry would still be able to release global warming gases but only if these were offset by investments in reducing the volume of warming gases in our atmosphere. This proposal is heavily reliant on technical solutions to trap and store CO2 and other greenhouse gases. Many in the scientific community believe that a 2050 target is 'too little too late' and are calling for the UK to strive towards a net zero position by 2035.

As identified above, the Labour Party has said that the government's target of reaching net zero emissions by 2050 is too late and that the Tories are doing little to meet it, with investment in clean energy alone falling for three years running.

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10 https://labour.org.uk/press/labour-welcomes-report-putting-uk-onto-the-path-to-net-zero-energy-emissions-in-the-2030s/

Just transition

The United Nations Climate Change conference in Paris in December 2015 created a framework for action among all 195 UN member states that is having major implications for how countries operate (and co-operate), affecting all areas of the economy including energy supply, transport, industry and domestic practices.

But the move to a low-carbon emission world will also impact the world's workforce. Unite welcomes the Labour Party's call for a 'green industrial revolution' and its recognition that it will not happen by itself but requires an interventionist government willing to invest to safeguard our future.[11] Importantly, Labour is also committed to *"working with unions to ensure jobs and skills are protected as we move towards a low-carbon economy" and a programme of investment and transformation with "good jobs based here and on union rates bringing skills and security to communities held back for too long".*

One key element from the Paris accord was the section on a just transition for displaced workers, due to the commitments central governments would need to invest to help retrain individuals. It wasn't until the UN met in Katowice at COP25 that the nations settled on the need for a just transition for employees.

Unite believes that where workers' jobs are threatened, in either a highly polluting industry or in manufacturing such as automotive, aerospace, steel, ceramics or construction facing radical transformative change, they must be protected along with their families and communities and provided with access to retraining or new roles in their communities where they can use their current skills with protection for wages and other conditions.

With regards to energy generation, Unite sees a balanced energy policy, as one utilising every available, sustainable, method of energy generation as vital. This includes a call for a 'just transition' to a low carbon economy, and the growth of sustainable 'climate jobs' as key parts of meeting this crisis. Up until recently the substantial savings that have been made in the energy sector have been at the expense of coal fired energy generation.

Unions and environmental groups from across the world are mobilising to ensure that the issues of just transition and decent, quality jobs are included in the treaty. In the UK the four main trade unions, with over 200,000 members right across the energy and energy-intensive industries (GMB, Prospect, UNISON and Unite) asked senior representatives of those affected what they wanted from a Just Transition. Their reply was a call for:

- A balanced low-carbon energy mix
- Investment in skills, technology and infrastructure
- Protecting and creating high-quality jobs and employment
- No community to be left behind.

They stated that "the test for any just transition is whether those most affected are allowed to lead the debate and have ownership of the priorities. If not, it cannot be a just transition".

As part of the International and European Transport Workers Federations' call for climate justice and sustainable low carbon mobility[12], Unite supports sustainable, integrated transport, public transport, zero emission cities and ensuring transport workers are fully recognised and included at every stage and level of the debate over future transport policy.

The International Trade Union Confederation (ITUC) and the European Trade Union Confederation (ETUC) are co-ordinating the input of the trade union movement towards each and every future COP. A week of action on climate issues was held in June 2015 ahead of the Paris talks and both organisations mobilised their affiliates to lobby and campaign national governments on the key trade union issues.

11 https://www.theguardian.com/environment/2019/apr/27/labour-green-industrial-revolution

12 https://www.itfglobal.org/en/focus/climate-justice

These key campaigning issues included:

- Legal commitments for all parties based on shared but differentiated responsibilities
- Just transition and decent work must be part of the agreement
- Equity as a cornerstone
- Participation of all groups must be promoted and acknowledged
- Respect for human rights and workers' rights.

The challenges of climate change can only be met through solidarity and a united response from trade unions across the world. Unite will continue to play its role in supporting the work of the ITUC and ETUC in the build up to future talks and demands that environmental reparations form part of any global green new deal, providing for the free transfer of green technologies to the developing world.

Reducing our energy demands

Manufacturing: a green new deal for sustainable jobs

Unite represents over 300,000 manufacturing workers across five industrial sectors. A 'Just Transition' must be part of an industrial strategy which harnesses the collective power, the talent and the industrial knowledge of manufacturing workers to win a sustainable future for their industries.

The government has adopted a non-interventionist belief that the market will deliver a sustainable future for manufacturing, epitomised by the Road to Zero strategy for the automotive sector which fails to deliver any policies for the 23-fold market increase in electric and alternatively powered vehicles that would be required to meet the government's own targets.

In contast Unite members have led a heroic 9-week occupation of Harland & Wolff, the strike to save shipbuilding jobs at Cammell Laird and the campaigns to secure a future for Wrightbus in Ballymena and British Steel at Scunthorpe. Each of these major workplaces would be essential to a Green New Deal, and time and time again it is workers on the shop floor who have shown that a fight for a sustainable future is inseperable from the fight for survival of British manufacturing.

A Green New Deal for manufacturing must mean the era of letting markets run riot, with governments announcing one-off deals to tinker around the edges of the economy, has ended. Our industries, our communities and our climate cannot afford it.

This means a massive need for investment in supporting the transition of existing industries, such as the automotive industry's transition to electrification and the development of lighter materials and design innovation.

The lack of such an industrial strategy which priorities sustainable manufacturing jobs is most starkly seen with the threat to Orb steel works in South Wales. Orb is the only electrical steel site of its type in the UK and, given the appropriate investment, would be perfectly placed to service a growing demand for electric vehicles. Instead the site suffers from decades of under investment and now Tata Steel has decided that they are unwilling to pay the £50 million which would be required to develop the site.



This closure must be seen in the context of the planned joint venture between Tata and Thyssenkrupp which collapsed in June. Orb is a viable site with the potential to be a plant of strategic significance, but lacks the support from an owner compelled to consider only the shorter term commercial future. Once again the question of ownership and long term strategic planning for our foundation industries is not separate, but is central to, a New Green Deal.

A genuine strategy must also mean the creation of new sustainable manufacturing jobs. These will be found in new industries such as carbon capture and storage, the development of a hydrogen fuelled vehicles and the safe decommissioning of North Sea oil platforms when they come to the end of their working lives.

An industrial strategy must take full advantage of opportunities from new manufacturing technology linked to clean energy generation, such as hydrogen. Investment in hydrogen electrolysis plants, which produce 1,300 tonnes of hydrogen annually, could create 26,000 jobs, and provide clean energy for alternatively powered road vehicles, ships and aircraft.

Despite the vast potential, the Department for Transport has spent only £8.8 million to improve access to hydrogen infrastructure in Britain. The result is only 12 refuelling stations in the UK.

A Green New Deal must also support our foundation industries, including steel and base metals. In the UK the sector currently emits 12 million tonnes of CO2 each year, around three percent of the UK total domestic emissions. While progress has been made, with 40 percent less energy required per tonne of steel production compared to the 1970s, it is clear that underinvestment presents a barrier to further progress.

Such investment should include carbon capture technologies or even completely new forms of steel making which are not yet commercially viable.

The UK must look beyond narrow 'market-based solutions' like carbon trading schemes or a simplistic target-driven approach and commit to working on a tripartite basis with trade unions and industry to devise a more effective strategy.

Rather than a narrow focus on UK territorial emissions, such a strategy must consider the entire supply chain of the industry. For example, every 1,000 tonnes of UK steel saves 150 tonnes of CO2 compared to imported EU steel and 560 tonnes of CO2 compared to Chinese steel.

In this context Unite is calling on the government to support 'foundation' or 'strategic industries', including steel, to support the transition to a sustainable future.

The steel and base metals industry, the very definition of a foundation industry for an advanced manufacturing sector, shows the huge potential growth which would be possible with government support.

Unite backs Labour's National Transformation Fund will allocate £6.2 billion to jumpstarting a home-grown renewable industry and deliver an £83 billion investment and strengthen our manufacturing sector by using public buying power to support local businesses, re-shoring thousands of jobs to coastal towns

Transport

In 2015 29.9% of CO2 emissions were produced by transport, primarily the car[13]. By 2018 this percentage had risen to over 33% but the overall volume of emissions was 3.2 Mt lower than in 2017, and 3.2 % lower than in 1990[14]. The desire to move an increasing volume of goods and people to their destinations by whatever means possible, often without a second thought to the environmental impact, is a major issue.

Transport represents the main cause of air pollution in cities. The transport sector has not seen the same gradual decline in emissions as other sectors: emissions only started to decrease in 2007 and still remain higher than in 1990[15]. Within this sector, road transport is by far the biggest emitter. A shift to electric vehicles (EVs), including buses and lorries, that utilise hydrogen or batteries is helping reduce the impact, as is the move toward transport integration and greater use of public transport, walking and cycling. The transition from the combustion engine to EVs however will result in many thousands of skilled manufacturing jobs, in both the assembly of vehicles and production of components, being placed at risk. State intervention in new and developing technologies, support for a supply chain transition and investment in the required national infrastructure to support such a development will be vital.

A joined up government-led strategy will be required to support our steel, aluminium and composite materials manufacturers, alongside state investment in battery and fuel cell development, manufacture and recycling. The transition from the internal combustion engine (ICE) requires research, design and engineering expertise and apprenticeships to support UK manufacturing retain its position as a global lead in the manufacture of both components and finished vehicle products.

With the global shift towards a low-carbon, circular economy already underway, the European Commission's low-emission mobility strategy, adopted in July 2016, aims to ensure Europe stays competitive and able to respond to the increasing mobility needs of people and goods.

Unite's strategy for transport, 'Transport Matters', includes a call for "a sustainable transport system that is better for the environment". More specific demands include:

- Regulation and procurement practice to support a sustainable transport industry by enabling longer term considerations, such as social value and environmental goals, to be more considered as well as economic growth
- Statutory rights for training and facility time for trade union environment representatives

13 Final UK greenhouse gas emissions national statistics: 1990-2013 https://www.gov.uk/government/statistics/final-uk-emissions-estimates

14 ibid

15 See the graph on page 8

- Investment to support research into technology for minimising the pollution effects of transport, such as cleaner fuels and electric vehicles
- A transport system based on greater use of public transport, cycling and walking
- A global emissions trading scheme for civil aviation
- A planned and intermodal freight strategy for road haulage that is based on environmental and economic efficiency.

In addition, the strategy also calls for:

- Immediate investment in modernising our transport infrastructure system to boost the economy in the short and the long-term
- Public transport to fulfil its important social function by being integrated, accessible, and affordable for all as well as being accountable to users as a public service
- A shift in transport policy away from further privatisation and deregulation and towards more public ownership and accountability, including our railways and our bus services
- Train operating companies to be brought back into public ownership.

Aviation

Civil aviation is one of the transport sectors where climate protests have been particularly focussed. It is a sector that is highly visible, currently causes the release of a relatively small proportion of total emissions, but the industry is expanding and increasing the spread of its economic influence and impacts across the globe.

As technology currently stands, air travel will be one of the few sectors that will continue to emit greenhouse gases, under the Committee on Climate Changes proposed road to zero[16]. What is more, these emissions, released at altitude, can have an enhanced warming effect on the planet, pending the development of battery or hydrogen technology and air frame strengthening whilst reducing weight. Existing technology can reduce the impact of flying, such as the development of aviation fuel from household waste and from captured and repurposed greenhouse gases.

Whilst the production of fuel from waste products is not zero carbon, it at least makes the carbon that is released work a lot harder than is currently the case. Landfill waste produces vast quantities of methane, the impact of which is 34 times greater than CO2 over a hundred year period[17]. Preventing the need to ship and bury household and industrial waste will therefore reduce the impact that those carbon atoms would have had. Unite members in the aerospace industry are working with our aviation membership on both aircraft and engine design. The production of more fuel efficient, quieter aircraft with lower engine emissions, alongside technologies to minimise engine use in support of ground movements to and from stands and runways are vital developments in the transition to alternative fuels and power technologies.

In addition, at the current rate of technological innovation by 2035, the first all-electric commercial aircraft will take to the skies, pending the development of battery technology and air frame strengthening and by 2022 we may see hydrogen fuel cells powering small 500 mile 10-20 seat aircraft[18].

The UK has a significant strategic presence in the global aerospace industry, producing 25% of all its components. This influence has been brought about by the nation's geographical position which has required the development of air travel and its willingness to embrace aviation as a way to connect to the world's economies.

Delays in government commitment to additional landing capacity has led to other nations stealing a march on the UK and will eventually lead to the UK's influence waning as flights divert to global hubs and airports elsewhere.

16 https://www.theccc.org.uk/wp-content/uploads/2018/06/CCC-2018-Progress-Report-to-Parliament.pdf

17 https://unfccc.int/news/new-methane-signs-underline-urgency-to-reverse-emissions

18 https://www.theverge.com/2019/8/14/20804257/zeroavia-hydrogen-airplane-electric-flight

The global aviation industry has struggled for years to find a way to marry up the demands of economics with those of climate change and it is not moving forward very quickly. A failure to adopt a common approach to national airspace charges leads to airlines flying hundreds of unnecessary miles simply to minimise costs rather than taking a direct flight path to their destination.

There are, however, obvious synergies to be found, in that any reduction in the volume of fuel burnt to complete a flight saves the airlines money and a move away from traditional fuel breaks the ties with the price of oil.

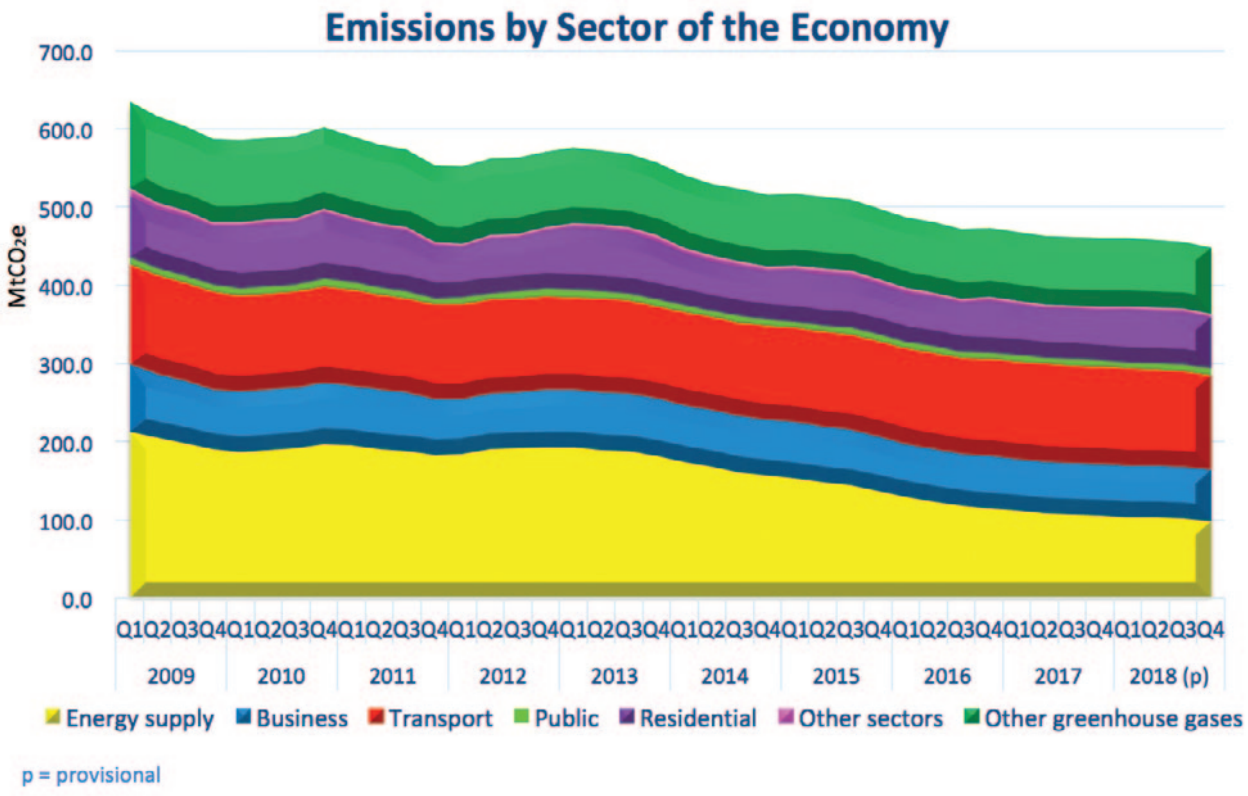
Unfortunately, the industry has struggled to agree a carbon trading scheme through the International Civil Aviation Organization (ICAO) - the UN specialized agency that determines the laws whilst traveling through international airspace.

Unite sits on the Advisory Board of Sustainable Aviation[19] to help guide the industry toward their goal of reducing the environmental impact globally to less than 2005 levels by 2050, creating momentum to move further and faster, despite an ever increasing demand to fly.

Unite believes that there is a lot of low hanging fruit that can be tackled on the ground, by reducing emissions while aircraft are on the ground and from associated surface transport, which will also afford members in the industry with a much better working environment.

There, however, needs to be sustained research and development into alternative fuel sources, designs and materials to increase efficiency, which the industry has not currently delivered.

The Committee on Climate Change have highlighted that under the Government's 2050 net zero targets the civil aviation industry will continue to be one of the few industrial activities that will be releasing greenhouse gases into the atmosphere given the difficulties faced in adapting the industry to a more sustainable position. For this reason additional adaptations will be required elsewhere in the economy to achieve the net zero position which the Committee on Climate Change believe is achievable.



19 https://www.sustainableaviation.co.uk/

	Q1	Q2	Q3	Q4
Energy supply	-52%	-53%	-53%	-52%
Business	-28%	-30%	-27%	-16%
Transport	-14%	-5%	-6%	-2%
Public Sector	-22%	-26%	-15%	9%
Residential	-18%	-7%	-12%	-7%
Other sectors	-57%	-60%	-58%	-53%
Total CO_2	**-32%**	**-31%**	**-31%**	**-26%**
Other greenhouse gases	-24%	-24%	-24%	-24%
Total greenhouse gas emissions	**-31%**	**-30%**	**-30%**	**-26%**

Source:- Temperature adjusted percentage decrease in emissions Quarter on Quarter 2008 till 2018 - Provisional UK greenhouse gas emissions national statistics 2018

Fuel poverty

Millions of homes in the UK leak heat leaving the occupants, many on low incomes, with the choice of feeding their family or heating their home. According to 2018 data from the Joseph Rowntree Foundation, child poverty has been rising since 2011-12. Today 4.1 million children are living in poverty, a rise of 500,000 in the last five years. Four million workers are living in poverty – a rise of more than half a million over five years and in-work poverty has been rising even faster than employment, driven almost entirely by increasing poverty among working parents[20].

Fuel poverty can be tackled with the application of relatively inexpensive insulation. A home insulation programme would create thousands of jobs, fitting insulation, renewing and replacing boilers and increasing - energy efficacy. Such improvements would reduce energy bills and reduce the 502 Terawatt hours (TWh)[21] of energy used in the UK each year. We need workers to insulate and retrofit homes and buildings in order to conserve energy. In addition, the removal of natural gas from all homes and its replacement with a supply of sustainable, renewable electricity for domestic heating and power must be a key objective of any green new deal on the road to net zero. Unite supports Labour's plans to retrofit four million homes in the first term of a Labour government and all homes by 2035 and to regulate the new build housing sector to ensure compliance with tough new targets, including the compulsory integration of EV charging infrastructure.

Unite is committed through our membership of campaign groups to call for use of carbon price floor (CPF) revenues to fund whole house retrofits for low income families in order to conserve energy and create jobs.

A balanced energy policy

When Unite's original 'Climate Challenge' paper was published 31%[22] of electricity came from coal-burning power stations. In 2018, just 5% of the UK's electricity came from coal, with 39.4% coming from gas, 19.5% from nuclear, and a further 33.3% from renewables (primarily wind). By 2023 the National Grid expects all UK coal plants to be closed[23] or converted to gas or biomass energy generation.

20 https://www.jrf.org.uk/report/uk-poverty-2018?gclid=Cj0KCQjw9JzoBRDjARIsAGcdIDXC45vWz__faMTQue8l1SqAtMbjKdY6q1_j5C2DpiRh5RcwN9FLCawaAkntEALw_wcB

21 United Kingdom housing energy fact file 2013 – DECC https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/345141/uk_housing_fact_file_2013.pdf

22 http://www.energy-uk.org.uk/energy-industry/coal-generation.html

23 http://investors.nationalgrid.com/~/media/Files/N/National-Grid-IR/presentations/jan12futureofenergyinvestorbriefings1.pdf

There are only a few coal fired power stations left in operation and the grid is now only rarely calling on the electricity that can be produced by these stations. The deep mines that supplied them with their fuel have closed and we are now reliant on one open cast mine and imports. The change has occurred without any assistance given to the communities affected leaving them in ruins as its people move away to find work.

Unite supports efforts to capture, collect and store the greenhouse gases that are currently released into the atmosphere from industrial processes, are collected and stored. Wherever possible, these gases should also be utilised and repurposed into horticulture and other industries using what is known as Carbon Capture, Storage and Utilization (CCSU). Such an industry will certainly require a number of substantially skilled workers. CCSU can offer a lifeline to fossil and biomass[24] co-fuelled[25] power plants such as DRAX, so they could continue to mine and burn fossil fuels (with or without biomass).

By utilising Carbon Capture, Storage and Utilisation (CCSU), coal, gas or other fossil fuel supplies can still be used with their emissions captured and piped into the disused oil and gas wells to provide UK with some independent energy supply security. National grid suppliers are concerned that once the last coal fired station is closed the grid will still look to decarbonise further and that means the eventual closure of all natural gas power stations.

As highlighted earlier, other sectors that need to reduce emissions include transport, residential and industrial sectors. A possible solution in these areas is hydrogen. The problem is producing enough of it sustainably, as the creation of hydrogen from natural gas produces very high quantities of CO2 gas. The provision of a CCSU network would therefore allow this process to create gas in the quantities needed. A 20% mixture of hydrogen with natural gas can be introduced into the existing gas pipelines without the need to change domestic equipment. This will increase the calorific value of the gas supplied to customers, reducing the need to burn as much gas and reducing CO2 at the point of use in the process.

Hydrogen, generated using the electrolysis of water, can also be utilized as a battery feeding power back on-demand via hydrogen fuel cells, or shipped out for a replacement fuel in vehicles. The problem with hydrolysis is obtaining the initial source of pure water[26]. If the water is obtained via fuel cells this is not an issue. Therefore, excess power generated from low or zero carbon sources can be stored in this way with relatively small losses and requiring far less space when compared to pumped storage of water, the method currently employed by the grid.

An expansion of new nuclear power would also help meet the objectives of reducing carbon emissions, securing energy supply and replace the existing stations that are reaching the end of their lives. A potential solution is being developed in the form of small modular reactors. These reactors are in essence the same tried and tested reactors as found in nuclear submarines, only stood on end in a battery pack configuration. This configuration would permit each unit to be added to the plant as time goes on rather than all in one go. Such reactors could be defueled and serviced without the need to shut down the production of energy generation from the remaining units and due to their reduced size and thermal capacity it may be possible for such a reactor design to more closely follow the needs of the grid, providing a back-up supply to replace gas fired production if needed.

Further investment is also needed in renewable energy including wind, solar, wave and tidal. To this end Unite supports the development and build programme for the Swansea Bay Tidal Lagoon and similar projects to generate energy from our islands' tidal resource. In addition, Unite demands government support for the research, design, engineering and manufacture of products utilised in the generation of sustainable energy here in the UK.

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24 Biomass is any plant based fuel but in general terms refers to wooden pellets obtained from Canadian forests

25 Co-firing is where biomass is burnt with another fuel – normally coal to ensure that the fire is hot enough to prevent the plants natural sap turning to tar in the furnaces, preventing the need to frequently stop for cleaning.

26 Whilst sea water can be used to produce hydrogen a by-product can be Chlorine gas, making it far from ideal.

While the UK has the largest collection of offshore wind generators in the world, none are manufactured here in the UK and without additional power generation developments, it will not be enough to meet future demands, especially when electric vehicles (including electric aircraft) become a reality.

Unite recognises the importance of reducing carbon emissions and securing energy supply. That is why our policy is for a balanced energy policy that includes a mix of renewables, nuclear and cleaner coal and gas generation including CCSU.

‘One million climate jobs’ campaign

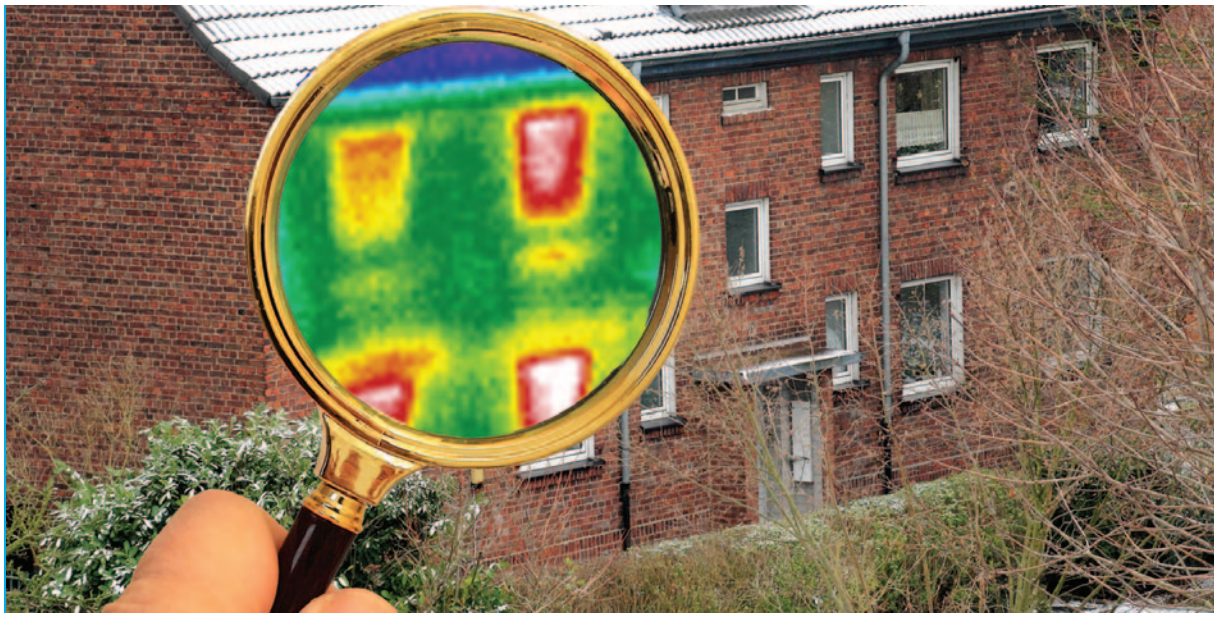
Unite acknowledges the work of the ‘1 Million Climate Jobs’ campaign[27] and its calls for government at every level to invest in ensuring we have a skilled workforce to:

- build enough wind, solar, wave, tidal and other zero carbon power to meet all our energy needs
- insulate and retrofit all our existing homes and buildings in order to conserve energy
- enure new home building projects meet the necessary standards on the use of renewable, sustainable energy and are as energy efficient as current technological advances permit.
- run a sustainable integrated public transport system powered by renewable electricity.

In 2015 the 1MCJ campaign estimated that this would create at least 1 million jobs and the work of those workers could cut CO2 emissions by 86% in twenty years. They also felt that another half a million jobs would be created in the supply line for these industrial areas.

Unite agrees with much included in the campaign but there are areas where we diverge. For example, the 1MCJ campaign believes that all carbon reserves should remain in the ground. As outlined above, Unite supports a balanced energy policy that includes cleaner coal and gas generation and investment in CCSU.

Furthermore, the 1MCJ campaign does not include nuclear power stations in its plans, but as outlined earlier, Unite’s balanced energy policy includes nuclear as a critical component in the energy supply mix.



27 https://www.cacctu.org.uk/climatejobs

Unite – working with others

Unite, including through its representation on the Trade Union Sustainable Development Advisory Committee (TUSDAC), has been working with the Energy Intensive Users Group[28] (EIUG) and government to stress the need for sustainable and responsible change.

Unite has promoted the role unions can play in taking up green issues in the workplace such as the TUC's *Greening the Workplace* report[29] which includes examples of Unite involvement in case studies of organisations making environmental improvements with the involvement of their unions.

Campaigning and Community Action

In addition to working with and publicising the work of those already cited, Unite also works with other groups campaigning against austerity such as the People's Assembly[30] and Keep Our NHS Public[31], as well as calling for the renationalisation of the energy, water and public transport networks.

Unite community membership[32] also links trade unionism with local activism and brings together people from across our society.

Unite has attempted to bring about change on subjects that have nothing to do with employment but have everything to do with common human dignity and the basic human requirements to have a safe and secure home environment free from problems like fuel poverty.

Unite believes that the lessons learnt in the workplace, on reducing the employers' carbon footprint, can and should be carried into the home. This small act could help the whole economy reach its net zero targets.

28 http://www.eiug.org.uk/
29 https://www.tuc.org.uk/sites/default/files/The_Union_Effect_Greening_The_Workplace_Covers_2014_All.pdf
30 http://thepeoplesassenbly.org.uk/
31 http://www.keepournhspublic/
32 http://www.unitetheunion.org/growing-our-union/communitymembership/

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