

Research & Innovation CoP Climate Change Position & Action Plan

<p>Introduction – overall problem statement</p>	<p>The Research & Innovation Community of Practice (R&I CoP) notes IChemE’s position on climate change.</p> <p>The action plan presented here follows on from this statement and forms part of IChemE’s delivery against several of the commitments set out, namely to:</p> <ul style="list-style-type: none"> ▪ Develop detailed positions and action plans for economically sustainable and secure transitions to net zero carbon emissions in all areas of chemical engineering practice and regions where members are active. <p>It will also help underpin work on several other commitments, including:</p> <ul style="list-style-type: none"> ▪ Provide policy advice to governments based on chemical engineering experience and expertise; ▪ Engage in public outreach activities with businesses and communities, to understand their concerns about the threats and uncertainties posed by climate change; ▪ Develop training courses and mandate CPD to provide the knowledge and skills to support members in the transition to a net zero carbon economy and in climate change adaptation; ▪ Encourage all regional member groups and special interest groups to hold webinars and seminars as part of the CPD programme to enhance skills and knowledge in pursuit of zero carbon futures and understanding of climate risks, and to engage with the wider membership.
<p>Specific problem statement</p>	<p>Chemical engineering researchers are uniquely placed to take action against the causes and effects of climate change.</p> <p>The R&I CoP proposes to work collaboratively within the research communities we are members of – and that we engage with through research, educational outreach, and academic collaborations – to contribute to the transition to a net zero carbon world by 2050.</p>

	<p>In keeping with efforts to limit the global average temperature rise to 1.5°C or less, it is necessary to decarbonise our economic systems and stabilise the levels of greenhouse gases within the earth’s atmosphere. Innovation is needed to achieve this, and the R&I CoP promotes research and development work to find the new best solutions to deploy. The R&I CoP is in a good position to:</p> <ul style="list-style-type: none"> ▪ Encourage the conduct of research into, ▪ Disseminate and showcase research findings about, and ▪ Facilitate collaboration between researchers and research organisations around, <p>the science behind climate change and what can be done to mitigate and overcome the challenges it brings.</p> <p>The R&I CoP recognises there are several challenges faced globally, which – from a research perspective - require collaboration, innovation, and high calibre research to find solutions to. These challenges include:</p> <ul style="list-style-type: none"> ▪ Food security and access to food, particularly the impact of climate change on food supply and distribution; ▪ Rising sea levels and the impact this has on the lives of those in low-lying regions/countries, especially island communities; ▪ The transition away from the extraction and consumption of fossil fuels, towards renewable energy sources, in a just and equitable manner which minimises disruption to economic activities and livelihoods; ▪ Decarbonisation efforts across various industrial sectors.
<p>What actions need to be taken to address the issue?</p>	<p>To encourage innovation, research and development to support the transition to a net zero carbon world by 2050 we need to:</p> <ul style="list-style-type: none"> ▪ Engage locally and nationally, in the countries members are based, with government climate change policy discussions and consultations; ▪ Connect with funding bodies to highlight needs for funding and investment for researchers & innovators; ▪ Communicate the importance of fast-tracking new “climate friendly” or climate change abatement technologies at pilot or industrial scale; ▪ Share funding opportunities with members; ▪ Work with other groups both within IChemE and externally to disseminate and showcase works being done and encourage others to realise the impact of new technologies and processes required to tackle and reverse the impact of climate change. <p>More broadly, the R&I CoP will also actively promote efforts to achieve net zero carbon emissions among members’ research work. Members will be encouraged to:</p> <ul style="list-style-type: none"> ▪ Reduce carbon emissions from their own activities and workplace-related emissions (e.g., using the most efficient research equipment, processes, laboratory practices, computer systems and simulations, etc.);

	<ul style="list-style-type: none"> ▪ Engage in low-carbon work practices when it comes to research collaboration, seminars, conferences and meetings (e.g., meeting online instead of in-person to reduce travel-related emissions where possible).
<p>What skills, training gap or facilitation requirements need to be addressed?</p>	<p>For R&I CoP members to use existing climate change research funding opportunities available to them effectively, a good understanding of the types of opportunities that exist across a broad range of geographic jurisdictions is required. This is especially so as research funding models and how to access them vary significantly from one country to another. The CoP needs to ensure its members come from a diverse range of nations and backgrounds, not least to ensure knowledge and perspectives are available from as many jurisdictions as possible.</p> <p>More broadly, the research community needs to ensure researchers and innovators have the tools and education to properly assess the impact of their work and its future potential impact on climate change. The use of systems-thinking approaches and tools including life cycle assessment and techno-economic analysis are important here. The CoP must ensure that members are familiar with these methods and/or know where to find resources to use them effectively.</p>
<p>What actions should the CoP Lead Team members take to support delivery of the above actions?</p>	<p>The CoP Leadership Team will:</p> <ul style="list-style-type: none"> ▪ Encourage CoP members to consider (and possibly measure) the carbon footprints of their work practices, and to take steps to reduce their carbon footprints. This might be done by for example using resources more sustainably, using green solvents wherever possible, using green electricity, hosting meetings online via Zoom (or similar) rather than meeting in person; ▪ Encourage CoP members to participate in making submissions to government policy consultations, when suitable policy submission opportunities (e.g., around local or national climate change research strategy, etc.) become available; ▪ Work with funding bodies to highlight how important chemical engineering research is to developing new technologies and processes to achieve a net zero carbon target; ▪ Consider climate change impact for any medals or awards we are involved in assessing, where the evaluation criteria of such medals or awards allow for it; ▪ Highlight examples of research related to new technologies and processes required to tackle and reverse the impacts of climate change through regular internal CoP newsletter articles; ▪ Encourage members to develop research projects to address the challenges in their own regional contexts; ▪ Support the creation and development of working groups within the CoP which will focus on climate change mitigation or adaptation.
<p>What actions will you encourage others to take?</p>	<p>More generally, the CoP will:</p>

	<ul style="list-style-type: none"> ▪ Encourage the wider membership to undertake sustainability training provided for free by IChemE; ▪ Encourage sharing of information / best practice in developing and implementing real solutions to tackle and reverse the impacts of climate change. <p>Internally, the CoP will:</p> <ul style="list-style-type: none"> ▪ Draw members' attention to grant opportunities available in their own respective countries as and when they arise; ▪ Continue supporting an existing working group within the CoP which is aimed at providing start-ups with practical advice, and opportunities to move towards net zero. It provides information around how to find angel investors, match funding, incubators, and/or accelerators; ▪ Encourage members to learn about business practices to understand how to grow an "idea" into a "solution".
Next steps	<p>In the next 12 months, we will:</p> <ul style="list-style-type: none"> ▪ Consider hosting a series of webinars or lectures on the use of tools such as life cycle assessment, techno-economic analysis, and systems-thinking, to help researchers use these methods to assess the potential impact of their work on combating climate change; ▪ Encourage CoP members to take up IChemE sustainability training, which is promoted through the R&I CoP's regular newsletter; ▪ Review this action plan to ensure it remains compliant with IChemE's position on climate change. <p>In the next 24 months, we will:</p> <ul style="list-style-type: none"> ▪ Join with another IChemE CoP, member group, or special interest group to organise an event to highlight research into technologies and processes to support the move to net zero; ▪ Encourage CoP members to learn and share learnings on how to transform research and innovations into enterprise; ▪ Encourage CoP members to contact a leadership representative from the research institution in which they study or work. Suggest the institution works toward improving its performance against at least one metric from the Times Higher Education's "climate change action" methodology over the next 12-month period. <p>Further into the future, we will:</p> <ul style="list-style-type: none"> ▪ Write up a summary or opinion piece on the steps CoP members have taken to reduce the carbon footprint of their research activities, and the quantifiable impact this has had on their carbon emissions. Submit this piece for publication, as a letter to the editor or similar type of article, in a peer-reviewed academic journal or the IChemE's TCE magazine.