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SUSTAINABILITY SIG CLIMATE CHANGE ACTION PLAN

Introduction	**The SUSTAINABILITY SIG notes IChemE's position on climate change.** **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:** • **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.** **It will also help underpin work on several other commitments, including** • **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.**	**SSIG Activity/ Resource**	**Timescale**
The Problem	**Emissions pathways generated by the Intergovernmental Panel on Climate Change (IPCC) to limit warming to below 2°C require net zero emissions by around 2050**		

	from a peak in the 2020 to 2030 period. Except for 1.2% fall in 2016, global CO_2 emissions have increased annually since 2010 and in 2019 global emissions were 38GtCO_2/year. Continuing at this level the available carbon budgets would be consumed in 15 years for a 1.5°C rise and 39 years for a 2°C rise. **Equally global production and consumption levels are currently overshooting the planet's biocapacity by about 50% each year. In other words we have already grown beyond ecological limits and growth is no longer an option on a global scale. SDG 8 calls for improving 'global resource efficiency' and 'decoupling economic growth from environmental degradation'. However, global material extraction and consumption has in fact doubled over the past 30 years, and accelerated since 2000.** **Chemical engineers will play a crucial role in the design of pathways for the decarbonisation process of specific, energy-intensive sectors, notably power, heavy industry and transport and to a lesser extent in buildings and agriculture.** **Global industry contributes 21% of greenhouse gas emissions and the principal emitters are cement manufacture, iron and steel production and chemicals. Transportation contributes 14% of global emissions and gas heating/cooling in domestic and business properties is another major source of distributed emissions. Decarbonising these industries requires solutions which go beyond electrification of the energy inputs and necessitates adjusting the chemical and physical processes employed. The chemical industry in particular will need to develop new products and business models which reduce demand for carbon-intensive products and services, meet sustainable development goals and promote the circular economy.** **Tackling climate change is not about doing the things we do more efficiently or ensuring economic growth based on current measurement criteria it requires a fundamental shift in approach and we have to succeed in implementing this dramatic change within a 30-year time horizon. Innovation is the key to achieving a positive outcome.** **The Sustainability SIG has been and will continue to be active in delivering all these**		

	messages through meetings, webinars and published articles.		
Skills Gaps	**The Sustainability SIG believes there are significant skills gaps in addressing the sustainability aspects of the approach to climate change at all levels in the membership. Technical issues are being addressed without proper consideration of their sustainability in the longer term. The degree accreditation requirements on sustainablity are not being enforced rigorously and the graduating cohort only has a shallow understanding of sustainability principles. There are no training courses in the IChemE catalogue which support CPD in sustainability and no requirements to demonstrate an understanding in this area to justify continuing corporate membership.**		
Sustainability SIG Actions	**The Sustainability SIG will:** ➢ **Contribute to IChemE's engagement in public outreach activities to governments, businesses and communities emphasising the need to accelerate action on climate change and promoting sound science based low carbon policy options. Topics to include regulation, energy economics, adaptation etc.** ➢ **Develop closer links with our international members and support their activities in response to their governments' policy developments. Promote cross border knowledge sharing on approaches and successes in reducing carbon emissions.** ➢ **Publish papers and organise meetings and webinars recommending action in areas such as zero carbon electricity generation, materials utilisation and the circular economy, low carbon materials use, the energy/water/food nexus and emerging technologies such as carbon capture and storage, hydrogen, direct air capture, geo-engineering etc.**	**Low** **Medium** **High**	**On-going** **On-going** **On-going**

	➢ In partnership with other SIGs, MGs and external groups develop guidelines and project evaluation techniques including metrics to assist practicing engineers to apply sustainable design principles.	High	By 2023
	➢ Promote the development of CPD programmes offered by IChemE which both support practicing chemical engineers in the sustainable transition to a zero carbon world and embed sustainability as a fundamental part of the professional knowledge base.	High	On-going
	➢ Engage with Qualifications to address the issue of strengthening the sustainability aspects of the accreditation process.	Low	In 2021
	➢ Energise our members to proactively engage with their organisations to develop sustainable climate change action plans and regularly report progress as part of a wider CSR reporting system feeding back successes to the SSIG.	Med	In 2021
	➢ Engage with the IChemE Awards programme so that it rewards activities which drive progress to a zero carbon economy and the UN Sustainable Development Goals.	Med	In 2021
	➢ Strengthen our website presence expanding the Resource area of the website to provide links to sources of information on climate change and sustainable development issues.	Med	On-going
	➢ Continue to organise and run the Macnab-Lacey Student Design Award and promote its expansion.	Low	On-going