



## Progress Report

### Most Recent Engagements

#### European Union Updates

Centre for Factories of the Future (C4FF) have been liaising with the Government with regards to their future plans and the likelihood impact of Brexit on the Centre's new and current EU projects.

In response to the C4FF's efforts in helping to improve the air quality the Department for Environment Food and Rural Affairs have written explaining about the Government 'Road to Zero' strategy which is an approach to reduce emissions of road vehicles. It is reassuring to read, that this department has identified mechanisms, such as, a Multi-Day Air Quality Forecast Service and Daily Air Quality Index, to advise the public of strategies to support any potential health concerns potentially related to air quality. The Department for Exiting the European Union have also written to confirm that the Government envisages that international exchange and collaboration in education training is of value and have devised a framework for cooperation including education. Although, these details are not definitive until the new government is in place after the election, C4FF feel this is a positive start to the Government developments.



**IMechE Towards Zero Ship Emissions  
Lecture and Visit to Warwick University  
Battery Facilities**



GreenShip Multiplier Event

Date: Thursday 27th February 2020 Time: 15.00-17.30

Venue: Warwick University

Organiser: Centre for Factories of the future (C4FF)

Contact information: Professor Dr Reza Ziarati, reza.ziarati@c4ff.co.uk

#### Towards Zero Emissions

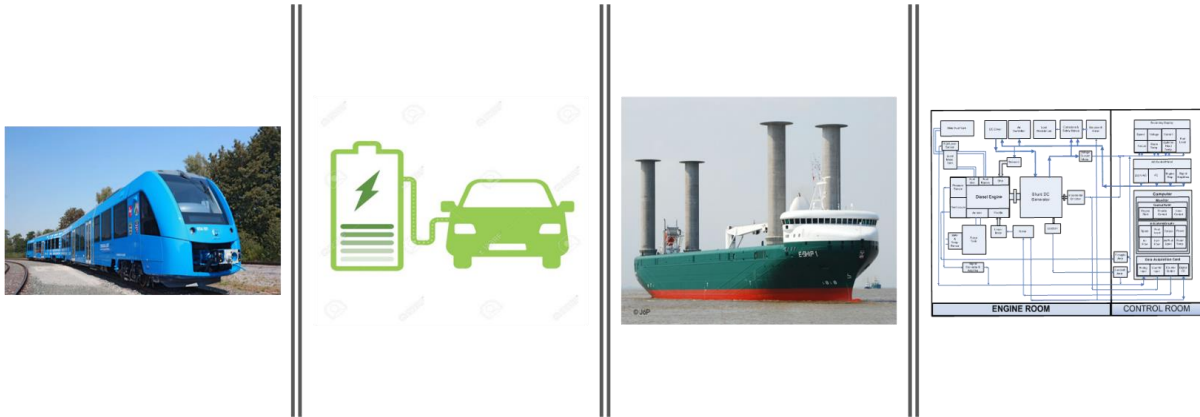
Professor Dr Reza Ziarati BSc (Eng), PhD (Eng), Cert Ed, CMechE, CElecE, CMarEng, CEng, FIMechE, FIET, FIMarEST, Centre for Factories of the Future (C4FF), UK

There are pressures on manufacturers of engines in all sectors, automotive, rail/traction and shipping to seek solutions to reduce exhaust emissions and reduce fuel consumptions. This visit and lecture will report on the work of Centre for Factories of the Future's (C4FF) and several leading national and international research and development centres in automotive, rail/traction and shipping and focuses on findings of several recent and ongoing projects in engine design and constructions as well as new types of engines viz., hybrid and electric. There are references to shipping and rail so that the good practices and innovative solutions in these



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sectors could be considered for adaptation in the automotive sector. The advantages of each types transport system will be discussed in relation to the sector being considered. Recent developments have shown substantial fuel savings potential and serious reduction in engine emissions. Use of new fuels and electrification of propulsion systems have led to remarkable breakthroughs. Special references are made to a new type of cleaner engine. Some of the ideas which were thought crazy not so long ago, such as application of quantum theory in emission control and energy usage, are included.



The revolutions in transport systems and digital twinning as well as hybrid propulsion are the key topics of the lecture which includes a visit to Warwick University battery's facility.

\*Supported by Institution of Engineering and Technology (IET)

### Government Recent Efforts – Climate Assembly UK: the path to net zero

As the UK's first citizens' assembly on climate change prepares to meet for the first time at the end of January, the two panels of stakeholders and researchers helping to ensure the balance and accuracy of the assembly have been announced.

Climate Assembly UK was commissioned by six cross-party House of Commons Select Committees in summer 2019 in response to the Government's commitment to meet net zero carbon emissions by 2050.

Climate Assembly UK will meet for the first time at the end of January and will have three further weekend meetings before the end of March. The 110 assembly members will consider how net zero can be achieved by 2050 and make recommendations on what the Government, businesses, the public and wider UK society should do to reduce carbon emissions.

At each weekend Members will consider a range of climate-focused topics including transport, energy use in the home, agriculture and consumer choices.



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An extensive team of climate specialists, business leaders, constitutional and economic experts and civil society organisations are involved in ensuring Climate Assembly UK is balanced, accurate and comprehensive.

Three groups of experts are considering the Assembly in detail:

- The Expert Leads ensure that Climate Assembly UK upholds the key principles of balance, accuracy and comprehensiveness, and that the assembly focuses on key questions about how to achieve net zero emissions by 2050;
- The Advisory Panel is made up of key stakeholders with an interest or expertise in the areas of climate change that Climate Assembly UK will examine. The Panel offers feedback to the Expert Leads on key aspects of the assembly's design, such as who is invited to speak, the topics of discussion, and the balance of information provided;
- The Academic Panel is made up of researchers working on areas of climate change to be covered by the assembly. The Panel will use its expert knowledge to review written briefings for Assembly members and to support the Expert Leads in their role.

Over the past four months the Expert Leads, Advisory Panel and Academic Panel have been working with the assembly team to develop and consider detailed plans for the design of the assembly and the speakers that will address assembly members. Further consideration will take place in the coming months, and final plans for the assembly will be published in advance of each weekend.

### Expert Leads

The four Expert Leads work closely with Involve and Parliament on the design of the assembly and play a key role at the assembly weekends. They are supported by both the Advisory Panel and the Academic Panel. The Expert Leads were announced on 2 November 2019.

They are all specialists in different approaches to tackling climate change. The Expert Leads are:

- Chris Stark, Chief Executive of the Committee of Climate Change;
- Jim Watson, Professor of Energy Policy, University College London and Research Director, UCL Institute of Sustainable Resources;
- Lorraine Whitmarsh, Professor of Environmental Psychology, University of Cardiff, and Director of the UK Centre for Climate Change and Social Transformations;
- Rebecca Willis, Professor in Practice, Lancaster University, specialising in energy and climate governance.

### Advisory Panel

The Expert Leads draw on the knowledge and experience of a panel of key stakeholders to ensure that the assembly's content on climate change is balanced, accurate and comprehensive. The 19 members on the Advisory Panel offer feedback on key aspects of the assembly's design including who is invited to give evidence and what they are asked to cover, the questions on which assembly members are asked to give their views, and the written briefings created for assembly members.



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The Advisory Panel members are:

- Fernanda Balata, New Economics Foundation
- Tanisha Beebee, Confederation of British Industry (CBI)
- Patrick Begg, National Trust
- Allen Creedy, Federation of Small Businesses (FSB)
- Audrey Gallacher, Energy UK
- Professor Michael Grubb, University College London (UCL) Institute for Sustainable Resources
- Eamonn Ives, Centre for Policy Studies
- Ann Jones, National Federation of Women's Institutes
- Ceris Jones, National Farmers Union (NFU)
- Chaitanya Kumar, Green Alliance
- Kirsten Leggatt, 2050 Climate Group
- Matthew Lesh, Adam Smith Institute
- Nick Molho, Aldersgate Group
- Luke Murphy, Institute for Public Policy Research (IPPR)
- Tim Page, Trades Union Congress (TUC)
- Doug Parr, Greenpeace
- Dr Alan Renwick, Constitution Unit, University College London (UCL)
- Dhara Vyas, Citizens' Advice
- Rebecca Williams, RenewableUK

### Academic Panel

The Expert Leads also have the support of a panel of academics whose research is focused on areas of climate change that the assembly will consider. The 13 members of the Academic Panel comment on the written briefings created for assembly members. The Expert Leads have also drawn on the expertise of individual members of the Panel to inform their work on the assembly design.

The Academic Panel members are:

- Professor Jillian Anable, Professor of Transport and Energy, University of Leeds.
- Professor John Barrett, Professor of Energy and Climate Policy, University of Leeds.
- Professor John Barry, Professor of Green Political Economy, Queen's University Belfast.



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- Professor Jason Chilvers, Professor of Environment and Society, University of East Anglia.
- Professor Nick Eyre, Professor of Energy and Climate Policy, University of Oxford.
- Dr Clair Gough, Senior Research Fellow with the Tyndall Centre for Climate Change Research, University of Manchester.
- Dr Rosie Green, Assistant Professor in Nutrition and Sustainability, London School of Hygiene & Tropical Medicine.
- Dr Jo House, Reader in Environmental Science and Policy, University of Bristol.
- Professor Tahseen Jafry, Professor of Climate and Social Justice and Director, The Centre for Climate Justice, Glasgow Caledonian University.
- Professor Carly McLachlan, Professor of Climate and Energy Policy, University of Manchester.
- Professor Dale Southerton, Professor in Sociology of Consumption and Organisation, University of Bristol.
- Professor Benjamin Sovacool, Professor of Energy Policy at the Science Policy Research Unit (SPRU) at the University of Sussex.

Climate Assembly UK will meet for its first weekend on Friday 24 January.

### Notes to Editors:

- For media bids and enquiries please contact Gary Calder, Senior Media and Communications Officer, House of Commons, +44 (0)20 7219 7556 | +44 (0)7917488622, [calderg@parliament.uk](mailto:calderg@parliament.uk).
- [Climate Assembly UK](#) will meet across four weekends to hear balanced evidence on climate change and make recommendations about how the UK should reach its target of net zero carbon emissions by 2050.
- The Expert Leads were suggested by Involve, Sortition Foundation and mySociety in their response to Parliament's tender for contract in Spring 2019, and were approved by the Climate Assembly UK team at the House of Commons.
- The members of the Advisory Panel were chosen by the Expert Leads and Parliament to represent a broad range of views across different sectors.
- The Academic Panel were chosen by the Expert Leads and Parliament to cover key areas of research relevant to the assembly.
- The Expert Leads will not receive payment for their involvement in Climate Assembly UK, however their usual place of employment have been offered payment to compensate for the experts' time away from their normal role.
- The Advisory Panel will not be receiving payment for their involvement.
- The Academic Panel will not be receiving payment for their involvement.



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- The Energy and Climate Intelligence Unit is supporting the communication outreach around Climate Assembly UK weekends and results.
- Climate Assembly UK was commissioned by six cross-party House of Commons Select Committees: Business, Energy and Industrial Strategy; Environmental Audit; Housing, Communities and Local Government; Science and Technology; Transport; and Treasury.
- Former Prime Minister Theresa May [announced](#) the Government's commitment for net zero by 2050 on 12 June 2019, following a recommendation by independent advisors the Committee on Climate Change. The 2019 Conservative party manifesto reaffirmed the Government's commitment to this target.
- The [announcement](#) by the six Select Committees holding a citizens assembly on climate change is in direct response to Government policy on net zero and was announced on 20 June 2019.
- The policy for net zero carbon emissions by 2050 [became law](#) on 27 June 2019, making the UK the first major economy in the world to legislate for net zero.

### Year of Efficient Ship

MariFuture is continuing with the publication of a Development Paper on efficient ship each month throughout 2019 in support of the 'Year of Efficient Ship' due to the importance of the subject in order to make our members and partners aware of the impact of toxic pollutants from shipping; and the means available to us to reduce the level and amounts of the emissions from ships to a minimum level. In parallel, we will publish the results of our air quality research carried out to investigate the air quality in several cities and towns, focusing mainly in the UK.

### New Accepted EU Funded Projects

**PROMETHEUS** - This proposal was accepted in mid- August 2019 and concerns the mental well being of ship crew. The project was expected to start in October 2019. The first meeting of the partners was on the 18-19 November 2019 in Athens and was attended by Katie Parker (Research Officer) and Professor Ziarati. In January 2020, C4FF Research Officer and Professor Ziarati have continued to carry out desk research to initiate the content of the project. We have also put together the quarterly report ready for submission early February 2020. Our next meeting with the partners is on the 6<sup>th</sup> -8<sup>th</sup> April in Finland. The photo below shows the partners meeting from November based in Athens.





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**GreenShip** - This is a continuation of MariEMS initiative. The presentation at IMO at the HTW6 on 29th April 2019 by Capt. Zak (Solent University) and Professor Ziarati (C4FF, General Coordinator of MariFuture) describing how the MariEMS e-learning training courses can be accessed and used online, created a great deal of interest from several countries. This led to a review of a recently submitted proposal viz., GreenShip, to EU’s Erasmus+ programme with a view to incorporate several countries as associated members.

This project started in October 2019 when the details were published in MariFuture. The kick-off meeting took place in Barcelona on 9-11 December 2019. Please see the photos of the meeting in action below:



The next partner meeting for Greenship is based in the UK on the 27<sup>th</sup> and 28<sup>th</sup> February 2020. This will be the second Greenship Partner Meeting and will combine a Multiplier Event with IMechE lecture and visit to the Battery production at Warwick Manufacturing Group and a lecture at Warwick University.

### UniBus

The partners have developed an initial version of the cloud platform ready for piloting. This cloud platform is based on S-o-Architecture and will support the services proposed in UniBus Concept. The architecture provides horizontal services (knowledge search engine, data persistence, etc) and vertical services (collaboration project management: service to support



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definition of project challenges by companies, to help selection of challenges by HEIs, to support the search of finance etc). The behaviour and architecture of the cloud platform is modelled on the Service-Oriented Modelling Framework (SOMF), and the result of this activity will be included as part of the design documentation led by C4FF.

The partners have developed an initial version of early prototype of the cloud platform, coordinated by C4FF. The prototype is in the form of user-interface functional sketches, to help investigate and refine acceptance and interconnections among services in terms of required data.

**PoliUniBus** – This project concerns the policy making at the highest levels in bringing the two worlds of academia and industry together. This project was expected to start in October 2019. The first workshop of the project was held on 21<sup>st</sup> and 22<sup>nd</sup> November 2019 at the University of Liverpool based in London. The aims of the project and the outputs were clarified. There were also discussions about the plan moving forward on the first few outputs.



The next meeting for PoliUniBus takes place in Istanbul on the 4<sup>th</sup> – 6<sup>th</sup> March 2020.

### ACTS Plus

The project assessment concluded in July 2019. The project received a grade of 8.1 which is considered a high grade. C4FF took a lead in preparing the final report. The project has commenced its post funding period in April 2019. The new simulator facilities the Solent University which was reported to be one of the best in the world and the ACTS Plus Advanced eCOLREGS ([www.advanced.ecolregs.com](http://www.advanced.ecolregs.com)) will be implemented at the university when the new simulator system centre is fully operational.

**Daytime Project** C4FF have been involved in the meetings for the Daytime Project which concerns innovative mechanisms to support the distribution of health services. Although the meetings were held in Istanbul, C4FF sat in on these discussions via Skype in order to offer some assistance. The meetings were held on the 17<sup>th</sup>-18<sup>th</sup> December 2019.

**OPTIMUM** C4FF continue its support to the project. The partners are preparing for next ITEA report meeting which will be in February 2020. The project aims to support innovative





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concepts for engineering, commissioning, control and supervision of smart manufacturing and material handling. It will be in line with European, National and international initiatives towards digital manufacturing, closely related to on-going activities in working groups around the German initiative Industry 4.0. Taking the results from ongoing architectural, component and ontology discussions, OPTIMUM's major goals are: improvement of the aspects of distributed control, adaptation of (I)IoT technologies to real industrial needs, enhancement of control and applications by context and location awareness as well as application design and common-model based 3D engineering and supervision.

### **New Papers for major International conferences**

Two new papers were prepared and submitted to the International Maritime Lecturers Association Conference in Georgia which took place in October 2019. One concerns Maritime English reporting on the work carried out in MariLANG project and the second is on the outcomes of the ACTS Plus project. As reported earlier Capt. Zakirul (Solent University) and Professor Ziarati (C4FF, General Coordinator of MariFuture) jointly presented the MariEMS Project and Courses for 'ship energy management trainees and trainers' to the participant at the IMO HTW6 meeting. The presentation was organised and authorised by the UK Maritime Coastguard Agency (MCA). Both Capt. Zakirul and Professor Reza attended the HTW6 as a member of UK delegation. The project partners would wish to thank MCA and IMO for this opportunity. The following are several photos from the event. Other MariFuture projects and new proposals were discussed during the visit to IMO with interested parties. A third paper is being prepared on RZ Multiple-choice which relates to the confidence assessment which removes the guessing dilemma in answering these types of questions in tests and examinations. The technique has played a major role in re-introduction of multiple-choice questions in e-learning applications.

**Cyber Security** New projects are being developed and a meeting with leading IT specialists have been arranged at C4FF. There will be an announcement on the formation of a Cyber Security team in the near future.

### **Air Quality Group and Conference**

An Air Quality Steering Committee meeting was held at Berkeley House on the 3<sup>rd</sup> December 2019 and 21<sup>st</sup> January 2020 and plans were discussed with regards to potential proposals and current developments going on within the local and global areas.

Following this, C4FF have been looking into what other countries are doing about this Global Climate Emergency. In order to understand this, the Professor Reza attended 'The UN Climate Change Conference – COP 25.' It took place in Madrid, Spain from 2 to 13 December 2019 and considered countries negotiations on ambitious plans to limit global warming to 1.5°C, in line with the Paris Agreement. This is important because the next 14 months are critical for global efforts to control greenhouse gas emissions, which hit a record high in 2018. Under the Paris



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Agreement, governments agreed to update their climate plans by 2020. COP 25 will bring together heads of state, climate officials, non-governmental organizations, youth groups and local movements and other non-state actors to respond to the climate emergency. The next step is for the countries to update their climate plans and boost their ambition by 2020 in line with the Paris Agreement. COP 25 is a moment to ensure they are aware of the 2020 calendar and start doing their homework. Below is figure 2 which shows some photos of the inside and outside of the conference and figure 1 is the Secretary-General expressing his views on the matter.



Figure 1: The Secretary General



Figure 2: The Conference Setting

### Lottery Fund Proposal

This month C4FF have also been in attendance to some meetings based at Coventry City Council. This led to a proposal being submitted to the Lottery Fund concerning Air Quality in the Coventry area. An initial planning meeting took place at Berkeley House on Friday the 13<sup>th</sup> December and then subsequent meetings have been attended on the 9<sup>th</sup> and 16<sup>th</sup> December at Coventry City Council whereby discussion of the proposal to put forward a project to develop the communities awareness of air quality was discussed. Since then, there has been a Coventry and Warwickshire Air Quality website created to support the developments of this new proposal. A further meeting was also attended by the Professor Ziarati on the 24<sup>th</sup> January 2020 at Coventry City Council.



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### Mentor Project

The last partner meeting took place in Lausanne, Switzerland on 25-26 September 2019.

The #Mentor4WBL@EU Project was designed after the European Council prompted the EU Member States to increase "substantially the number of apprenticeships and traineeships to ensure that they represent real opportunities for young people, in cooperation with social partners and where possible integrated into education programmes". In addition, according to the newly adopted "European Framework for Quality and Effective Apprenticeships" (October 2017), European Commission identifies 14 key criteria that Member States and stakeholders should use to develop quality and effective apprenticeships. Among the specific criteria, is made a concrete reference on the necessity to exist a specific procedure for teachers, trainers and in company mentors to "update their skills and competences in order to train apprentices according to the latest teaching and training methods and labour market needs". In-company WBL mentors are in the core of quality WBL. However, in most European countries, they lack standardized support and guidance which will set the expectations and boundaries clarifying and ensuring their successful contribution in the learning process. Based on the above and the identification of the WBL needs and gaps by NetWBL, there is a significant need for the development of standards and qualifications that would identify certain knowledge, skills and competences. They should also provide adequate assessment that will lead to valid certification and August 2019 marifuture.org News ensure quality in-company WBL mentorship in enterprises providing apprenticeships and internships. More information about the project will be available on the project website when it is published. The project meeting of Mentor took place in Kenilworth, 10-11th April 2019. The first workshop of the project was held on 10th April 2019 at Warwick University. C4FF coordinated the meetings during the two-day event and take a lead in the workshop.

This month the focus on the project recently has been to complete Intellectual Output 3 and design questions around the assessment of mentors. Partners have met via Skype discuss the Intellectual Outputs. We also wish to welcome Sarah Alexander from Vivid Communication into the Project.