



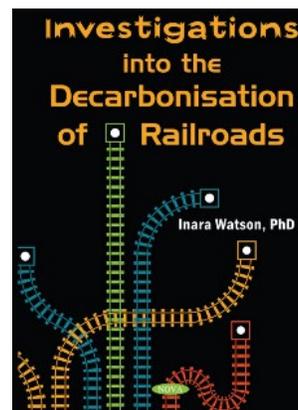
APTA SE + INCOSE TWG + INCOSE UK RIG **2022 Joint Monthly Membership Meeting & Webinar Series**

Thursday, April 21st, 2022

2:30pm – 3:30pm ET, 7:30pm – 8:30pm UK Time, 8:30pm – 9:30pm European Time

Investigations into Decarbonization of Railroads

In recent years, the efficient use of natural resources and increased environmental concerns gained more and more attention. The railways particularly if they are powered by renewable energy are environmentally less polluting than any other transportation modes. The railway transport produce carbon emissions on all stages from design and construction through operation and maintenance to recycling. Reducing the energy that is consumed by railways and reducing the volume of raw materials that is used for construction of railways and rolling stock can sufficiently reduce the environmental impact from the railway industry. Approximately 80% of the total CO₂ that trains accommodate over its life cycle related to energy consumption during operational stage. Electrification of railways along with a wide application of fuel cells technologies, improvements in energy efficiency for buildings and rolling stock can substantially reduce the carbon footprint from railway industry.



This presentation will provide highlights of a systems thinking approach to the in-depth analysis of ways of dealing with interconnections between rational use of natural resources and reduction of emissions of CO₂ by the railway. Consideration of major factors will be discussed that affect the volume of natural resources consumed by the railway industry for production, operation, and disposal of rolling stock. From the evidence that has been gathered from different sources and related critical evaluation, conclusions can be made to show there are ways to reduce negative externalities that are produced by railway transportation while improving its functionality. The conclusion is that the electrification of railways, efficient use of natural resources and the application of new technologies and alternative fuels will support the growth of economy based on low carbon approach.

Presenter:

Dr. Inara Watson – Lecturer at London South Bank University

Dr. Inara Watson is a lecturer at London South Bank University, she was born in Latvia and graduated with a BSc in Mechanical Engineering from Riga Technical University. She has a PhD from London South Bank University. Her research interests are focused mainly on railway engineering and sustainability.

In 2018, she presented her research at the UIC Congress on High-Speed Railways in Ankara, Turkey. In November 2019, she presented her research at the UIC 7th “nextstation Conference 2019” in Tehran, Iran. Inara has several publications in various journals and presented papers at conferences throughout Europe and Asia. For the last three years, Inara has been writing for the PWI Journal. Inara is a member of the PWI, ICE, and the OR, DMDU societies.



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