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NEW ROLE OF BIOMASS IN CLIMATE CHANGE POLICY

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In sustainable transactive renewable energy system (STRES), the role of biomass is changed from solid fuel resource to a precursor material for production of methane and methanol using solar hydrogen and organic carbon in biomass. Hydrogen produced in the time of solar electricity surplus will be used for conversion of organic carbon in the waste biomass for production of methane and methanol. Mass and energy balance shows, that using just biomass mass decaying each year in the nature, the mankind can converse the energy supply from fossil fuels to 100% supply of renewable fuels, using present energy infrastructure with minor adaptation. On this way creating organic carbon recycling economy will be possible. CO₂ emissions in the atmosphere will go slowly down with increasing use of synthetic methanol and methane. In transition period, present and new energy system can work in parallel, without any disturbance. What is most important is that all technologies for the energy carrier conversion are developed (electrolysis as water, synthesis of methane and methanol, gas and methanol engines). The STRES will be an important part of future circular economy. Transition to STRES indicates that we are solving on the same time, the solar energy storage. Using the chemical storage of solar electricity in methane and methanol we can store unlimited quantity of solar electricity. Methane and methanol are proposed, as only one chemical substance, connecting four hydrogen atoms to one carbon atom as most simple solution for chemical storage.

Biography

Peter Novak has completed his PhD degree in Technical Sciences, University of Belgrade in 1975. He was a Professor for HVAC, Renewable energy and Environment and Dean at Faculty of Mechanical Engineering, University of Ljubljana. He is the first Dean and Professor Emeritus of Faculty for technology and systems, Novo mesto. He is the owner of consultant company Energotech. He is associated with ASHRAE (Fellow and Life member). In the International Institute of Refrigeration, he served eight years as President of Commission E1 for Air Conditioning (now Honorary Member of IIR) and past Vice Chairman of Scientific Committee at European Environmental Agency, Copenhagen (2012-2016). He is also Honorary Member of REHVA, SLOSE, and SITHOK. For more than twelve years he served as a member of Environmental Council of Slovenia.

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