HySA Infrastructure Center of Competence: A Strategic Collaboration Platform for Renewable Hydrogen Production and Storage for Fuel Cell Telecom Applications

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Abstract

The Department of Science and Technology of South Africa developed the National Hydrogen and Fuel Cells Technologies (HFCT) Research, Development and Innovation Strategy. The National Strategy was branded Hydrogen South Africa (HySA). HySA has been established consisting of three Competency Centres – HySA Infrastructure, HySA Catalyst and HySA Systems. The scope of the Hydrogen Infrastructure Competency Centre (HySA Infrastructure CoC), is to develop applications and solutions for small- and medium-scale hydrogen production and storage through innovative research and development. The aim of this paper is to present an overview of the HySA Infrastructure CoC projects related to renewable hydrogen and fuel cell applications. The presentation will discuss how the HySA Infrastructure could assist telecommunication industry with providing a potential strategic platform for developing and testing various hydrogen generating solutions for fuel cell applications specific to African conditions. More specifically, the following enablers will be discussed: existing active projects for hydrogen production: solar-to-hydrogen demonstrations based on PEM electrolysis, ammonia-to-hydrogen projects for telecom, advanced PEM electrolysis concepts (high-current density operation), hydrogen storage, safety and codes, as well as close proximity of HySA Infrastructure to Gauteng, an economical hub of South Africa, commercialization road map, activities towards establishing “Platinum Valley” SEZ (special economic zone for Pt-related activities).