



Hydrogen - A Competitive Energy Storage Medium To Enable the Large Scale Integration of Renewable Energies

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The first skid container type 50Nm³/hH₂ electrolyser in China

Overall Objectives and Budget

It is one of the national high-tech projects by Most of China. The first skid container type 50Nm³/hH₂ electrolyser is developed to provide hydrogen supply and finish demonstration at the Beijing Hydrogen Station, China. The budget is 3.0M RMB.

Research and develop new type hydrogen generation system by water electrolysis in China.

Technical Barriers and Targets

The asbestos membrane which is used in old type electrolyser is poisonous.

Lower current density and higher power consumption.

Old process leads to the large size of electrolysis system.

Technical Accomplishments / Progress / Results

Research and develop new type electrode assembly which can make the current density reach 2800A/m², and the DC power consumption lower to 4.5 kWh/Nm³H₂.

Membrane used in the electrolyser is non-asbestos.

Design new process to minimize the devise size and volume.



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Future Work

Optimize small box type alkaline water electrolysis system.

Develop next generation small SPE water electrolysis system.

Develop skid container type integration system including water electrolysis, hydrogen purification, compression, storage and re-fueling.

Conclusions and Major Findings

The first skid container type 50Nm³/hH₂ electrolyser is developed. This equipment is set up in the Beijing Hydrogen Refuelling Station which is the first station in China and provided hydrogen supply for fuel cell buses of Beijing Olympic Game demonstration project.

Project Overview

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The first box type 1.0 Nm³/h alkaline and SPE (solid polymer electrode) water electrolysis system in China