

Nanovertenergie

A Proposal on Nanotechnology Based Green Energy Solutions

Objective: To provide Nanotechnology based solutions for Solar cells & Fuel Cells and to study reliability implications and intricate modeling analysis of such devices for rapid commercialization.

Brief Synopsis: This project throws a light on current problems in Energy from Solar & Fuel cells and proposes nanotechnology based solutions. In this proposal we have described about the current progress in this area and our past works. MEMS enabled fuel cells are poised to be far for beneficial than the current counterparts, and likewise Quantum dots based Solar cells holds the future. We have not only made a technical but also have done market analysis that implies us to introduce Nano enabled green cells. In our work we have published paper on modeling, reliability, MEMS etc aspects of solutions for various technologies and also we presented our business idea regarding this plan in various international business events in IITs so we have the experience to deliver in this regard.

INTRODUCTION

The world has seen immense research and developments in areas of nanotechnology and use the results in green energy is an areas which has not been implanted fruitfully due to many told an untold reasons. The funding in Nanotechnology has been increased to manifolds in the last 5 years but use of the research in a pragmatic way to solve problems across the domains related to the study still lacks. Solar cells and fuel cells have benefited from these research but the implications are not reflected in today's products. Thin film nanotechnology, research in MEMS and NEMS are areas that hold the key for green cell based technologies. Governments across the Globe are becoming serious about Green renewable sources of energy. There are many challenges on incorporating these HI-Tech things in a global scenario because in the age of globalization exist has some advantages and disadvantages. Also there is a monopoly of many giants in some areas which needs to counter with some smart strategy. The idea that makes our project exclusive is that Nanotechnology needs to be linked with current computation as well as characterization techniques. And the different structure of research culture in India which makes a gap between research and business will be tackled by some novel ways.

In India, development of fuel cells is primarily supported by the Ministry of Non-conventional Energy Sources (MNES). Several universities and research organizations are involved in the areas of fuel cells, reformers, and hydrogen storage. Work on developing a DMFC (direct methanol fuel cell) is underway at IISc (Indian Institute of Science). In addition, research on SOFC is being done at IISc and CGCRI (Central Glass and Ceramic Research Institute). Research and development on metal hydride storage is ongoing at BHU (Banaras Hindu University) [14]. Vehicular fuel technology can be derived from greener sources such as fuel cells. The power requirement of bikes and scooters is relatively small and could easily be met by Direct Methanol Fuel Cells (DMFCs) or hydrogen-powered Proton Exchange Membrane (PEM) fuel cells. There is currently some discussion as to whether DMFC should be the initial route for India, followed by hydrogen-fuelled PEM units for transport in the longer term. Organizations intensively involved in fuel cells are mainly in the New Delhi which is a home to various fuel cell companies and R&D organizations and India's most industrialized state Maharashtra which includes manufacturing centers such as Mumbai where major fuel cell activities take place. Thus seeing the prospects in perview of these developments in the contemporary Indian scenario we have developed models of Green Cells and plan to expand them and get patents from the results. Our papers have been published in international conferences regarding this matter and are being communicated in peer reviewed international journals.