

3rd World Congress and Expo on

GREEN ENERGY

September 28-29, 2017 Berlin, Germany

Electrification of remote areas and desalinated water supply with standalone CSP-DG system

A Salladini¹, E Agostini² and G Iaquaniello¹¹Processi Innovativi Srl, Via di Vannina 88/94, 00156, Rome, Italy²BIO-P Srl, Via di Vannina 88/94, 00156, Rome, Italy

Many rural areas nowadays are still without power grid. In some cases electrification of those areas is achieved only through off grid system based on Diesel Generators (DG), mainly because geographical location makes the connection to grid systems extremely complicated and expensive. Although it is a well reliable technology DG systems have some drawbacks as high fuel consumption, high maintenance, high greenhouse gas emission (GHG) with the addition of diesel transportation into not-safe-well-located areas. This scenario, combined with the increasing of GHG emission and the awareness of the need for clean energy sources, opened the route to the development of new technologies. An innovative hybrid scheme based on DG and concentrated solar energy system (CSP), equipped with a thermal storage medium, consisting of a molten salts mixer as heat transfer fluid has been developed and deeply investigated. With this particular configuration a fulfil electrical demand could be achieved, guaranteeing daily power. Moreover, since those areas are also notoriously subjected to a severe water shortage, a desalinated water production through multi effect distillation (MED) and Reverse Osmosis (RO) was also foreseen. The hybrid system tailored for an off grid application seems to be a promising prospective from an economical and environmental point of view. Infact, techno-economic analysis showed that this scheme may be competitive both with a standalone DG and with photovoltaic-DG hybrid system, offering also a consistent GHG emission reduction.

Biography

Annarita Salladini is a Project Manager currently working for Processi Innovativi, an engineering company owned by KT-Kinetics Technology (Rome, Italy). She received M.Sc. in Chemical Engineering and Ph.D. both from the University of L'Aquila (Italy). She joined Processi Innovativi on 2009 and since then she was involved in R&D project and Engineering Project focused on hydrogen production, renewable energy exploitation, waste conversion processes. Since 2011 she is tutor assistant at the University Campus Biomedico of Rome in the field of Analysis and Simulation of industrial chemical processes. She co-authored several scientific papers in refereed journals and chapters on international books.

salladini.a@processiinnovativi.it

Notes: