

CoSoTIA Project: Decision Support for the Choice of Concentrated Solar Technologies for Electricity Generation

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Abstract: The CoSoTIA (Concentrated Solar Technologies for Industrial Applications) project initiated by the CRTI center in collaboration with the URMPE unit concerns the study and development of CSP solar concentrators for industrial applications. In the present work, we present decision support tools for the choice of a solar concentration technology for sites in Algeria. They will be used for the comparison between different technologies of solar concentration e.g.: cylindro-parabolic, parabolic, solar tower, etc. The models used include project costs and site characteristics; they incorporate also engineering knowledge (economic, social, technical and environmental). The information needed for decision making produced by these tools is: the total cost of the project, indicators with economic, social, technical and environmental aspects. The case studies presented were conducted under the SAM Advisor environment, which was developed to evaluate the capacities to implement CSP project in order to produce expertise for the different actors through an application on a given site (by the client). Four case sites in Algeria and for two types of solar concentrator plant are studied and presented. A comparative study was conducted and for each site the best CSP was deduced and commented.

Keywords : Decision support, Multicriteria analysis, Solar concentration