

Direct Generation of Hydrogen from Sunlight – Prototype Engineering

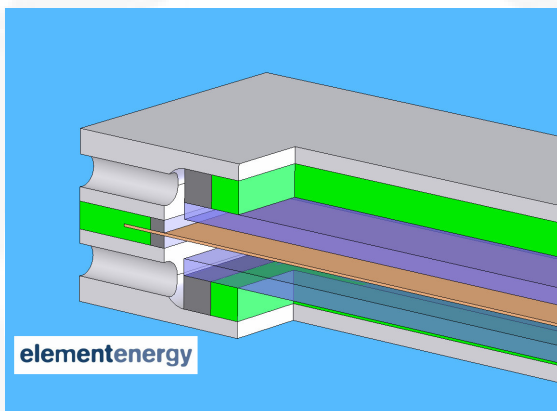
client: Hydrogen Solar, UK. (SME involved with hydrogen technologies and IP).

client brief: To provide a strategy for the development and commercialisation of a hydrogen producing photo-electrochemical cell culminating in a prototype.

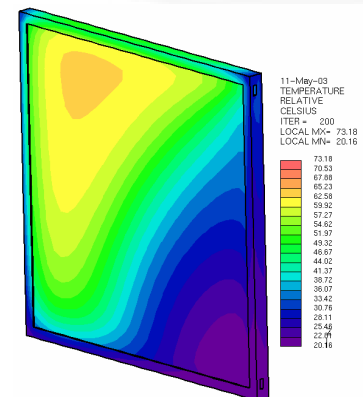
our solution: Business strategy advice. Techno-economic modelling. Detailed engineering design including mechanical and structural analysis and CFD modelling. Materials analysis and prototype manufacture.

description: Hydrogen Solar are an SME developing a novel photo-electrochemical method for the direct generation of hydrogen from sunlight. Element Energy has worked closely with Hydrogen Solar over the last two years, assisting them with various aspects of their company strategy and product design. Areas of work include:

- Technical and financial product feasibility study - This project assessed the opportunities for products involving the new technology on a range of scales. The work has helped Hydrogen Solar understand the key advantages of their technology, define targeted product areas, and informed their R&D efforts.
- Cell design – We were engaged in the detailed design and fabrication of the first prototype cell and cell arrays. The team brings an understanding of the technologies electrical characteristics, knowledge of materials selection and engineering expertise in areas of façades, fluids and thermal management.



3D modelling of plastic cell frame cell frame and seals.



Prototype cell in stainless steel frame developed for building-integrated façade use.

