

NEW DEVELOPMENTS IN THE COMMERCIALIZATION OF GLASS BASED DYE SOLAR CELL (DSC) BUILDING INTEGRATED PHOTO VOLTAICS (BIPV) PRODUCTS

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Introduction

In the past decade there has been growing awareness that there is a great deal to be learned from natural processes, and one of the first demonstrated successes is the Dye Solar Cell (DSC). The DSC cell mimics the energy conversion of light being absorbed by a leaf and draws together two very important scientific concepts; nanotechnology and biomimicry. Biomimicry is the design discipline that studies nature's best ideas and then imitates these designs and processes to solve human problems. DSC is often referred to as "artificial photosynthesis" and represents an ideal solution for BIPV based distributed energy production due to its unique ability to convert low and diffuse light. In addition, DSC's ability to generate higher KWH per year was highlighted in the Journal of Photochemistry and Photobiology.¹ The time dependent comparison of the power output from different PV sources are summarized in figure 1 and figure 2.

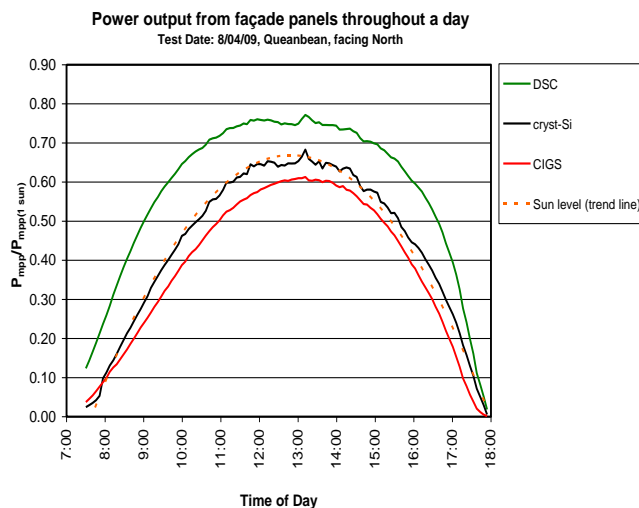


Figure 1. Comparative power outputs from different competing technologies during daytime running hours.

About Dyesol

Dyesol was established to commercialise the DSC based R&D undertaken by an Australian team in collaboration with Michael Graetzel at EPFL Switzerland and this paper discusses Dyesol's current projects and products, including its collaboration with Corus to develop solar steel roofing manufactured using the coil coating process, flexible cell based products for the consumer goods market, and development of large transparent and non-transparent DSC panels for BIPV, residential and commercial rooftop as well as DSC based automotive applications.

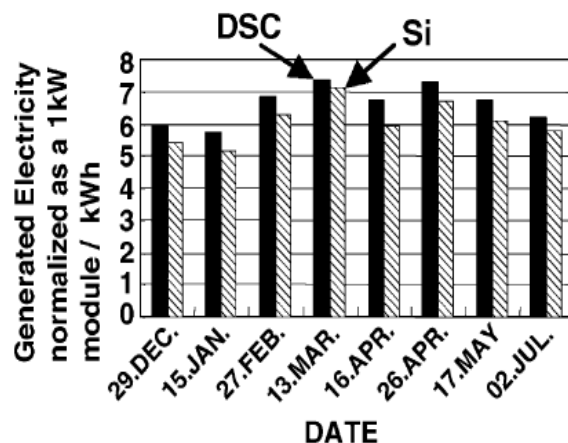


Figure 2. Comparative power outputs from different competing technologies during different times of the year. Reproduced from reference 1.

Highlights of Presentation

- History, Organization, IP Position
- Business Model
- DSSC Overview
- Markets
- Partnerships & current efforts to Commercializing DSC based BIPV products
- New Developments in DSC
- Summary

About the author

Mr. Thomas was appointed CEO of Dyesol North America in 2009, and since 2010 added responsible for managing Dyesol's global glass business. At Dyesol, Mr. Thomas focuses his expertise in transforming innovation into industry and transitioning science into sales to develop strategic relationships necessary bring DSC based BIPV and BAPV products to commercial reality.

References

- (1) Tatsuo Toyoda, Toshiyuki Sano, Junji Nakajima, Syouichi Doi, Syungo Fukumoto, Atsushi Ito, Tomoyuki Tohyama, Motoharu Yoshida, Tetsuo Kanagawa, Tomoyoshi Motohiro, Tohru Shiga, Kazuo Higuchi, Hiromitsu Tanaka, Yasuhiko Takeda, Tatsuo Fukano, Naohiko Katoh, Akihiro Takeichi, Kensuke Takechi, Masahito Shiozawa, *J. Photochem. Photobiol. A: Chem.*, **2004**, 164 (1-3), 203.