

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2021-97
Project Title:	Innovative bifacial solar photovoltaic – From theoretical model to its practical application in Hong Kong
Principal Investigator:	Professor Lu Lin Vivien, Department of Building Services Engineering, The Hong Kong Polytechnic University
Total Approved Grant:	\$494,000
Duration:	1/4/2022 to 30/11/2023
Project Status/Remarks:	On-going
Project Scope:	<p>Bifacial photovoltaic (PV), absorbing sunlight from both sides of the solar PV cells for higher power yield, is one of the latest advances in solar panel technology to sweep the solar industry. In general, the rear side's energy generation is about 60% to 80% of the front side, which is called the bifaciality ratio. According to our preliminary work in Hong Kong, the bifacial technology can largely uplift module efficiency by 8% to 83.71% due to bifacial gain compared with mono-facial module. Along with the maturity of the technology, the cost gap between mono- and bifacial modules is decreasing, say 5% at the moment. Bifacial PV, an innovation for solar energy, can be an attractive option for our community towards carbon neutrality.</p> <p>However, there is a lack of local researches and application technical guidance on this innovative technology. Therefore, this project aims to firstly evaluate the actual long-term energy performance of bifacial modules in Hong Kong based on local weather conditions experimentally and theoretically, to optimise their local installation, to explore the Levelized Cost of Energy (LCOE), and to provide the application guidance towards facilitating their wide development in Hong Kong.</p>
Summary of the Findings/Outcomes:	To be available upon completion of the project