



**2. INNOVATIVE /
PERFORMANCE ENHANCEMENT
TECHNOLOGIES
APPROVED FOR PREVIOUS
EB PROJECTS
(*EB May 24*)**

Publication date: May 2024

Introduction

- (1) These slides contain innovative / performance enhancement technologies that have been approved in previous BEAM Plus EB projects.
- (2) The approval years are given in the slides.
- (3) Users are reminded that technologies approved as IA points for a past project do not necessarily mean that they would attain the same IA scores for other projects. Project assessment will take into account individual circumstances.

Existing Buildings (EB)



IA 1 - Innovation Techniques

Movable tool car with portable PV charging

The Applicant submitted information to support the movable electricity tool car with portable PV charging to maximise the flexibility in using air blower in shopping mall even when there is no socket nearby. The quantifiable benefit equals to \$150,000 annual electricity bill reduction with PV charging provided.



Approval Year: 2023



IA 1 - Innovation Techniques

Air Improvement Photovoltaic (AIPV) Panels

The Applicant submitted narrative substantiated that the system has been presented in HKIE and HKIA seminars to demonstrate the credit compliance. The AIPV Glass is to provide renewable energy generation, while serves as shading or cladding with improvement of outdoor air quality. It generates renewable energy from sunlight through Cadmium Telluride nano thin film photovoltaic technology. The quantum dot nano top coating system decomposes PM2.5 and volatile organic compounds. The system's self cleansing effect keeps the glass surface clean, reducing the maintenance cost. It was manufactured using environmentally friendly materials, over 90% can be recycled.



Approval Year: 2023

https://www.hkengineer.org.hk/issue/vol51-aug2023/feature_story/?id=17616

GreenWalls Bioengineering Ltd

Existing Buildings (EB)



IA 1 - Innovation Techniques

AI-based Chiller Optimisation

The Applicant submitted narrative, electricity bills, screenshot, user manuals of AI-based chiller optimisation digital platform for HVAC plant optimisation and building users' understanding in HVAC energy usage. Calculation was also submitted to quantify environmental benefit (349,468kWh energy reduction in 2022 as compared with 2021). 1 Bonus credit is achieved.



Approval Year: 2023

EB – The case of data centre

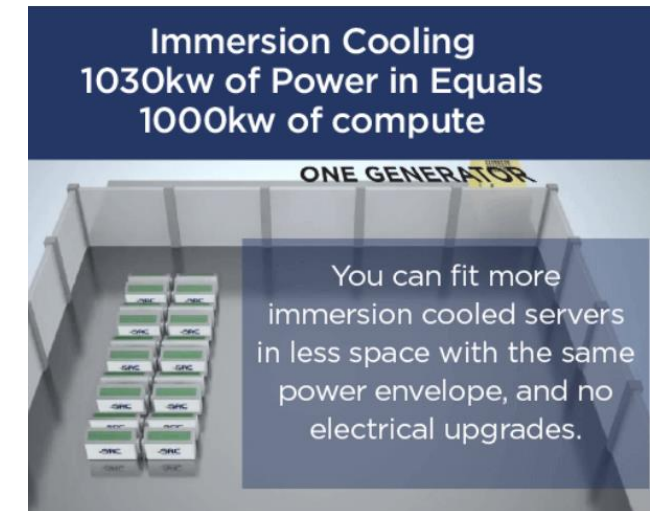
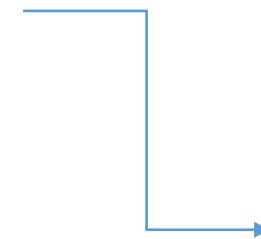
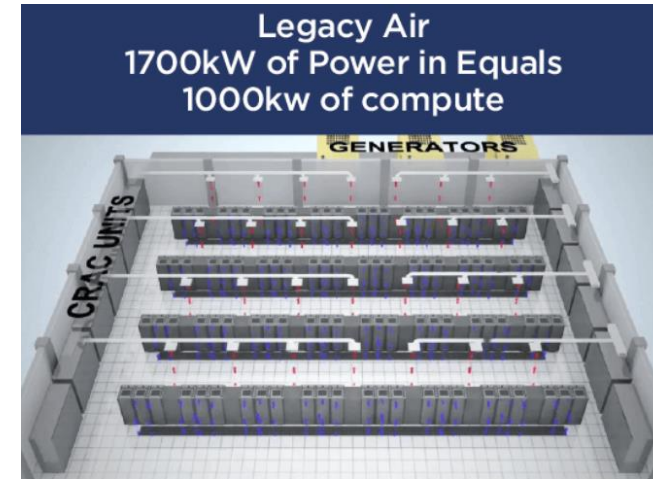


IA 1 - Innovation Techniques

Liquid immersion cooling system for data centre

The applicant submitted the final report for the technology of liquid immersion cooling system at their data centre, which confirmed the real business application, i.e. in real operation and in-use for server cooling. Although the applicant claimed such installation is a trial project for extended application to other similar buildings, it is considered a unique case in HK that is considered as the real model for future projects applied in whole development as claimed.

Approval Year: 2023



<https://www.grcooling.com/blog/upgrading-an-air-cooled-data-center-to-immersion-cooling/>

Remarks about IA1

- (1) The assessment body will consider the **kind of technology** and the **extent of application** to judge whether it is an innovation worthy of a bonus (IA1) point. Typically, this would require newer kind of technology and a significant installation rather than a small trial.
- (2) As time goes by, some of the above features may be adopted by more and more projects. There is a possibility that the features will **no longer** be counted as innovations due to their prevailing popularity.

Existing Buildings (EB)

IA2 - Performance Enhancement



Implementation of Smart IAQ Continuous Monitoring System

The Applicant submitted the following documents to demonstrate the compliance: 1)Template; 2)Narrative stating the background, monitoring details (Area: main circulation at typical office floors, office main lift lobby, and public area of shopping mall; Parameters: PM2.5, PM10, O3, TVOC, CO, CO2, Temperature and Relative Humidity) and standard/benchmark; 3) Extracted website related to IAQ monitoring; 4) Photos of sensor and data display in the common area.



Approval Year: 2023

Remark about IA2

The above list is not exhaustive. IA2 also includes initiatives where the quantitative achievements are significantly higher than those specified in the BEAM Plus Manual. For simplicity sake, these are not included in the slides.