GREEN BUILDINGS INNOVATION CLUSTER (GBIC)

REQUEST FOR PROPOSALS (RFP)

Research Challenge Areas	**Research & Innovation (R&I) Challenge Call for Decarbonisation**
RFP Number	GBIC-R&I RFP 06
Category	GBIC R&I Challenge Call
Open Date for Proposal	**15 July 2024**
Close Date for Proposal	Proposals must be submitted via the Integrated Grant Management System (IGMS) at https://www.researchgrant.gov.sg **by 13 September 2024, 2355 hour (Singapore time).**
Enquiries	For enquiries on the Challenge Call, please send your enquiries to: BCA_Challenge_Call@bca.gov.sg. For enquiries pertaining to IGMS system, please email IGMS helpdesk at: Helpdesk@researchgrant.gov.sg.

Introduction

1. The Green Buildings Innovation Cluster (GBIC) Programme (Green Buildings Innovation Cluster (GBIC) Programme | Building and Construction Authority (BCA)), is an integrated research, development and demonstration (RD&D) hub set up under the National Research Foundation, Singapore (NRF)'s Urban Solutions and Sustainability (USS) domain. To further push the boundaries of energy efficiency in buildings, NRF has allocated an additional $45 million to BCA to enhance the GBIC programme (GBIC 2.0) in 2022 to support the research, prototyping and demonstration of green building technologies.

Objective

2. Under the Singapore Green Building Masterplan (SGBMP), BCA will work with stakeholders to deliver three outcomes; (a) green 80% of Singapore's buildings (by gross floor area) by 2030, (b) 80% of new developments to be Super Low Energy (SLE) buildings from 2030 and (c) **for best-in-class buildings to achieve 80% improvement in energy efficiency over 2005 levels by 2030**. This will require building owners and project teams to look at innovations and various ways to push the boundaries and improve their buildings' energy efficiency.

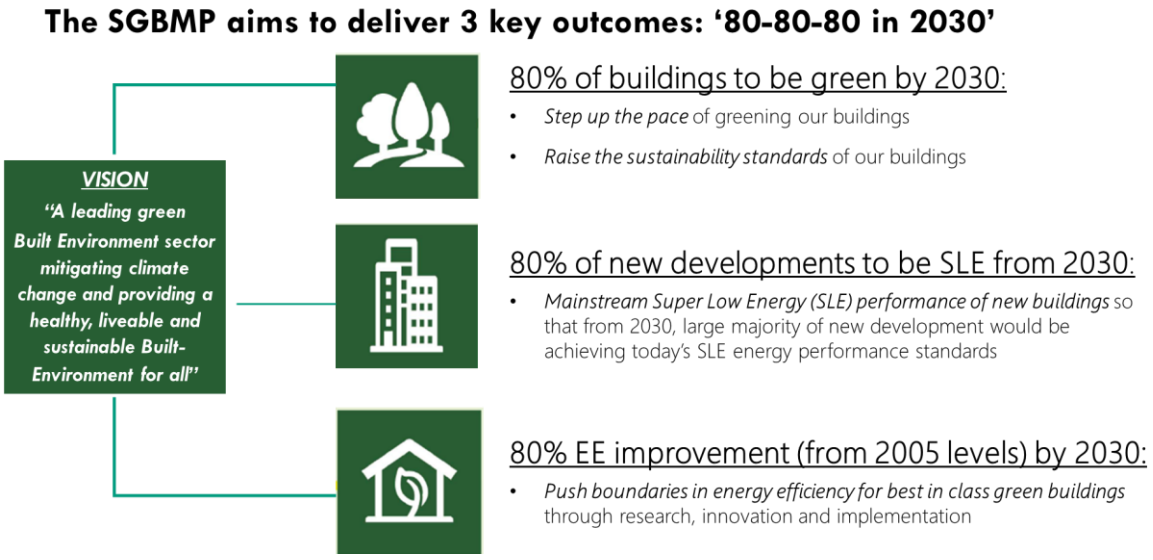

Figure 1: SGBMP 80-80-80 Targets

Scope of Challenge Call

3. This call aims to reach out to local and global technology firms, Singapore-based Institutes of Higher Learning (IHLs) and local research institutes (RIs) with the relevant technology or innovative solutions to accelerate SGBMP's 80% energy efficiency improvement target. The areas of interest for the next bound decarbonisation solutions cover passive, active and smart strategies in three broad areas: Innovative Cooling Technologies, Data-Driven Smart Building Solutions and Advanced Building Ventilation Solutions. Please refer to Annex A for details.

4. This call provides opportunities for technology providers/researchers to collaborate with building owners/developers to co-create innovative solutions to push energy efficiency boundary and achieve cost savings in the long run. Technology providers/researchers are encouraged to approach the building owners/developers to better understand their challenges when preparing the proposals.

5. This Research & Innovation (R&I) Challenge Call covers two schemes (i.e. Research and Development (R&D) and Product Prototyping). Please see the following attributes for Research and Development (R&D) and Product Prototyping proposals:

	R&D	**Product Prototyping**
Intent	Support development of high impact solution to be ready for piloting upon completion.	Support enhancement of existing innovation to be ready for piloting upon completion.
Target Group	Solution provider from private sector or research institute as lead with building owner/developer as collaborator.	Solution provider from private sector as lead with research institute as collaborator, building owner/developer as collaborator.
Technology Readiness Level	Start TRL: 3; End TRL: 7/8 (See Table 1 for TRL descriptions)	Start TRL: 5; End TRL: 8 (See Table 1 for TRL descriptions)
Funding	Up to 70% for private sector, 100% for IHL/RI Funding size to be reviewed on case-by-case basis	Up to 70% for private sector, 100% for IHL/RI Cap at S$500,000 per project
Project Duration	Up to two years	Up to one year
Desired Outcomes	Technologies achieve at least 30% better than current GM2021 Platinum standard or existing best-in-class solutions, whichever is better. (See Table 2 for targets) Commercially viable solutions with good Return of Investment (i.e. potential payback of 3-5 years)	Technologies achieve at least 25% better than current GM2021 Platinum standard) or existing best-in-class solutions, whichever is better. (See Table 2 for targets) Commercially viable solutions with good Return of Investment (i.e. potential payback of 3-5 years).

6. The project will consist of two phases:

Phase 1: Development

- Development of a working prototype of the proposed solution.

Phase 2: Performance Validation

- The developed solution to be testbedded in an operational environment at actual building spaces, preferably high energy consuming building typologies such as the commercial offices, retail spaces, and hotels to validate energy saving target, thermal comfort and indoor air quality.

Note:
Applicants could still submit their proposals before the closing date if they have not identified the building spaces for testbedding. Applicants can update BCA on the identified building spaces for testbedding, before the commencement of the Project Evaluation Panel meeting tentatively scheduled in Nov 2024.

Eligibility

7. This call is open to local and global technology firms and Singapore-based Institutes of Higher Learning (IHLs), and research institution (RI). **Industry-led proposals will be assessed more favourably. IHLs and RIs are strongly encouraged to co-create innovative solutions with the industry to drive further commercialisation and market adoption.**

Evaluation Criteria

8. The following criteria will be used for the evaluation of proposals:

a) Energy efficiency (30%)

- Proposals submitted must meet the targets set by the respective building owners in their challenge call and achieve at least 25-30% better than GM 2021 Platinum standards or current best-in-class technologies, whichever is better.

b) Scalability (25%)

- Ability to ramp up production of technologies and provide after-sale support with partners.
- Potential application of technologies across wider building typologies.

c) Commercial viability and cost effectiveness (15%)

- Potential for commercialisation, which includes technology transfer to industry, partnerships with established organizations with global outreach.
- Solutions developed are cost effective such as reasonable payback period and lower operating cost such as reducing the frequency of maintenance and replacement of parts.

d) Novelty (30%)

- New or improved product, service, process, method that enhance current practices or industry standards.

Funding Support

9. Private sector entities are eligible for **funding support of up to 70%**[1] of approved direct qualifying costs of a project. However, funding for private sector entities for R&D projects with a total project budget exceeding S$0.5M is subject to the condition of collaboration with a public research performer from an IHL or RI. For Product Prototyping projects, this condition applies to projects with a total project budget exceeding S$2M.

10. Singapore-based IHLs are eligible for up to 100% funding support of approved direct qualifying costs for a project. Only Singapore-based IHLs are allowed support for indirect costs of up to 30% of qualifying costs for overhead costs.

11. Total project cost capped for Product Prototyping project at S$0.5M (including indirect costs) with project period of not more than 1 year. R&D projects would be considered for higher funding support for more extensive proposals that show potential with project period of not more 2 years.

12. Proposals should not be funded or be currently considered for funding by other agencies.

13. **Funding awarded cannot be used to support overseas R&I activities.** All funding awarded must be used to carry out the testbedding activities in Singapore unless approved in the grant.

Application Process

14. Interested applicants are required to submit proposal through the Integrated Grant Management System (IGMS) at https://www.researchgrant.gov.sg with the supporting documents by **13 September 2024, 2355 hour (Singapore time). Late submissions or submissions from individual applicants without endorsement from the Host Institution will not be considered.**

15. Lead PI/Co-PIs from organisations that are not registered in the IGMS must register an IGMS account **for their first-time application** as part of the proposal submission workflow. Please refer to **Annex B** for further registration information**. Applicants are advised to allow sufficient time (at least 2 weeks) for their respective organisation to be registered, including registering their respective researcher profiles in the IGMS prior to submitting proposals.** Guides for IGMS application process are available at: https://www.researchgrant.gov.sg/Pages/TrainingGuides.aspx

[1] Tiered funding support levels would apply for private sector entities (up to 30% for all non-Singapore entities; up to 50% for Singapore Large Local Enterprises (LLEs); up to 70% for Singapore Small and Medium-sized Enterprises (SMEs), start-ups and not-for-profits entities).

16. Applications will only be considered as successfully received only if all relevant documents are submitted. The application documents can be downloaded from the "Research proposal" section under "Research Details" after the applicant login to IGMS. The documents required to be submitted are:

a) Form A – Full Proposal;
b) Form B – Budget;
c) Form C – Capability Indicators; and
d) PI and co-PI's CVs

It is advised to restrict the size of each attachment to be less than 4MB.

17. Please follow the naming convention and format for labelling of softcopy attachments:

Attachment	Naming Convention	Format of attachment
Full Proposal Template	*[Topic Code]* FP_ *Project title*	MS Word
PI and co-PI's CVs	*[Topic Code]* CV_*Project title*	MS Word
References (optional)	*[Topic Code]* References_ *Project title*	MS Word
Budget Template	*[Topic Code]* Budget_ *Project title*	MS Excel
Capability Indicators	*[Topic Code]* Indicators_ *Project title*	MS Excel

Important: Where relevant privileged or confidential information is needed to help convey a better understanding of the project, such information should be disclosed and must be clearly marked in the proposal.

18. For enquiries on the Challenge Call, please email BCA_Challenge_Call@bca.gov.sg. For other enquiries pertaining to IGMS system, please email IGMS helpdesk at Helpdesk@researchgrant.gov.sg.

19. Shortlisted applicants will be invited to present their proposals to the appointed Project Evaluation Panel (PEP) for recommendation for award.

Indicative Timeline

20. Indicative timeline is as below:

Activities	Timeline
Launch of R&I Challenge Call	15 July 2024
Briefing on Challenge Call	24 July 2024
Close of R&I Challenge Call	13 Sep 2024
Notification of shortlisted proposals to present to Project Evaluation Panel	Oct/Nov 2024
Project Evaluation Panel meeting	Nov 2024
Notification of award of proposals	Mar 2025

Briefing to Interested Parties

21. Interested parties are encouraged to attend the post-launch virtual briefing on 24 July 2024 (Wed), 2 pm. Please register your attendance by 22 July 2024 via the link: https://go.gov.sg/gbic-rni-challenge-call. The meeting link will be sent to you once we have received your registration.

Rights of Awarding

22. BCA reserves the right to select proposals to be awarded. For the avoidance of doubt, BCA also reserves the right not to award any proposal.

Enclosed Annexes:

Annex A: Challenge Statements and Areas of Interest

Annex B: SOP for Creation of New Companies/Institutions in IGMS

Table 1: Technology Readiness Level Descriptions

The Technology Readiness Level (TRL) is widely used indictor of the degree of development or a technology toward deployment, measured on a scale of 1-9.

Level	Definition	Description
TRL 1	Basic principles observed and reported	Lowest level of technology readiness. Scientific research begins to be translated into applied research and development. Examples might include paper studies of a technology's basic properties or experimental work that consists mainly of observations of the physical world.
TRL 2	Technology concept and/or application formulated	Once basic principles are observed, practical applications can be formulated. Applications are speculative and there may be no proof or detailed analysis to support the assumptions. Examples are limited to analytic studies.
TRL 3	Analytical and experimental critical function and/or characteristic proof of concept	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative tested with simulants.
TRL 4	Component and/or system validation in laboratory environment	The basic technological components are integrated to establish that the pieces will work together. This is relatively "low fidelity" compared with the eventual system.
TRL 5	Laboratory scale, similar system validation in relevant environment	The basic technological components are integrated so that the system configuration is similar to (matches) the final application in almost all respects. Examples include testing a high-fidelity, laboratory scale system in a simulated environment.
TRL 6	Engineering/pilot-scale, similar (prototypical) system validation in relevant environment	Engineering-scale models or prototypes are tested in a relevant environment. This represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in simulated operational environment.
TRL 7	Full-scale, similar (prototypical) system demonstrated in relevant environment	Prototype near or at planned operational system – Represents a major step up from TRL 6, requiring demonstration of an actual system prototype in an operational environment.
TRL 8	Actual system completed and qualified through test and demonstration.	The technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true system development.
TRL 9	Actual system operated over the full range of expected conditions.	The technology is in its final form and operated under the full range of operating conditions.

Table 2: R&I Challenge Call Targets

	GM 2021 Platinum Standard	**Product Prototyping Target** *(25% better the GM Platinum standard or existing best-in-class solutions, whichever is better)*	**R&D Target** *(30% better the GM Platinum standard or existing best-in-class solutions, whichever is better)*
Chiller plant system efficiency (kW/RT)	0.56	0.420	0.392
Air side efficiency (kW/RT)	0.18	0.135	0.126
Total AC system efficiency (including water side and air side) (kW/RT)	0.74	0.555	0.518
Lighting (W/m^2)			
- Office/Meeting Room	5.5	4.125	3.85
- Hotel Guest Room	7.0	5.250	4.90
Mechanical Ventilation (W/CMH)			
> 4kW	0.28	0.210	0.196
< 4kW	0.17	0.128	0.119
Reduced Heat Gain (ETTV) (W/m^2)			
- Office Building	38	28.5	26.6
- Hotel	40	30.0	28.0

Annex A: Challenge Statements and Areas of Interest

As the key support measure for the BE sector to meet the Singapore Green Building Masterplan (SGBMP)'s 80% energy efficiency improvement target, GBIC 2.0's efforts will be focusing on novel solutions with significant impact on energy savings without compromising thermal comfort and indoor air quality. GBIC 2.0 is pushing the next bound of decarbonisation through passive, active and smart strategies. For the R&I Challenge Call, we propose three broad areas: Innovative Cooling Technologies, Data-Driven Smart Building Solutions and Advanced Building Ventilation Solutions for further deep dive.

Call Topic 1: Innovative Cooling Technologies

Challenges Faced

a) In Singapore's tropical climate, Air-Conditioning and Mechanical Ventilation (ACMV) plays an important role in ensuring building occupants' thermal comfort. As air-conditioning is energy intensive, typically responsible for 40 to 60% of the commercial building electricity consumption, it is imperative to drive energy efficiency (EE) and sustainability to support the SGBMP to achieve 80% improvement in energy efficiency for best-in-class building (over 2005 levels) by 2030. With the increased frequency of hot spells due to climate change, the usage of air conditioning is expected to increase. This poses challenges of more heat rejected from buildings to ambient environment causing urban heat island effect.

b) Typical building ACMV systems are designed to cater to the most unfavourable days or hours of the year under the full occupancy condition. This has posed challenges and potentially caused inefficiencies in operation as most of the time buildings are operated under part-load conditions with rigid setting of space condition. To achieve energy efficiency, an adaptive air-conditioning system that can monitor the occupancy conditions and adjust its operation accordingly would be necessary. This is particularly relevant in current work-from-home and co-working spaces arrangements for which the part-loading conditions in workplaces would be more pertinent.

c) Non-compressor air-conditioning (e.g. using water as a refrigerant) has great potential in reducing carbon emissions of ACMV as it does away with conventional hydrofluorocarbon (HFC) based refrigerant. However, the current non-compressor air-conditioning technology faces several challenges such as high cost, small cooling capacity and humidity control for tropical environment conditions.

d) Current hybrid air-conditioning (AC) system applying elevated temperature with increased air movement via direct current fan has shown great potential to improve the energy savings. There are opportunities for further enhancement such as different hybrid modes of cooling to achieve optimal energy efficiency and thermal comfort and develop design/operating/maintenance guidelines for these solutions to promote wider adoption.

Scope of Call for Proposals

a) The scope of the proposals should cover:

- Develop cost-effective, compact non-vapour compression cooling system and evaporative cooling system (using water as refrigerant) with good dehumidification control suitable for large building indoor applications for tropical climate environment conditions.
- Review various possible combination of multiple modes of hybrid AC and natural ventilation systems that could address air momentum, condensation, low cooling capacity and humidity control challenges.
- Solutions developed are required to be compact, durable, cost effective and low maintenance with high energy efficiency, Indoor Air Quality (IAQ), and thermal comfort performance.

b) Some of the possible solutions (non-exhaustive) are listed below:

- Hybrid coupled AC systems with various possible combination of multiple modes of air-conditioning, natural ventilation, assisted ventilation system, to achieve optimal energy efficiency, thermal comfort and IAQ.
- Integrated advanced dehumidification system with evaporative cooling.
- Advanced energy recovery technologies for building applications.
- Innovation in mechanical components that can take quick action for flexible adjustments of cooling power and broader high-efficiency band under part load condition.
- ACMV solutions to allow for raised indoor temperature set point without compromising cooling and dehumidification efficacy and be able to take quick adaption to variation of occupancy pattern and weather condition.
- Non-vapour compression technologies that provide cooling without the use of hydrofluorocarbon (HFC) refrigerants

c) The project should achieve 25 – 30% more energy savings than existing best-in-class technologies for air-conditioning systems commonly used by Green Mark Platinum buildings, with satisfactory thermal comfort and IAQ.

Call Topic 2: Data-Driven Smart Building Solutions

Challenges Faced

a) To achieve Super Low Energy (SLE) Buildings, it is crucial to adopt a system approach that can drive optimum overall performance by effectively coordinating multiple systems, including ACMV, lighting, window/glass, etc. With the advances of control technologies (e.g. dimmable and spectrum tuneable lighting) and change of user behaviours (e.g. aging population, paperless offices), AI/Machine Learning based smart control devices/methods are becoming prevalent to help achieve energy savings (e.g. smart lighting, smart glass, data driven chiller operation, etc.). However, there is opportunity to achieve further energy savings and non-energy benefits, by integrating multiple smart systems to allow data interchange and system cooperation.

b) As decarbonisation efforts become more prevalent, there is an increasing trend of onsite solar PV installation and electric vehicles (EV) charging infrastructure to promote the use of EVs. However, these trends may introduce intermittency to building's electricity usage profile, causing spikes due to surges in electricity demand.

Scope of Call for Proposals

a) To harness the maximised benefits of an integrated system, the scope of proposals should cover:

- Understand the impacts of multiple Distributed Energy Resources (such as solar PV) and to co-optimise demand flexibility for the grid and building owners and occupants to improve building EE and support better integration of renewable energy, energy storage, etc. through smart technologies like advanced sensors and controls and data analytics.
- Explore how cutting-edge smart building technologies can be interoperable integrated across different smart systems and building sub-systems to achieve greater energy savings with lower cost by sharing information and data.
- Innovation in sensing technologies (e.g. IoT based digital solutions) to more accurately sense the room thermal condition felt by occupants and change in activity level for control and monitor the system efficiency and health under the fluctuating conditions.
- Study the daylight use and optimally balance the lighting energy performance and cooling load, occupants' behaviour and total energy consumption.
- Establish innovative measurement and verification (M&V) tools to quantify and qualify the benefits of energy-efficient smart solutions in a simple, credible, and cost-effective way.

b) Some of the possible solutions (non-exhaustive) are listed below:

- Grid interactive efficient building solutions capable of effectively managing multiple Distributed Energy Resources and to co-optimise demand flexibility for

the grid and building owners and occupants to improve building Energy Efficiency (EE) and support better integration of renewable energy, energy storage, etc. through smart technologies like advanced sensors and controls and data analytics.

- Smart building solutions capable of effectively managing interoperability and integration across different smart systems and building sub-systems to optimise energy performance and IAQ.
- Smart occupant ventilation systems integrated with AI to provide adaptive cooling and ventilation to reduce the energy consumption of air-conditioning systems based on occupancy conditions, outdoor weather, and real time health parameters.
- Integrated and coordinated control of different systems (e.g. daylighting with dynamic façade, lighting, air-conditioning) not only at the information level (e.g. sharing of sensor data or dashboard display) but at the system dynamics level to achieve optimal performance.
- Real-time optimisation for system dynamics to cater for transient disturbances (weather conditions, occupancy, activity level) and comprehensive performance.

c) The project should achieve at least 25 – 30% improvement in energy efficiency than the existing best-in-class smart control technologies commonly used by Green Mark Platinum buildings.

Call Topic 3: Advanced Building Ventilation Solutions

Challenges Faced

a) With the emphasis to provide adequate outdoor air and effective air movement in premises to better protect building occupants, the anticipated trend of increased energy consumption in air-conditioning and mechanical ventilation system in buildings will pose a challenge. This is primarily due to the energy-intensive process of treating outdoor air for indoor air condition spaces.

b) While advanced shading and façade systems have been the key to reduce heat load and drive natural ventilation for non-residential buildings, integrating effective outdoor air intake into façade systems in tropics remains a challenge. There is little understanding and lack of cost-effective solutions to incorporate outdoor air intake into façade systems that will help to reduce cooling load while maintaining good humidity control.

c) While current occupant-level cooling and ventilation systems can reduce energy consumption and provide good indoor air quality, they have encountered limited adoption due to challenges such as integrating with existing ACMV systems, sensor deployment, accuracy and control systems to detect occupancy and IAQ. Moreover, long payback period may deter building owners from investing in such systems.

Scope of Call for Proposals

a) The scope of proposals should cover:

- Develop novel, cost effective materials and designs, such as permeable facade and breathing facades which will reduce indoor humidity within the building using porous materials.
- Study the integration between the façade as a building skin with other building systems e.g. ACMV, building management system, to achieve greater energy savings.
- Study the occupant ventilation system relying on improved monitoring of occupancy conditions (i.e. presence, comfort, and adaptive behaviour) and incorporation of these parameters into control strategies in a timely fashion to reduce unnecessary energy usage.
- Review and identify the key factors of aerodynamic fans combining with natural ventilation (NV) and evaluate the effectiveness of the solutions including energy efficiency and ventilation effectiveness.

b) Some of the possible solutions (non-exhaustive) are listed below:

- Hybrid solutions combining aerodynamic fans with natural ventilation to reduce energy consumption of traditional mechanical ventilation systems without compromising thermal comfort and occupant satisfaction.

- Occupant ventilation systems integrated with smartness and AI to provide adaptive cooling and ventilation to reduce the energy consumption of air-conditioning systems based on occupancy conditions, outdoor weather and real time health parameters (e.g. using wearable devices to monitor occupant's vital signs).
- Building envelope systems have been the key to reduce heat load and drive natural ventilation spaces for non-residential buildings. With advanced façade systems, there is potential to reduce heat transfer and incorporate fresh air intake into façade systems which will help reducing cooling load and improving humidity control.
- High energy efficient air filtration system capable of removing indoor air impurities which can lead to reduction of ventilation rate to improve energy efficiency, prevention of microbial growth in the filter, with less frequent service.
- Air cleaning technology for ACMV load reduction by removing carbon dioxide, ozone, formaldehyde, and a wide range of volatile organic compounds from indoor air so that ventilation rates can be optimised to improve energy efficiency and IAQ, which can lead to reduction in ACMV equipment costs, operating costs, and buildings' carbon emissions.

c) The project should achieve 25 – 30% more energy savings than existing best-in-class technologies for building ventilation systems commonly used by Green Mark Platinum buildings, with satisfactory thermal comfort and IAQ.

Annex B: SOP for Creation of New Companies/Institutions in IGMS

As part of the proposal submission workflow, companies or institutions who wish to apply for NRF grants **for the first time as lead Principal Investigator (PI) or co-PI** will need to create a IGMS account to allow them to submit proposals. Please refer to the SOP below for the creation of a new company/institution within IGMS. The guides for IGMS application process are available at: https://www.researchgrant.gov.sg/Pages/TrainingGuides.aspx

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CREATION OF NEW IGMS ACCOUNT

Step 1: Registering the Host Institution (HI)

For the creation of **new** Host Institution (HI) in IGMS, please provide the following details and in email to BCA_Challenge_Call@bca.gov.sg:

"Subject: Creation of new Company/Institution in IGMS for GBIC 2.0 R&I Challenge Call for Decarbonisation"

Details of the New HI:

- *Full Name of Company:*
- *Indicate Local Company or Foreign Company:*
- *Indicate Public Company or Private Company:*
- *UEN (for local company) or Entity ID (for foreign Company):*

For Foreign Company, please provide the screenshot from Corppass profile page indicating the Entity ID (for Foreign Company), for verification purpose. Refer to Appendix A.

For foreign company users who have an existing IGMS account via "For overseas users without Singpass", please refer to the Notes below.

Step 2: Creation of users under HI

i) The company will need to nominate a HI Admin.

ii) The **HI Admin** will need to have their Corppass account setup. Please refer to Corppass website for more info (www.corppass.gov.sg) on Corppass account matters.

iii) The **HI Admin** will need to log in to IGMS via "**For Business Users**" to register an account and update their profile in IGMS. Please note that the IGMS would grant them the **Principal Investigator (PI)** role by default.

*For foreign company users who have an **existing IGMS** account via "**For overseas users without Singpass**", please refer to the Notes below.

iv) After the **HI Admin** has been successfully registered in IGMS, the **HI Admin** will notify BCA in email with the information below, to change the role of the person from a **PI** to a **HI Admin**:

- *Full Name of HI Admin:*

- *E-mail Address of HI Admin:*

- *Designation of HI Admin in the company:*

v) Once granted the role as a **HI Admin**, companies can proceed to assign the relevant roles (e.g. Office of Research (ORE), Director of Research (DOR), PI, etc) to the various users within the organisation.

Notes:

For **existing** foreign company users who have an IGMS account registered via "**For overseas users without Singpass**" route.

• Users should contact Corppass to register for and obtain a Corppass account. Please refer to Corppass website (www.corppass.gov.sg) and their FAQ section (go.gov.sg/corporate-login) for more info.

• Since the company had registered in IGMS before, once the Corppass account has been obtained, please follow Step 1 (Registering the Host Institution) above, to **update** your company with the **newly issued Entity ID (for Foreign Company)** in IGMS, before proceeding further.

• After Step 1 is completed, when registering in IGMS via "**For Business Users**", ensure to register using the **same email address** that was used for the existing IGMS account.

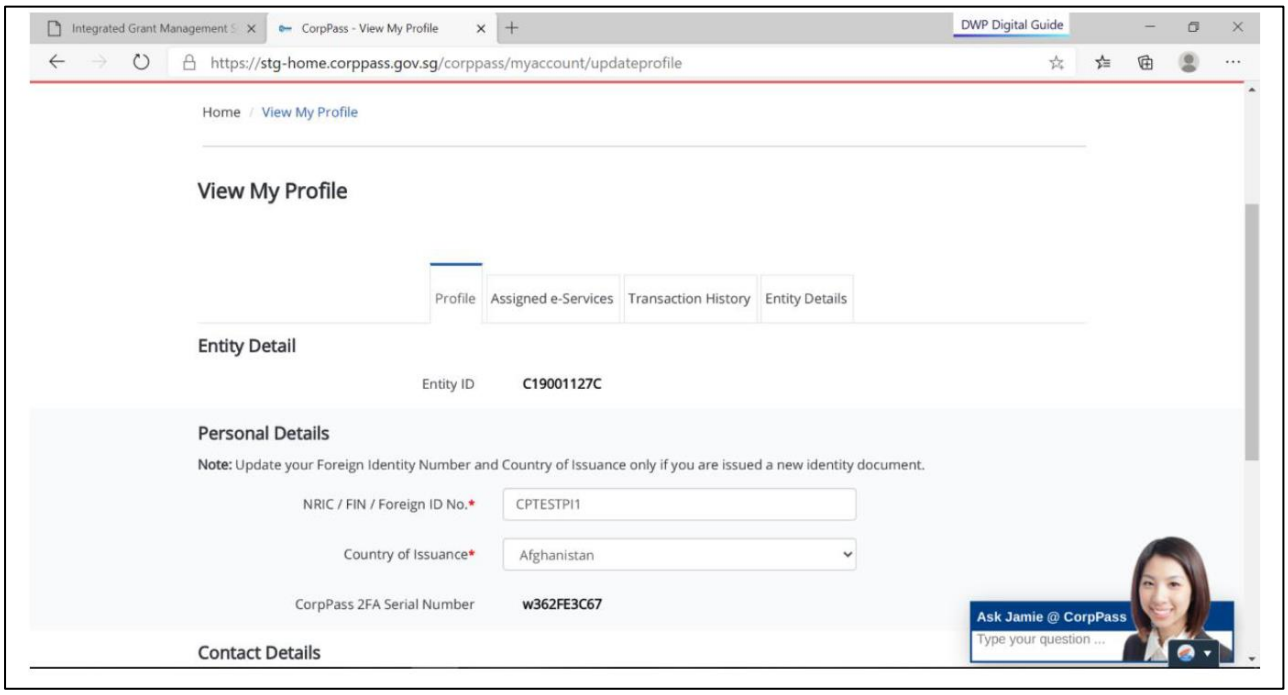
[Important!] In order to continue accessing past transactions in IGMS, it is important the above steps are done to (i) update the new Entity ID in IGMS, and (ii) to register via "**For Business Users**" with the same email address.

• The rest of the steps under Step 2 (Creation of users under HI) remains the same.

Appendix A

Screenshots for verification – samples

(i) Corppass profile page



(ii) Email from Corppass