

RGC Ref. No.: <u>UGC/IIDS24/E01/20</u> (please insert ref. above)

**RESEARCH GRANTS COUNCIL
COMPETITIVE RESEARCH FUNDING SCHEMES FOR
THE LOCAL SELF-FINANCING DEGREE SECTOR**

INTER-INSTITUTIONAL DEVELOPMENT SCHEME (IIDS)

Completion Report
(for completed projects only)

<p><u>Submission Deadlines:</u></p> <ol style="list-style-type: none"> 1. The unspent balance, if applicable, and auditor's report: within six months of the approved project completion date. 2. Completion report: within 12 months of the approved project completion date.

Part A: The Project and Investigator(s)

1. Project Title

Emerging Research Directions on Adoption of Electric Vehicles for the Development of
Smart Cities through Complementary Policy and Green Financing: GBA as the Cluster for
Technological Innovation

2. Investigator(s) and Academic Department(s) / Unit(s) Involved

Research Team	Name / Post	Unit / Department / Institution
Principal Investigator	Dr WU Andrew Yang Lecturer	Division of Science, Engineering and Health Studies / PolyU SPEED
Co-Principal Investigator	Dr LOH Anthony Wai- keung Principal Lecturer and Division Head	Division of Science, Engineering and Health Studies / PolyU SPEED
Co-Investigator (1)	Prof DONG Joe Professor	Digital Grid Futures Institute (DGFI) of University of New South Wales (UNSW), Australia

Research Team	Name / Post	Unit / Department / Institution
Co-Investigator (2)	Dr MENG Ke Senior Lecturer	Digital Grid Futures Institute (DGFI) of University of New South Wales (UNSW) Australia
Co-Investigator (3)	Professor Artie NG Inaugural Dean	International Business University / Canada
Co-Investigator (4)	Dr Nancy GUO Lecturer	Language Centre / Hong Kong Baptist University

3. Project Duration

	Original	Revised	Date of RGC / Institution Approval <i>(must be quoted)</i>
Project Start Date	01/01/2021	01/01/2021	30/11/2021
Project Completion Date	31/12/2021	30/06/2022	30/11/2021
Duration (<i>in month</i>)	12	18	30/11/2021
Deadline for Submission of Completion Report	31/12/2022	30/06/2023	30/11/2021

4.4 Please attach photo(s) of acknowledgement of RGC-funded activities.

The IIDS project has organized research seminars and workshops, and one 1-day regional symposium. All events have clearly shown acknowledgement of RGC fund. Photos are illustrated as follows.

Photo	Event
 <p>Photo</p> <p>THE HONG KONG POLYTECHNIC UNIVERSITY COLLEGE OF PROFESSIONAL AND CONTINUING EDUCATION SPEED RCGETB</p> <p>Research Centre for Green Energy, Transport and Building (RCGETB)</p> <p>RESEARCH WORKSHOP CONDUCTING INTERDISCIPLINARY RESEARCH ON GREEN ENERGY AND TRANSPORT</p> <p>DATE: 26 April 2021 (Monday) TIME: 2:15 pm – 4:00 pm VENUE: ONLINE (Microsoft Teams)</p> <p><i>This Workshop is fully supported by the grants from the Research Grants Council of the Hong Kong Special Administrative Region, China (Project No. UGC/IIDS(R)24/20 and UGC/IIDS24-EOI/20)</i></p> <p>Registration!</p> <p>Introduction Research Centre for Green Energy, Transport and Building (RCGETB) and the IIDS project team on Electric Vehicles are co-organizing the first Research Workshop – Conducting Interdisciplinary Research on Green Energy and Transport. In this inaugural workshop, the speakers will share with the audience their insights on conducting pertinent interdisciplinary research.</p> <p>Speaker: Professor CW LEUNG Associate Dean (Research), CPCE also Professor, SPEED</p> <p>Topic Research on hydrogen as a source of renewable and sustainable energy for the future</p> <p>Prof CW Leung is the Director and Team Leader of the Research Centre for Green Energy, Transport and Building funded by Research Grants Council under the Institutional Development Scheme (IDS). Professor Leung has obtained funding from various other sources to support his research work. Professor Leung is also very active in presenting results of his research work. Up to 2018, he has published 139 journal papers and made 91 presentations at international conferences. Most of the papers were published in top refereed journals including <i>International Journal of Heat and Mass Transfer</i>, <i>Applied Energy</i>, <i>Combustion and Flame</i>, <i>Atmospheric Environment</i>, and <i>International Journal of Hydrogen Energy</i>. Professor Leung is making very good effort to educate the next generation; he has supervised 16 PhD, 4 EngD and 11 MPhil students. Some of his students are working as professors in universities. Professor Leung is also making good effort to serve the profession and community. He has served the Hong Kong Institution of Engineers as Chairman of Marine Engineering and Naval Architecture Discipline, Member of Qualification and Membership Board, and Member of Training Committee. Also, Professor Leung has served as Member of Pressure Equipment Advisory Committee of the Labour Department, and Member of Gas Safety Appeal Board Panel of the Electrical and Mechanical Services Department of the HKSAR Government.</p>	<p>Event</p> <p>Acknowledgement of RGC fund in research seminar and workshop on April 26, 2021</p>



Acknowledgement of RGC fund in the 1-day regional symposium on December 13, 2021

Part B: The Final Report

5. Collaboration with Other Self-Financing Degree-Awarding Institutions

	Name of Institution(s)	% of Participation	Distinctive Element(s) of the Institution in Responsible Project
Applying Institution	School of Professional Education and Executive Development, The Hong Kong Polytechnic University	80%	Organizer Major responsibility for the formation of organizing committee and research committee; coordination and promotion of seminar, workshop and symposium; co-operate with other collaborating institution. Lead the responsibility for logistic arrangement, administrative and financial works, as well as the academic liaison.
Collaborating Institution(s) (If any) #	Digital Grid Futures Institute (DGFI), University of New South Wales (UNSW) in Australia	20%	Supporter Major responsibility for invitation and engagement of speakers; identification of themes of the events.
Total:		100%	

If no other eligible local self-financing degree-awarding institutions are involved, please input "N/A" in this table.

6. Project Objectives

6.1 Objectives as per original application

- (1) To initiate a platform of research knowledge exchange among Hong Kong local, the Great Bay Area (GBA) regional, and Asia-Pacific international academic scholars, on a wide range of research topics on complementary policy for adoption of electric vehicles (EVs) and development of smart cities.
- (2) To explore emerging research directions of adoption of EVs and smart cities through innovative public policies and green financing schemes.
- (3) To obtain advice and feedback by sharing knowledge and ongoing research outcomes with invited international academic scholars and keynote speakers in the workshops, seminars and symposium.
- (4) To build up the research capacity of local academics with scholarly interests across pertinent disciplines for facilitating collaboration and development of research projects locally and internationally.

6.2 Revised objectives

Date of approval from the RGC: N/A

Reasons for the change: N/A

6.3 Realisation of the objectives

(Maximum 1 page; please state how and to what extent the project objectives have been achieved; give reasons for under-achievements and outline attempts to overcome problems, if any)

All objectives have been achieved successfully. Details as follows.

(1) As promised in the proposal, the investigation team successfully organised two seminars, one workshop, and one regional conference. Such activities have served as research and knowledge exchange platforms among Hong Kong local, the Greater Bay Area (GBA), and even Asia-Pacific academic scholars.

(2) A wide range of research topics, including electric vehicles, green transportation, smart city development and related policy issues, have been discussed with presentation and sharing from researchers, academic scholars, industrial experts, students, and even the general public. New and emerging research ideas and directions have been inspired as positive output.

(3) Inspired by this IIDS project, several FDS proposals have been submitted in the next academic year, some of which have been successfully funded by the RGC (for example, UGC/FDS24/E08/21). Some other proposals have also obtained internal funds (for example, SEHS-2021-228(J) and SEHS-2021-248(J)). Details are elaborated in Section 7.2 ‘Research Collaboration Achieved.’

(4) Research collaboration has been achieved among researchers and scholars from several different academic institutions. As a co-work result, several journal articles have then been published in good-quality international journals. Details are elaborated in Section 7.2 ‘Research Collaboration Achieved.’

6.4 Summary of objectives addressed to date

Objectives	Addressed <i>(please tick)</i>	Percentage Achieved <i>(please estimate)</i>
1. To initiate a platform of research knowledge exchange among Hong Kong local, the Great Bay Area (GBA) regional, and Asia-Pacific international academic scholars, on a wide range of research topics on complementary policy for adoption of electric vehicles (EVs) and development of smart cities.	✓	100%
2. To explore emerging research directions of adoption of EVs and smart cities through innovative public policies and green financing schemes.	✓	100%
3. To obtain advice and feedback by sharing knowledge and ongoing research outcomes with invited international academic scholars and keynote speakers in the workshops, seminars and symposium.	✓	100%
4. To build up the research capacity of local academics with scholarly interests across pertinent disciplines for facilitating collaboration and development of research projects locally and internationally.	✓	100%

6.5 Project progress

Original Implementation Schedule	Revised Implementation Schedule (Date of RGC's Approval)	Updated Progress
<p>Jan. 2021 – Feb. 2021 (2 months)</p> <ul style="list-style-type: none"> • To form organizing committee and research committee. • To invite keynote speakers for seminar, workshop and, symposium. • To finalise the schedules for the seminar, workshop, and symposium. 	N/A	<p style="text-align: center;">Completed</p> <ul style="list-style-type: none"> • Organizing committee has been initiated and established. • Some keynote speakers have been liasioned. • Tentative schedule of the seminar, workshop, and symposium has been drafted.
<p>Mar. 2021 – Apr. 2021 (2 months)</p> <ul style="list-style-type: none"> • To establish a webpage for disseminating information of the seminar, workshop, and symposium. • To issue related information, like registration and call-for-paper etc. on the webpage. 	N/A	<p style="text-align: center;">Completed</p> <ul style="list-style-type: none"> • A webpage for introducing the research collaborative activities of this IIDS project has been initiated under PolyU SPEED's website. • Related information has been disseminated about tentative schedule and topics of the seminar, workshop, and symposium.
<p>May 2021 – Jun. 2021 (2 months)</p> <ul style="list-style-type: none"> • To reviews candidate papers and presentations. • To inform participants about paper review and selection. • To check and confirm the registration of participants and reserve venues. 	N/A	<p style="text-align: center;">Completed</p> <ul style="list-style-type: none"> • Academic collaborative materials of the seminars and workshop have been received including abstract, presentation files, etc. • Review and suggestion have been provided. • Confirmation and invitation has been sent

		to speakers and participants of the seminars and workshop.
<p>Jul. 2021 – Aug. 2021 (2 months)</p> <ul style="list-style-type: none"> To organise the seminar and workshop 	N/A	<p>Completed</p> <ul style="list-style-type: none"> Seminars and workshop have been successfully organised in hybrid mode and online mode. Face-to-face venue is PolyU SPEED campus theatre hall. Online access is also provided for all participants.
<p>Sept. 2021 – Nov. 2021 (3 months)</p> <ul style="list-style-type: none"> To organise the Asia-Pacific regional conference 	N/A	<p>Completed</p> <ul style="list-style-type: none"> All conference related information has been confirmed and well prepared, including programs, speakers, venue, souvenirs, etc.
<p>Dec. 2021 (1 month)</p> <ul style="list-style-type: none"> To evaluate and wrap-up the project. To write up the completion report of the project; To publish related research findings in international journals/conferences. 	<p><i>(RGC approval date: 30 Nov 2021)</i> By Jun. 2022</p> <ul style="list-style-type: none"> To wrap-up the admin and financial related issues. To write up the completion report. To publish related research findings in international journals/conferences. 	<p>Completed</p> <ul style="list-style-type: none"> The conference has been successfully organised in December 2021 at Hotel Icon via hybrid mode. All academic collaborative activities of this project has been successfully completed as planned. Project reports and related documents will be written and submitted in due course.

6.6 Speaker(s)

Title / Name (Surname in Capital Letters)	Post / Institution	Title / Topic of Presentation / Course	Previous Research Links with Hong Kong Institutions (Nature and Date (Month / Year))
Prof LEUNG Chun-wah	Professor and Interim Director, PolyU SPEED; concurrent Associate Dean (Research), PolyU CPCE	Research on hydrogen as a source of renewable and sustainable energy for the future	Previous full professor at Department of Mechanical Engineering, Hong Kong Polytechnic University in 2010's
Dr WU Andrew	Lecturer, Division of Science Engineering and Health Studies, College of Professional and Continuing Education, Hong Kong Polytechnic University	Research on energy policy for EV development in China	Graduated from Department of Electrical Engineering of Hong Kong Polytechnic University in 2013
Prof DONG Zhao-yang	Professor, School of Electrical and Electronic Engineering, Nanyang Technological University of Singapore	Electrical Vehicle Grid Impact and Charging Optimization Planning	Previous professor at Department of Electrical Engineering of Hong Kong Polytechnic University in 2010
Prof XU Zhao	Professor, Department of Electrical Engineering, Hong Kong Polytechnic University	AI for Smart Grids	Professor at Department of Electrical Engineering of Hong Kong Polytechnic University till now
Ir Mr LEUNG Wai-kin	Head of Customer Business Development, The Hongkong Electric Company Limited (HK Electric)	Beyond Electric Vehicles – A Visionary Picture of an Energy Platform	NA

Title / Name (Surname in Capital Letters)	Post / Institution	Title / Topic of Presentation / Course	Previous Research Links with Hong Kong Institutions (Nature and Date (Month / Year))
Dr LI Ivan	Manager of Carbon Neutrality Institute, China Galaxy International Ltd	Carbon Pricing: Opportunities from China's Carbon Neutrality Goal	Graduated from Department of Electrical Engineering of Hong Kong Polytechnic University in 2013
Mr CHEUNG Simon Kwok Chuen	Director of China Dynamics (Holdings) Limited	Future Development of Electric Vehicle and Internet of Things	NA
Dr CHAN Hau-ling	Lecturer, Division of Business and Hospitality Management, College of Professional and Continuing Education, Hong Kong Polytechnic University	Effectiveness and Impact of Imposing Tax in Sustainable Supply Chain Management	BBA (Hons) in Global Supply Chain Management and Ph.D. from Hong Kong Polytechnic University in 2000's
Professor WEN Chih-yung	Chair Professor of Aeronautical Engineering and Head of Department of Aeronautical and Aviation Engineering The Hong Kong Polytechnic University	Connecting Unmanned Aerial Vehicle (UAV) Research to Smart Transportation	Chair Professor of Aeronautical Engineering and Head of Department of Aeronautical and Aviation Engineering The Hong Kong Polytechnic University till now
Mr AUYANG Evan	Chairman Board of Civic Exchange	Smart Transportation and Green Financing: Solutions for Hong Kong	N/A
Dr LEUNG Michael H.F.	General Manager Head of Supply Chain Solutions Tradelink Electronic Commerce Limited	Smart Transportation Management System (TMS) Solution	N/A

Title / Name (Surname in Capital Letters)	Post / Institution	Title / Topic of Presentation / Course	Previous Research Links with Hong Kong Institutions (Nature and Date (Month / Year))
Dr Jason CHAN, MH, JP	Associate Dean and Head of Information Technology, College of Professional and Continuing Education, The Hong Kong Polytechnic University	Data Driven Eco-Friendly and Smart Transport in the Digital Era	Graduated from City University of Hong Kong in 2003
Professor DONG Z.Y.	Professor, School of Electrical and Electronic Engineering, Nanyang Technological University of Singapore	Shared Mobility Planning for EVs	Previous professor at Department of Electrical Engineering of Hong Kong Polytechnic University in 2010
Professor ZHAO Jun-hua	Associate Professor School of Science and Engineering Chinese University of Hong Kong (Shenzhen campus)	The Target of Carbon Neutrality and its Industrial Impact in China	Previous visiting scholar at Hong Kong Polytechnic University in 2010
Associate Professor Yan XU	Associate Professor School of Electrical & Electronic Engineering also Cluster Director of Multi Energy Systems and Grids Energy Research Institute Nanyang Technological University of Singapore	Coordinated Control, Operation, and Planning of Distributed Energy Resources (DERs) in Microgrids	Previous Ph.D. candidate at Department of Electrical Engineering, Hong Kong Polytechnic University in 2010

Title / Name (Surname in Capital Letters)	Post / Institution	Title / Topic of Presentation / Course	Previous Research Links with Hong Kong Institutions (Nature and Date (Month / Year))
Dr NG K.H. Kam	Assistant Professor Department of Aeronautical and Aviation Engineering The Hong Kong Polytechnic University	Aviation Emission, Contrail Formulation and Avoidance and Sustainable Air Traffic Flow Management	Graduated from Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University in 2010's
Dr WU Y. Andrew	Lecturer Division of Science, Engineering and Health Studies School of Professional Education and Executive Development College of Professional and Continuing Education The Hong Kong Polytechnic University	Policy Review on Sustainable Development of Electric Vehicles in China	Graduated from Department of Electrical Engineering of Hong Kong Polytechnic University in 2013
Dr WUT T.M. Edmund	Senior Lecturer Division of Business and Hospitality Management School of Professional Education and Executive Development College of Professional and Continuing Education The Hong Kong Polytechnic University	Research Landscape of Smart Transport and Green Financing: A Bibliometric Analysis	Graduated from Department of Mechanical Engineering from University of Hong Kong in 1990's

- 6.7 Please provide details of the activities organized, including the theme / objectives of the activities, targeted participants, attendance, analysis of participants, e.g. country of origin, research background, etc., evaluation forms of the activities and a summary of the participants' evaluation. (Photos of the activities are preferred.)

As provided in previous communication document, there are four research collaborative activities under this IIDS project throughout the year of 2021. They are:

1st Event: Research Seminar arranged on 26 April 2021 (Monday)

[Theme] Conducting Interdisciplinary Research on Green Energy, Transport and Building

2nd Event: Research Seminar arranged on 4 June 2021 (Friday)

[Theme] Emerging Research and Implementation Challenges of Green Infrastructure for Electric Vehicles and Smart Transportation

Collaborated with The University of New South Wales, The Hong Kong Polytechnic University, and The Hongkong Electric Company Limited

3rd Event: Research Workshop arranged on 9 July 2021 (Friday)

[Theme] Case Studies of Innovative Smart Transportation and Green Finance: Implications for the Greater Bay Area

Collaborated with Electrical and Mechanical Services Department of HKSAR, Hong Kong Association of Energy Service Companies and China Dynamics (Holdings) Limited

4th Event: 1-day Symposium arranged on 13 December 2021 (Friday)

[Theme] Symposium on Smart Transport and Green Financing in the Greater Bay Area

Collaborated with Hong Kong Institution of Engineers, The Hong Kong Polytechnic University, Board of Civic Exchange, Tradelink Electronic Commerce Limited, The University of New South Wales, Chinese University of Hong Kong (Shenzhen campus), Nanyang Technological University of Singapore

Although the pandemic has affected various countries and regions globally, the project team has still strongly committed to making great efforts to organise the committed seminars, workshops, and conference with no delay actions. The 2nd Research Seminars and the 1-day Regional Conference have conducted by hybrid mode. And the 1st Research Seminar and the Research Workshop were conducted by online mode following the safety policy at that moment. All events have successfully engaged over 250 participants accumulatively. Participants are internal and external academic scholars from self-finance institutions and UGC-funded universities. Participants also include research personnel, students, and also open to the general public. The IIDS project team has made an advanced preparation and clear division of responsibilities to ensure the effective outputs of seminars and conferences.

The research collaboration from this IIDS project has achieved fruitful outcomes. For example, several research proposals were submitted to both RGC/FDS and other external and internal grants in the following year, and some of those submission have obtained successful funding. Details are elaborated in Section 7.1 of this report.





Some photos of the events are shown here. More information and photos are available via our online webpage as follows.

More photos for the research seminar and workshop: <https://rcgetb.speed-polyu.edu.hk/photo.html>

More photos for the 1-day regional conference: <https://stgf.speed-polyu.edu.hk/gallery.php>


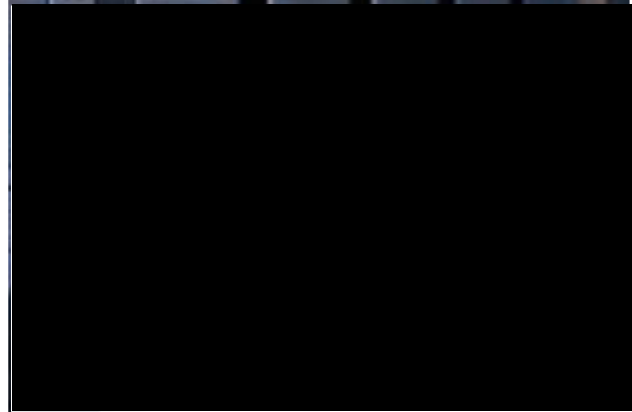
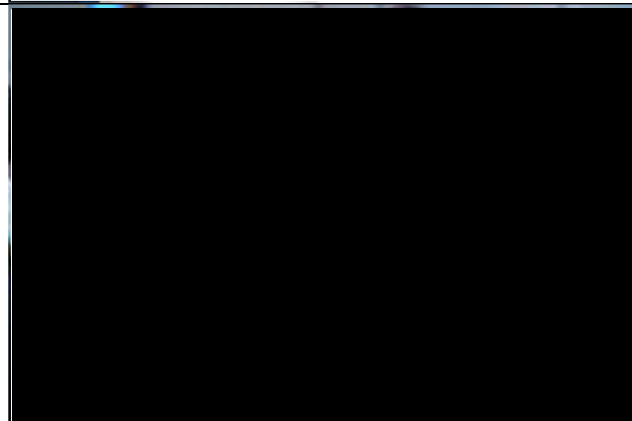
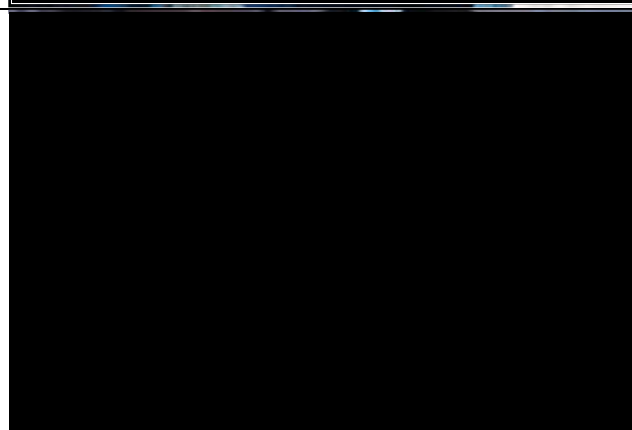
Photo	Description
	<p>Group photo of keynote speakers in the research seminar</p>
	<p>Prof Zhao Xu from PolyU as a keynote speaker</p>
	<p>Ir Mr WK Leung from HK Electric as a keynote speaker</p>
	<p>Dr Andrew Y Wu (PI of this IIDS project) as a keynote speaker</p>


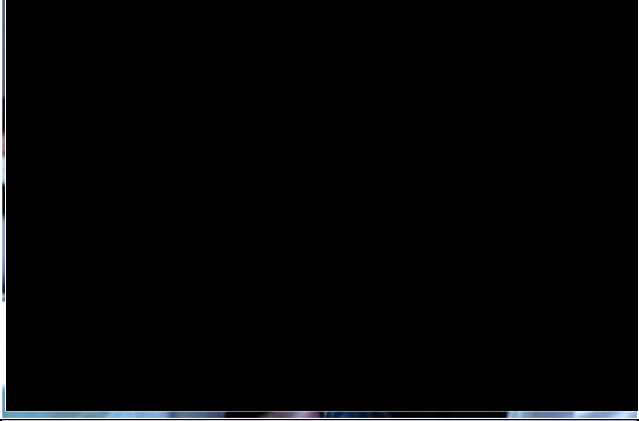

	<p>Prof Peter P. Yuen (Dean of CPCE) presenting apprentice award for the speaker Prof Zhao Xu from PolyU</p>
	<p>Prof Peter P. Yuen (Dean of CPCE) presenting apprentice award for the speaker Ir Mr WK Leung from HK Electric</p>
	<p>Prof Peter P. Yuen (Dean of CPCE) presenting apprentice award for the speaker Dr Andrew Y Wu (PI of this IIDS project)</p>
	<p>Panel discussion for the research seminar</p>

	<p>Group photo of Honourable Guest (Ir Mr Barry Lee, President of HKIE) and organizing committee of the 1-day regional conference</p>
	<p>Group photo of Honourable Guest (Ir Mr Barry Lee, President of HKIE), organizing committee, and keynote speakers (morning session) of the 1-day regional conference</p>
	<p>Group photo of keynote speakers (afternoon session) of the 1-day regional conference</p>
	<p>Prof Peter P. Yuen (Dean of CPCE) to deliver welcoming remark for the 1-day regional conference</p>

	<p>Honourable Guest Ir Mr Barry Lee (President of HKIE) to deliver opening remark for the 1-day regional conference</p>
	<p>Prof Chih-yung WEN (Chair Professor and Head of Department of Aeronautical and Aviation Engineering, PolyU) as a keynote speaker</p>
	<p>Mr Evan AU-YANG (Chairman, Board of Civic Exchange) as a keynote speaker</p>
	<p>Dr Michael LEUNG (General Manager, Head of Supply Chain Solutions Tradelink Electronic Commerce Limited) as a keynote speaker</p>

	<p>Dr Jason CHAN, MH, JP (Associate Dean of CPCE) as a keynote speaker</p>
	<p>Associate Professor Junhua Zhao from the CUHK (Shenzhen campus) as a keynote speaker access via hybrid mode</p>
	<p>Photo from the viewpoint of participants (PPT files of speakers to be shown on two projectors, seating plan following social distancing for public health and safety reasons)</p>
	<p>Prof ZY Dong from the DGFI UNSW (Co-I of this IIDS project) as a keynote speaker access via hybrid mode and Dr Andrew Y Wu (PI of this IIDS project) chairing the Q&A session</p>

	<p>Prof CW Leung (Associate Dean of CPCE) delivering closing remark of the 1-day regional conference</p>
	<p>Photo of participants of the 1-day regional conference (1)</p>
	<p>Photo of participants of the 1-day regional conference (2)</p>
	<p>Photo of participants of the 1-day regional conference (3) i.e. Q & A session</p>

	Photo of participants of the 1-day regional conference (4) i.e. Q & A session
	Photo of participants of the 1-day regional conference (5)
	Conference Proceedings
<p>More photos for the research seminar: https://rcgetb.speed-polyu.edu.hk/photo.html More photos for the 1-day regional conference: https://stgf.speed-polyu.edu.hk/gallery.php</p>	

7. Research-Related Outcome

7.1 Potential for development into research proposal and the proposed course of action (Maximum half a page)

The research collaboration has emerged several new research directions and topics related with electric vehicles, charging facilities, and smart city development. Academic and research collaboration activities have been organized as planned, including two seminar, one workshop, and one Asia-Pacific regional conference. Results and feedback are encouraging and fruitful. Collaborative research teams have been formed to study and research on cutting-edge research directions and topics, especially about electric vehicles and smart city development. Furthermore, we also borrow this opportunity to invite some external speakers to come to Hong Kong, either face-to-face or hybrid mode due to their availabilities, and visit the self-finance institution as visiting scholars. They have shared their academic knowledge and research findings with academic colleague, students, external academic scholars and industrial experts. Such collaborative activities and joint research teams have also jointly explored academic and research output through conference papers writing and journal articles publication.

7.2 Research collaboration achieved (Please give details on the achievement and its relevant impact)

Inspired by this IIDS project, several FDS proposals have been submitted in the next academic year, some of which have been successfully funded by the RGC (for example, UGC/FDS24/E08/21). The details are elaborated in section 7.1 of this report. Furthermore, some other proposals have also obtained internal fund from our school (for example, SEHS-2021-228(J) and SEHS-2021-248(J)).

Research collaboration has been achieved among researchers and scholars from several different academic institutions. As a co-work result, several journal articles have then been published in good-quality international journals. Some of them are listed below. More details are available in the Appendix.

- Wu, Y.A., Y.Y. Lau, and J. Wu (2022). Integration of electric vehicles into microgrids: policy implication for the industrial application of carbon neutralisation in China. *World Electric Vehicle Journal*, vol. 13, 96
- Lau, Y. Y., Wu, Y. A., & Mak, W. Y. (2022). A way forward for electric vehicle in Greater Bay Area: Challenges and opportunities for the 21st century. *Vehicles*, vol. 4, pp. 420-432
- Lau, Y. Y., Wu, Y. A., & Mak, W. Y. (2022). Electric vehicle charging infrastructures in the Greater Bay Area of China: Progress, Challenges and Efforts. *Frontiers in Future Transportation*, vol. 3, 893583, pp. 1-13

7.3 Any new development and/or challenging research topic(s) has / have been identified and any new initiative(s) for future research has / have been inspired.

Thanks to the RGC's kind support for successful research collaboration after the IIDS project, new research topic has been initiated between both internal colleague and external researchers and scholars in Hong Kong and Asia-Pacific region.

For example, though out the academic and research collaboration activities, including two seminar, one workshop, and one Asia-Pacific regional conference, encouraging feedbacks have been received. Collaborative research teams have been formed to study and research on cutting-edge research directions and topics, especially about electric vehicles and smart city development. Furthermore, this

opportunity also enabled us to invite some external speakers to come to Hong Kong, either face-to-face or hybrid mode due to their availabilities, and visit the self-finance institution as visiting scholars. They have shared their academic knowledge and research findings with academic colleagues, students, external academic scholars and industrial experts. Such collaborative activities and joint research teams have also jointly explored academic and research output through conference papers writing and journal articles publication.

Furthermore, several internal research projects have also been funded as a result of this IIDS project. New research topics related with green transportation, carbon neutralisation, smart campus, etc, have been established. Research collaboration teams with members from Hong Kong, GBA, Chinese mainland, Singapore, and Australia have been formed to jointly work on these new research challenges.

More research output, including journal articles, book chapters, and conference papers are expected in the next few years.

8. The Layman's Summary

(Describe in layman's language the nature, significance and value of the research activities, in no more than 200 words)

Following incentive policies of promoting technological innovation in the Greater Bay Area (GBA), this IIDS project has organized a series of research seminars, workshop, and regional symposium to create academic and research collaboration for areas including electric vehicle (EV), carbon neutralisation, smart city, and green finance, etc. Local and international academic scholars, especially in Asia-Pacific region, industrial experts, students, and even the general public have been welcomed to participate and share their inspiring ideas and opinions.

This project has been collaborated with the Digital Grid Futures Institute (DGFI) of University of New South Wales (UNSW) in Australia. DGFI, as one leading innovative research institute in UNSW, has pioneered in cross-disciplinary research, such as digital power system, smart transportation, cyber securities, and regulatory policies, with excellent track record.

Through this collaboration, the project has enabled local scholars and researchers to build up their knowledge and research skills in conducting interdisciplinary research in the development of above topics covering both technological and economics issues. The project has not only provided an excellent platform for the local academics with scholarly interests in related areas to develop their research achievement, but also enhanced the quality of local teaching through international scholarly exchange and collaboration.

Part C: Research Output**9. Recognized Conference(s) Paper(s) Related To This Project Was / Were Delivered (As Applicable)***(Please attach a copy of each conference abstract)*

Month / Year / Place	Title	Conference Name	Submitted to RGC <i>(indicate the year ending of the relevant progress report)</i>	Attached to this Report <i>(Yes or No)</i>	Acknowledged the Support of RGC <i>(Yes or No)</i>
Dec 2021 Hong Kong	Policy Review on Sustainable Development of Electric Vehicles in China	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes <i>(Please refer to Appendix of this report)</i>	Yes
Dec 2021 Hong Kong	Connecting Unmanned Aerial Vehicle (UAV) Research to Smart Transportation	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes <i>(Please refer to Appendix of this report)</i>	Yes
Dec 2021 Hong Kong	Smart Transportation and Green Financing: Solutions for Hong Kong	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes <i>(Please refer to Appendix of this report)</i>	Yes
Dec 2021 Hong Kong	Smart Transportation Management System (TMS) Solution	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes <i>(Please refer to Appendix of this report)</i>	Yes
Dec 2021 Hong Kong	Data Driven Eco-Friendly and Smart Transport in the Digital Era	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes <i>(Please refer to Appendix of this report)</i>	Yes
Dec 2021 Hong Kong	Shared Mobility Planning for EVs	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes <i>(Please refer to Appendix of this report)</i>	Yes
Dec 2021 Hong Kong	The Target of Carbon Neutrality and its Industrial Impact in China	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes <i>(Please refer to Appendix of this report)</i>	Yes

Dec 2021 Hong Kong	Coordinated Control, Operation, and Planning of Distributed Energy Resources (DERs) in Microgrids	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes (Please refer to Appendix of this report)	Yes
Dec 2021 Hong Kong	Aviation Emission, Contrail Formulation and Avoidance and Sustainable Air Traffic Flow Management	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes (Please refer to Appendix of this report)	Yes
Dec 2021 Hong Kong	Research Landscape of Smart Transport and Green Financing: A Bibliometric Analysis	Symposium on Smart Transport and Green Financing in the Greater Bay Area	2023	Yes (Please refer to Appendix of this report)	Yes

10. Research Personnel Trained (As Applicable)

Name	Capacity
██████████	Student helper
██████████	Student helper
██████████	Student helper
██████████	Student helper
██████████	Student helper
██████████	Student helper

11. Other Impact (As Applicable)

(e.g. prizes, collaboration with other research institutions, technology transfer, etc.)

This project enabled the self-finance institution to enrich and develop the academic collaborative activities, not only about research output but also about teaching performance. We borrow this opportunity to train some undergraduate students who have shown interest in research related activities. They actively participated in seminars, workshop, and act as student helper for the regional conference event. Some of the emerging research findings have also been introduced in the class teaching to provide advance exposure for students.

12. Statistics on Research Outputs

	Peer-reviewed Journal Publications	Conference Papers	Scholarly Books, Monographs and Chapters	Patents Awarded	Other Research Outputs (please specify)	
No. of outputs arising directly from this project	3 <i>(Details in Part B, Section 7.2)</i>	10 <i>(Details in Part C, Section 9)</i>	0	0	Type	No.
					NA	

13. Public Access Of Completion Report

(Please specify the information, if any, that cannot be provided for public access and give the reasons.)

Information that Cannot Be Provided for Public Access	Reasons
NA	NA