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By Hand and Email at policyaddress@cepu.gov.hk

30 August 2024

The Honourable John KC Lee, GBM, SBS, PDSM, PMSM
The Chief Executive
Hong Kong Special Administrative Region
People's Republic of China
c/o Policy Address Team
Chief Executive's Policy Unit
26/F, West Wing
Central Government Offices
2 Tim Mei Avenue
Tamar, Hong Kong

Dear Mr LEE

Views from The Hong Kong Institution of Engineers to the Chief Executive for Formulation of the 2024 Policy Address

On behalf of the Institution, I am pleased to present to you our views and suggestions as set out in the enclosure for your kind consideration on the captioned subject.

With our expertise and experience, the Institution welcomes the opportunity to work with the Government on the area of concern for the benefits of the profession and the general public as a whole.

Thank you.

Yours sincerely

Ir Eric MA Siu-cheung
President, The HKIE

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As a pivotal "Super Connector" bridging the Mainland and the global stage, Hong Kong has reclaimed its status and prominence through its determination to foster innovative technologies. By actively trawling the world for talent and promoting Hong Kong's distinctive strengths, the city has yielded positive outcomes amidst the volatile external economic landscape. Echoing President Xi Jingping's vision of fostering "new quality productive forces", Hong Kong shall intensify its focus on innovation to drive economic transformations. The Hong Kong Institution of Engineers (HKIE) acknowledges our role in assisting the Administration and society in resolving longstanding challenges, embracing our responsibility as catalysts for progress and innovation.

2. As a professional body reaching its 50th anniversary next year, the HKIE traces deep historical roots in championing engineering excellence and remains as steadfast now as ever in our mission to provide our expertise and knowledge to tackle challenges and pave the way for a better future for Hong Kong. We also recognise engineers' pivotal roles in our nation's larger developmental scheme. Hong Kong engineers' substantial contributions to the Mainland's scientific sphere is most recently exemplified by the honour bestowed on an HKIE member through his receipt of the prestigious Guanghua Engineering Science and Technology Prize, which is led by President Xi and administered by the Chinese Academy of Engineering. In line with these beliefs and commitments, we would like to present our insights into key areas to the Administration, aiming to contribute to the formulation of the forthcoming Policy Address.

Innovation and New Industrialisation

3. Innovation and new industrialisation stand as pivotal pillars shaping the global landscape of the future. At the core of these domains lies the expertise of engineering professionals. In this regard, conducting a comprehensive study on the manpower requirements for supporting the development of new industrialisation in Hong Kong would be worthwhile. The HKIE believes that engineers are primed to leverage their professional skills for new industrialisation initiatives and advocates for Hong Kong's

advancement as a hub for engineering professionals. While the HKIE's ongoing efforts to broaden mutual recognition with overseas and mainland counterparts and uphold an internationally recognised qualification and certification system are important steps in this direction, the crucial support and endorsement from the Government will be vital for the hub's ultimate success.

4. The Institution suggests that enterprises seeking subsidies related to new industrialisation be granted extra benefits, in the form of tax incentives or additional allowances, for engaging Professional Engineers (PEs) in research and development (R&D), production, quality control, or various operational processes.

5. The long-term success of new industrialisation requires the harmonious fusion of technological innovation and engineering acumen coupled with stringent safety protocols. PEs possess the expertise essential to drive innovation, boost productivity, and uphold safety standards across the product realisation spectrum, effectively safeguarding the integrity and quality of a robust manufacturing sector. Concurrently, bolstering the "Made-in-HK" brand and fortifying Hong Kong's stature as a regional hub for innovation and technology (I&T) can amplify economic growth avenues and bolster the manufacturing GDP through the cultivation of a new ecosystem.

6. Furthermore, it is imperative for the Government to engage in meticulous pre-planning, closely aligning with market demands to ensure the successful implementation of I&T initiatives. In 2022, the Government introduced the "Hong Kong Innovation and Technology Development Blueprint", which outlines four broad development directions and highlights strategic industries including life and health technology, artificial intelligence (AI) and data science, advanced manufacturing, and new energy technology industries. The Institution anticipates a collaborative effort between the Government, higher education institutions, and the four industrial sectors to nurture talent for these industries, fostering an environment conducive to business establishment and growth in Hong Kong.

7. In the upstream domain, the Government has introduced a range of measures to support scientific research. The Institution views this as the crucial first step towards fostering new high-quality productivity, emphasising the acceleration of the rate of technology transfer. Patent applications typically signify the commencement of

commercialising university research outcomes, with the number of granted patents reflecting the societal benefits universities can yield through I&T development. To further incentivise university faculty and staff involved in pioneering new technologies and products, the Institution recommends relaxing restrictions on profit-sharing ratios and technology ownership. This enhancement aims to encourage higher education personnel to dedicate themselves to research, creativity nurturing, and the exploration of avenues for commercialising research outcomes. Moreover, incorporating the commercialisation of research as a criterion for fund allocations to universities could serve as an additional motivator for institutions to invest in R&D.

8. In the realm of midstream and downstream initiatives, the establishment of a resilient and dynamic capital market is critical: By facilitating startups' engagements with investors and their seizure of market opportunities, such a market stands as a pivotal focus in propelling Hong Kong towards international acclaim as an I&T hub. The Institution understands that the Government is currently reassessing the "Innovation and Technology Venture Fund" with the objective of swiftly introducing a more market-responsive alternative. Simplifying application and approval processes, enhancing coordination among approving bodies, streamlining administrative procedures, and ensuring eligible startups' prompt access to funding are key areas for enhancement. The aim of the Fund being to attract more private investments, the Institution contends that the introduction of additional venture capital funds and a reduction in the matching ratio from the current approximate 1:2 to 1:1 (or 1:1.5) could effectively optimise Government resources to nurture the growth of startups.

9. The Institution proposes the establishment of a fast track for current initiatives and the development of an I&T ecosystem to support start-ups and R&D ventures. For instance, the San Tin Technopole could serve as a testing ground, equipped with advanced infrastructure including high-speed, secured and widespread connectivity throughout the city. This infrastructure encompasses technologies such as fibre-optic networks, the latest in wireless communication such as Wi-Fi6, Mesh Wi-Fi, fibre-to-the-home (FTTH) services, 5G network, and even provisions for future 6G technology, all essential for enabling seamless data transfer between systems, individuals within the city, and globally.

10. We also recommend a comprehensive approach that simultaneously emphasises the integration of emerging technologies (such as AI's efficiency-enhancing integration into process automations in sectors ranging from manufacturing to healthcare) and addresses pivotal ethical and social considerations. Firstly, the HKIE advocates for the early exposure of students to AI knowledge and skills, alongside education on ethical facets like copyright and data protection. Secondly, the collaboration between the Government and professional bodies is needed to establish AI governance frameworks and guidelines for Hong Kong, ensuring the safe, responsible and widespread application of AI. For example, a professional mechanism should be established for specialists from the Control, Automation and Instrumentation (CAI) Discipline to conduct safety review of AI-driven autonomous entities. Thirdly, stringent legislation and continuous updates for IT security standards and guidelines are considered necessary to fortify cybersecurity measures crucial for Hong Kong's stability and prosperity. The HKIE further stresses the necessity for qualified personnel overseeing critical IT infrastructure, suggesting that new regulations should mandate professional qualifications, such as being a Corporate Member of the HKIE, and ongoing professional development for the personnel. We would also like to underscore the importance of enhancing public AI literacy and cybersecurity awareness through Government-led initiatives, aiming to empower individuals with the knowledge necessary in an increasingly digital landscape.

11. Specifically for the construction sector, safety, efficiency, and sustainability stand as pillars of equal significance, all poised to benefit from the advancements in I&T. The HKIE advocates for expediting the deployment of new technologies like Multi-trade Integrated Mechanical, Electrical and Plumbing (MiMEP), Building Information Modelling (BIM), and Modular Integrated Construction (MiC) in the design, construction, and maintenance of infrastructure and buildings to ensure swift progress. The continual advocation of best practices in these and other construction technologies may require, in the long run, the compilation of a list of relevant experts consisting of specialists from universities, institutions, and the industry. Moreover, a customised Code of Practice (COP) for MiC should be developed, with reference to the COP for Precast Concrete Construction for instance, to ensure the consistency, safety, and quality of MiC practices by codifying their standards and requirements. To enhance construction safety, it is recommended to introduce financial incentives and recognition programmes to stimulate the development of innovative safety solutions.

Notwithstanding the advancement of smart safety systems and technologies, their efficacy ultimately relies on implementation by workers. Therefore, the proposal includes the development and mandatory implementation of relevant training and certification programmes for all construction workers and managers to effectively nurture a safety-oriented culture. Regarding sustainability, the recommendation is to champion policies that incentivise the utilisation and advancement of sustainable materials, including green concrete and recycled resources. Government-led initiatives aimed at certifying and promoting environmentally friendly building practices are also encouraged to bolster sustainable construction practices.

Streamlining Procedures

12. Cross-department efforts have been dedicated to streamline procurement procedures, particularly focusing on the pre-construction phase to expedite the delivery of public housing units and other essential utilities. The Administration should consider implementing a unified single-window clearance system, enabling project owners to submit all necessary documents and applications in a centralised location. This reduces the need for multiple submissions to different departments, improving efficiency and expediting project timelines. In this context, the promotion of electronic systems for documentation submission and approval is imperative. Alongside the existing Electronic Submission Hub (ESH) and Housing Electronic Plan Submission System (HePlan) used by the Buildings Department and Housing Department, the adoption of other electronic systems can enhance efficiency and streamline the approval process.

13. To facilitate project implementation, the Institution recommends offering pre-application consultation services to assist project owners in comprehending the requirements and expectations of the approval process. Providing explicit and precise guidelines, regulations, and requirements can help project owners to understand and adhere to the necessary standards. The Institution would like to reiterate that bureaux should function not only as regulators but also as facilitators in this process. This proactive approach can help identify and resolve potential issues at an early stage, thereby minimising delays during the subsequent application stage.

Talent Acquisition and Cultivation

14. In recent years, the Government has made progress in attracting talents, and it is crucial to create an environment conducive to retaining them, especially in the field of I&T, which is all the more competitive because also targeted by numerous other regions. The retention of the talent whom we have attracted is vital for sustaining Hong Kong's development. The HKIE suggests funding local companies, research institutions, and universities in the retention and nurturing of talents who meet specific criteria.

15. Nurturing local talent is one of the solutions that can build the reserve of human resources needed for the sustainable prosperity of the city. For decades, the HKIE Formal Training Schemes (Scheme "A" / AM Training) have fostered generations of engineering talents. As the engineering and construction industry is poised for a blooming future, these training schemes hold a significant importance in addressing anticipated manpower shortages by supplying the market with professional engineers at a quicker pace. However, the Institution would like to highlight that their subsidy level has remained stagnant for decades, posing a challenge for small and medium-sized enterprises (SMEs) to compete for talent effectively. The Institution again urges an increase in Government subsidies for Scheme "A" companies to recruit engineering trainees. Scheme "A" and other Graduate Training Schemes provide an expedited path for graduates to obtain professional qualifications within a structured framework, allowing qualified talents to advance their careers two years earlier than if they follow the standard route, and to contribute in a greater capacity to society's development. The HKIE recommends raising the subsidy from HK$5,610 to HK$10,000 or higher to provide companies with stronger incentives to offer trainees higher starting salaries, while also advocating for an increase in the quota from the current level at 272 to 1,000 to accelerate talent training.

16. The HKIE also envisions inaugurating a new institutional scheme in which our experienced professionals may play an active part in priming engineering enterprises and practitioners from the Mainland with the necessary knowledge and technical assistance to venture into the highly competitive international market with a greater degree of facility. Such a scheme is to achieve, for our fellow Mainland stakeholders, what the recent endeavours of the Development Bureau have been achieving for the local construction industry, supporting it to flourish. Beyond unilateral assistance, the

scheme would serve as a platform for local and Mainland industry partners to collaborate with one another more closely and grow in a mutually beneficial manner. The Government is requested to support the HKIE in this initiative.

Education

17. Moving towards a future embracing I&T and new industrialisation, Hong Kong requires a substantial growth in its corps of scientists, engineers, technologists, and similar specialists, more so than generalists. STEAM education not only cultivates a skilled workforce but also fuels the sustainable growth of Hong Kong's development. However, it has become apparent that there are insufficient incentives within the secondary school curriculum and university admission criteria for students to opt for STEAM subjects, notably mathematics (the extended part) and physics. As such, we again advocate for a prompt review of university admission requirements and secondary school curriculum to draw competent students to pursue engineering disciplines and evolve into the types of skilled professionals essential for the future. While the call is not for a curriculum favouring only the engineering sector, it is imperative that Hong Kong's education system logically aligns with the future talent demands. The HKIE remains committed to promoting the distinct allure of engineering-related careers, aiming to rekindle the aspiration of young individuals towards engineering as their dream profession once again.

18. To engage the city's talents in the process of new industrialisation, it is imperative for the Government to prioritise the development of local engineering talent across diverse skill levels. Vocational training, in particular, should be tailored to meet the evolving needs of emerging industries. Apart from raising public awareness regarding the advantages and prospects offered by these emerging sectors, the HKIE recommends that the Government contemplate funding training programmes and Continuing Professional Development (CPD) courses for local professionals, including engineers, technologists, and skilled labour, with a focus on innovation, digitalisation, advanced technologies in materials and CAI industries, sustainability, and other future-oriented competencies. The alignment of these programmes and courses' curricula with industry breakthroughs and demands would also need to be ensured through constant reviews and updates in consultation with practicing experts. The upskilling of the local professionals will play a pivotal role in preparing our workforce for rising

challenges, promoting the development of blooming industries such as life and health technologies, AI and data science, as well as propelling advancements in manufacturing, infrastructure, and new energy technology sectors.

Land and Housing Supply

19. A stable and well-planned land supply is paramount for both economic progress and societal well-being. The Institution suggests that the Administration prioritise reclaiming Kau Yi Chau Artificial Islands to establish land reserves for future developments. This initiative will significantly aid in relocating residences in aging urban districts slated for renewal, while also using the 15 million metric tons of public fill generated annually in Hong Kong. The Administration is also recommended to set out a key infrastructure and land delivery framework to ensure the timely provision of land, fostering a stable environment for the engineering industry. A stable land supply schedule creates an environment where the industry can effectively strategise its human resources and material supply, mitigating the swing between periods of excessive workloads and those of project scarcity.

20. In the current climate of elevated interest rates, developers generally exercise caution when investing in Hong Kong's property market. To encourage developer participation and expedite development processes, the Institution recommends a review of land sale conditions. Suggestions include reducing public facilities in small-scale private developments and streamlining approval procedures. Under the uncertainty surrounding the economic conditions and interest rate trends in particular, the Institution supports the Government in adjusting land sale strategies according to the prevailing environment. However, we advocate for maintaining a reasonable land supply to sustain housing projects and economic endeavours. By easing conditions and accelerating approval processes, it is believed that investments from developers can proliferate.

21. As an interim measure, the Administration could consider allowing non-governmental organisations repurpose disused quarantine facilities, converting these facilities into transitional housing to address urgent housing needs.

Aviation Hub

22. A comprehensive strategy is imperative to solidify Hong Kong's status as a global aviation hub. With the imminent completion of the three-runway system by the end of 2024, the city's aviation capabilities are poised for significant advancements. To achieve a long-term vision of heightened competitiveness, particularly within the Greater Bay Area (GBA), there is a need to attract local and international operators, original equipment manufacturers (OEMs), and various aviation service providers to expand their operations in Hong Kong. The Government may consider benchmarking against successful aviation industries in nearby countries such as Singapore and collaborate with GBA partners, including Macau, to foster R&D, manufacturing, product support, and maintenance and repair facilities for aviation. To enhance the airport's competitive edge, relevant authorities should consider substantial reductions in airport charges to alleviate operational expenses for stakeholders. Seamless transport connections between the GBA and Hong Kong International Airport are vital to facilitate increased traveler traffic.

23. The success of a global aviation hub may entail, in Hong Kong's case, a thorough-going commitment to the strategic reformation of the Airport Authority Hong Kong (AA)'s hierarchical management structure. It may collaborate more closely with key stakeholders such as airlines, aircraft maintenance organisations (AMOs), and ramp handling agents (RHAs) on the enhancement of efficiency, encourage keener competitions among providers of peripheral services by granting franchises in e.g. RHA and disinfection service, investigate the viability of deploying drones for aerial inspections, and increase the airport's competitiveness by advocating for the revision of Cap. 448D Hong Kong Air Navigation (Fees) Regulations, thereby charging lower fees. More broadly, challenges arisen from climate change and the post-COVID norms have also necessitated the need for AA to review its business contingency plan, safety procedures and other provisions against operational hazards, as well as equipment standards.

24. While initiatives are in place to draw manpower from the GBA to address labour shortages in Hong Kong's aviation sector, additional incentives are essential to entice local workers to commute to the airport's remote location. Establishing a sustainable

talent pipeline for the airport's expansion entails attracting local youth as well as individuals from the GBA to pursue aviation-related studies at higher education institutions, preparing them for roles within the airport's workforce. Introducing a visa scheme to recruit semi-skilled vocationally trained graduates from overseas for aircraft maintenance training in Hong Kong is recommended. In addition to supportive programmes such as internships and sponsorships, expanding avenues for local talent to enhance their skills is crucial, with continuous support from the Maritime and Aviation Training Fund (MATF) to foster the ongoing development of airport personnel.

25. Furthermore, the low-altitude commercial sector has emerged as a significant area of development for both the Mainland and Hong Kong. However, the existing regulatory framework has not sufficiently adapted itself to this evolving trend, leading to many enterprises' inability to fully leverage this opportunity. Therefore, it is recommended that the Government evaluates and implements necessary measures to ensure that the regulatory environment is conducive to and practical for the upcoming deployment of low-altitude commercial operations.

Infrastructure Development, Smart City, and Sustainability

26. Infrastructure underpins any city's proper functioning and continual development, and in Hong Kong, where the infrastructure is internationally recognised as one of the world's best and most sophisticated, this rings especially true. A paragon of this is how, in the city, a proliferation of public construction projects would strengthen its domestic economy and maintain its competitiveness. The HKIE believes that funds and investments, both domestic and international, play particularly important roles in the flourishing of infrastructure development in Northern Metropolis and other projects which inject vitality into our economy and communal activities. In view of the acute circumstances in which our construction industry is currently situated, the Government should take the lead in encouraging investments in infrastructure and construction projects.

27. The HKIE recommends diversifying the methods and channels of raising funds and stimulating investments for infrastructure development. Some possible pathways to be profitably investigated include the adoption of a Public-Private Partnership (PPP)

model, the establishment of dedicated investment funds for domestic and foreign entities, the issuance of infrastructure bonds, and the organisation of international investment forums and conferences. Taken together and separately, these measures not only mitigate the Government's fiscal pressure but may also spawn additional benefits by, for instance, introducing innovative elements from private or international enterprises and ensuring sustainable financing for projects as well as returns for investors. Partnerships with international financial institutions, such as the Asian Development Bank, may also be initiated regarding loans and technical assistance. Hong Kong's uniquely privileged position as a key city in the GBA, and one of the active contributors to the Belt and Road Initiative, can also be leveraged in attracting investments through internally established cooperative mechanisms. The HKIE believes that the premise and starting point of all these is a thriving local business environment, fortified by the rule of law and with enticing tax incentives and supportive policies protecting investors' rights and interests.

28. In the pursuit of a smart and sustainable city, the integration of cutting-edge technologies and robust infrastructure is paramount. A strategic roadmap should be framed for the wholesale realisation of smart infrastructures such as smart grids, Intelligent Transport Systems (ITSs), and automated building management systems. The application, in these infrastructures, of innovative technologies like sensors networks, AI, Blockchain, IoT, big data analytics, and much else, can revolutionise various city functions, from transportation to healthcare, fostering efficiency, sustainability, and an enhanced quality of life.

29. Development of a smart city should be attuned to the rapidly growing prominence of Electric Vehicles (EVs) on the global scale and the worldwide transition to greener transportation systems. In view of these, and the limited availability of public EV charging ports and other related infrastructures in Hong Kong, the HKIE advocates for a pilot programme for mid-charging locations with standard 7 kW Alternating Current (AC) at public parking meters. Implemented in a designated zone with heavy traffic and high parking demands, such a programme would facilitate the collection and analysis of data for feasibility assessment as well as problem-solving connected with the uneven distribution and access disparities of mid-charging locations. It would also be instrumental in the informed development of a future expansion plan for EV charging infrastructure in Hong Kong.

30. Data management and analytics play a pivotal role in a smart city's functionality. With copious amounts of data generated from diverse sources, a robust infrastructure for data storage, processing, and analysis is imperative. This infrastructure equips the city with the capability to extract valuable insights, optimise services, and make data-driven decisions to enhance citizen experiences. Furthermore, a smart and green energy infrastructure is crucial for sustainability. Implementing modern, efficient, and eco-friendly energy systems that support renewable sources, smart grids, and energy management technologies and energy storage solutions can optimise energy distribution, monitor consumption patterns, and mitigate environmental impact, aligning with the city's sustainability goals.

31. Any city with sustainability in view should possess an overarching energy strategy that considers its various energy sources' efficiency in contributing to broader climate targets. As a low-carbon alternative to fossil fuels, nuclear energy is sustainable, reliable, safe, and should be promoted and commended as such through public education campaigns, incorporation into the city's energy mix, and increased investments in its R&D. A Government-led R&D centre dedicated to nuclear energy, if established and vigilantly cultivated, would provide Hong Kong with a communal platform for local nuclear scholars to collaborate both with one another and with international research institutions; it would also elevate the city to a leading position in nuclear technology, safety protocols, and waste management solutions, equipping it with high-skilled nuclear personnel.

32. The secure and wide application of nuclear energy, if it is to transition into a sustainable practice, would presuppose a sizable body of well-trained nuclear engineers in the industry's workforce in the Greater Bay Area, as well as a corresponding mechanism that facilitates these engineers' continual professional development. The Government is recommended to formulate relevant policies and make provisions for specialised training programmes, certification courses, and other such opportunities. Simultaneously, incentives should be in place for young engineers to enter the field, ensuring that proficient nuclear professionals are constantly in the pipeline.

33. In parallel, fostering cooperation with neighbouring regions for additional import of nuclear electricity to Hong Kong emerges as a viable strategy to secure a reliable and sustainable zero-carbon energy source, vital for achieving the city's carbon neutrality

objectives by 2050. Strengthening governance and setting qualifications for individuals managing irradiation plants and equipment are crucial to mitigate public hazards associated with their use, especially considering the expanding utilisation of such technologies in Hong Kong. Additionally, promoting the career development of professionals with expertise in nuclear energy will be essential to meet the increasing demand for skilled personnel in this sector, reinforcing the city's commitment to sustainable energy practices and safety standards.