

# Career Development through Vocational and Professional Education and Training (VPET)

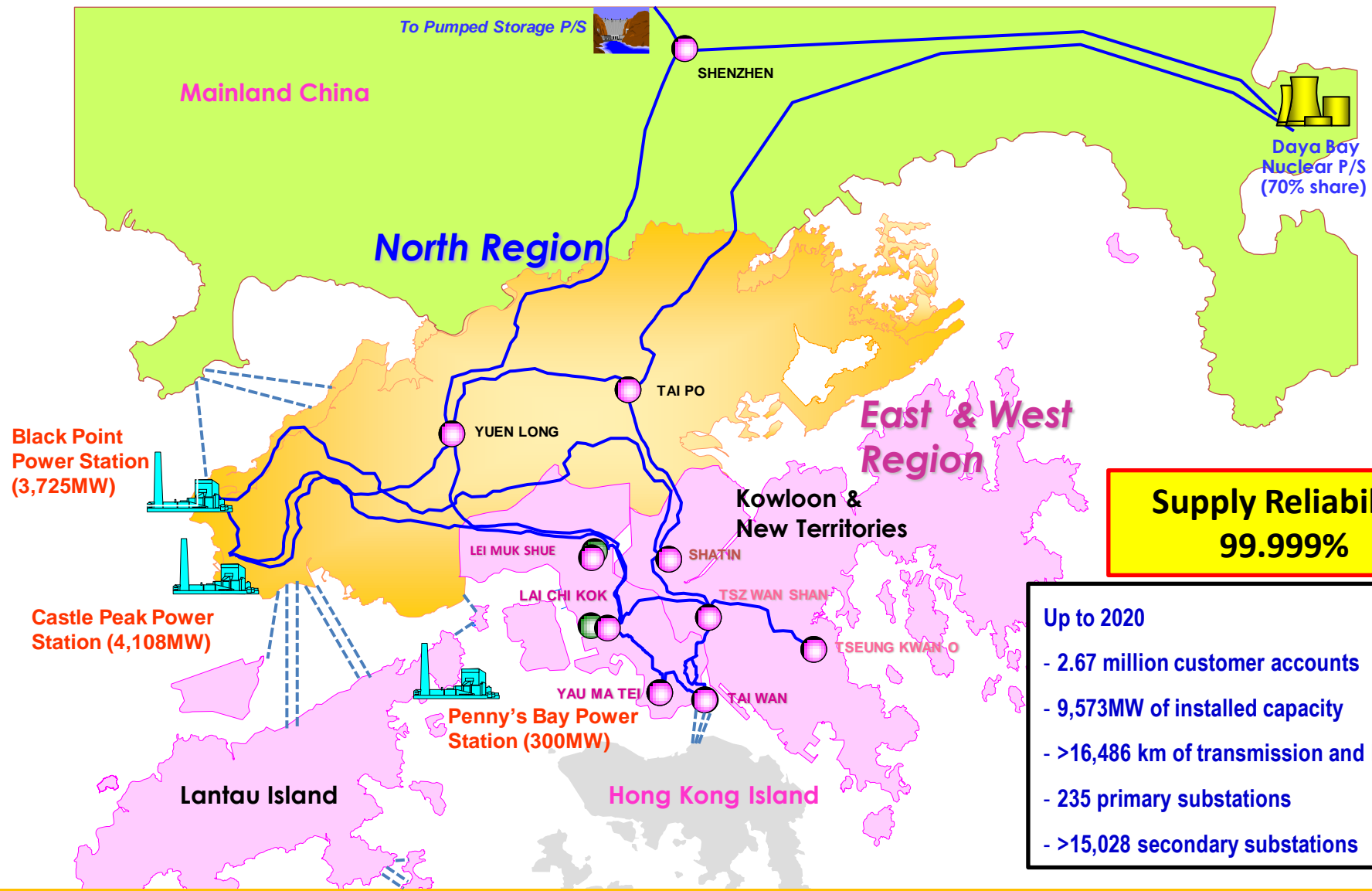
**FSTE–HKCAAVQ Forum**

**Education 4.0 :**

**Conceptualizing Higher Education in the Future of Work**

**Paul Poon, Vice Chancellor  
CLP Power Academy**

**29 November 2021**



**Supply Reliability  
99.999%**

- Up to 2020
- 2.67 million customer accounts
  - 9,573MW of installed capacity
  - >16,486 km of transmission and high voltage distribution lines
  - 235 primary substations
  - >15,028 secondary substations

We need a team of dedicated engineering professionals and craftsmen working **round-the-clock** to ensure that the operation and maintenance of the system is meeting the required standard in **safety, reliability, environment and customer services.**

# Infrastructure Developments in Hong Kong



New Combined-Cycle Gas Turbine



HK Airport 3<sup>rd</sup> runway

Continuous High Demand for E&M Professionals



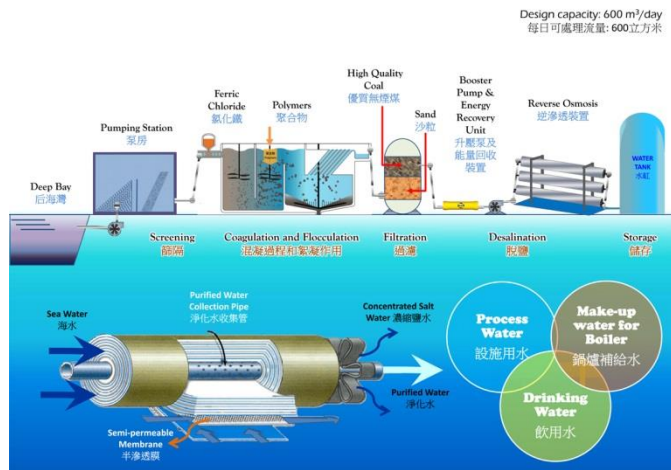
HK – Zhuhai – Macao Bridge



Express Rail Link & other railway projects



# Infrastructure Developments in Hong Kong



**Desalination Plant**



**Integrated Waste Treatment Facilities**

**Continuous High Demand for E&M Professionals**

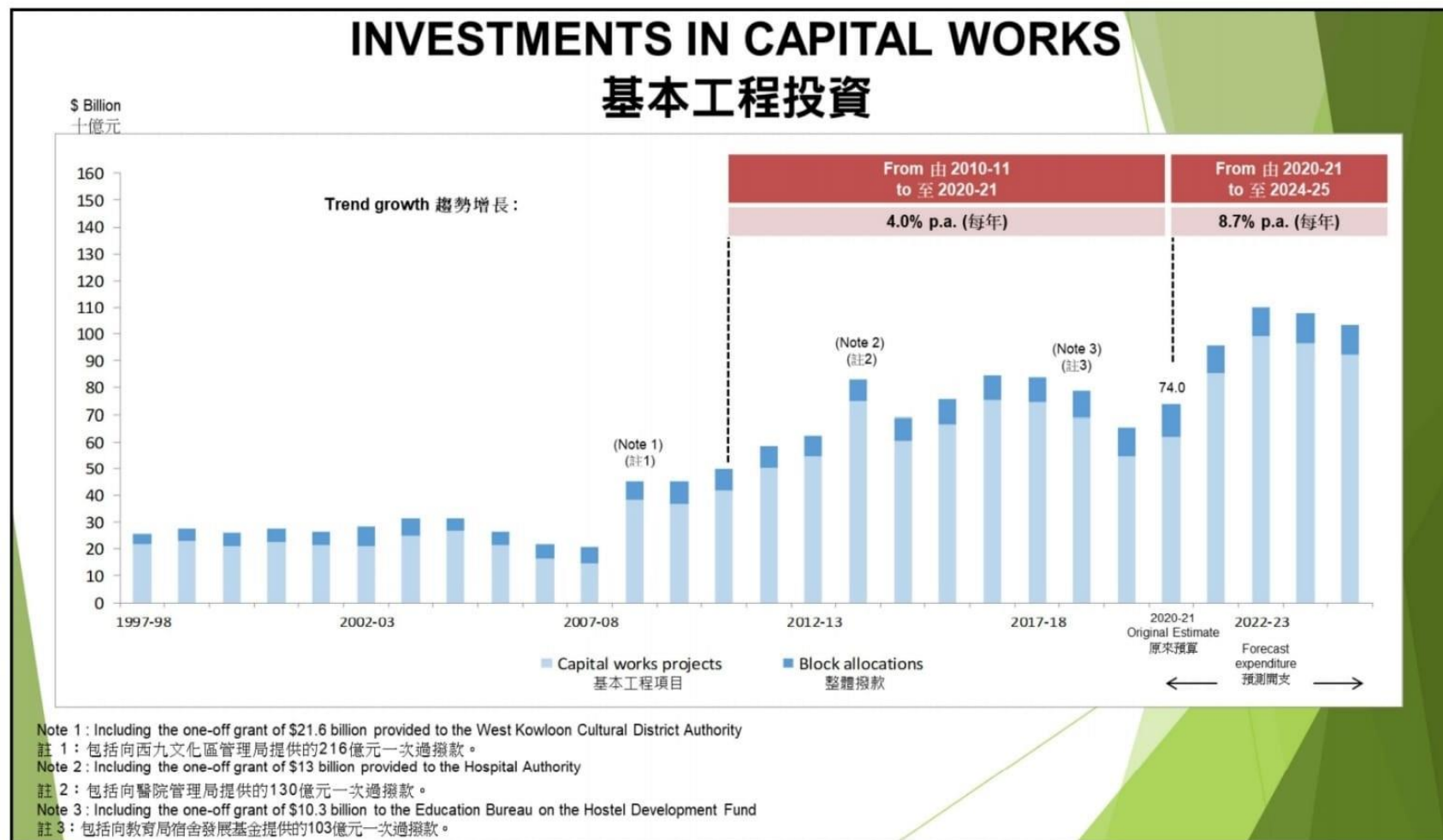


**Sludge / Waste Treatment Facilities**



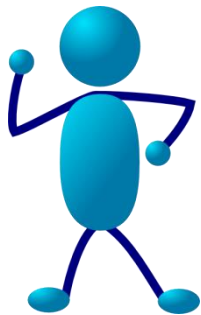
**Water / Wastewater Treatment Facilities**

# Hong Kong Infrastructure Development



# Existing Systems for School Leavers

Career and  
Professional /  
Vocational  
Training



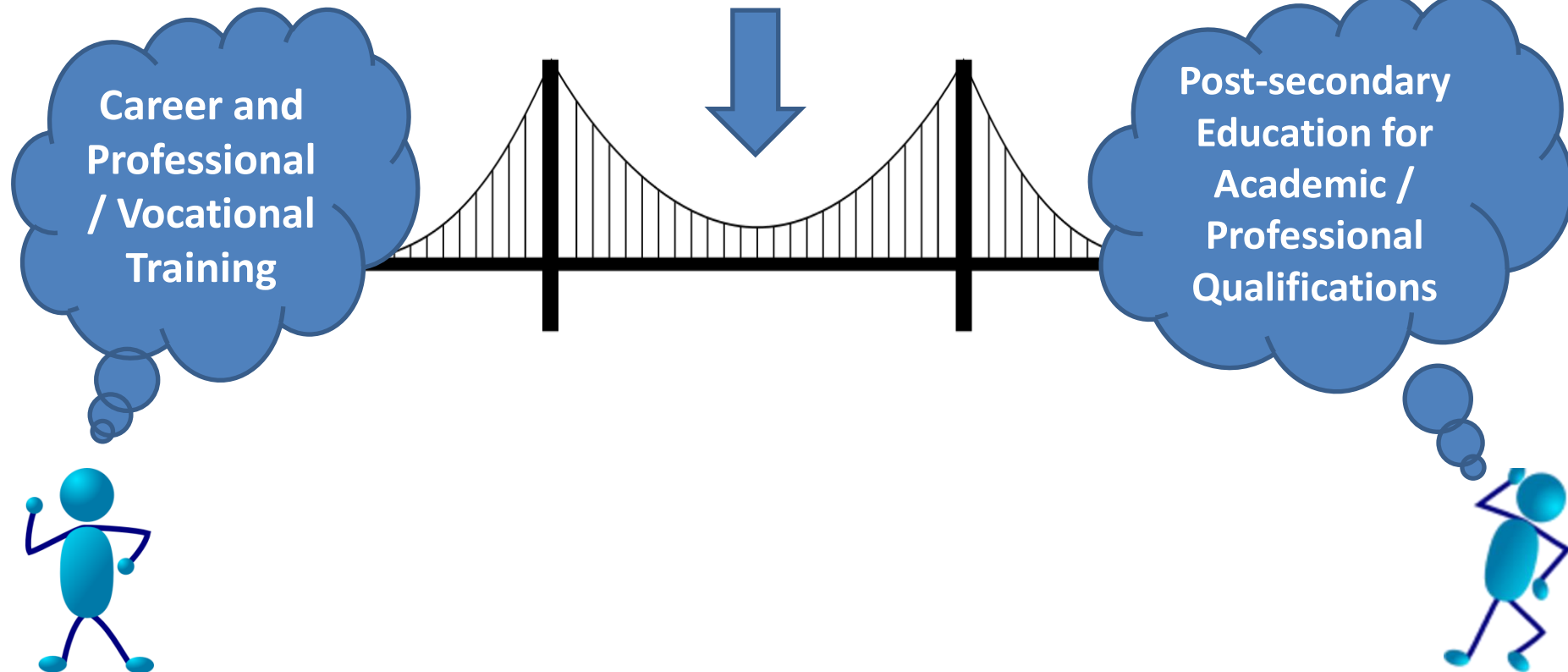
Post-Secondary  
Education for  
Academic /  
Professional  
Qualifications



# New Systems for School Leavers



***Diploma / Professional Diploma / Bachelor / Dual Master  
Programme in Power, Electrical & Mechanical Engineering  
(Part-time, taught by industry practitioners)***



# Objectives

- Accelerated programmes through part-time study mode for E&M tradesman or people who would like to have career progression or to switch his/her career
- Qualifications Framework Level 3-6 in meeting academic qualification enhancement needs for being as technician and engineer in the industry
- Two streams available, i.e. Electrical Engineering and Mechanical Engineering, to meet the need of individuals
- Focusing on practicality of large E&M installation and power systems
- Uplifting the technical knowledge standard of the experienced workers & technicians in the power industry:
  - Professional Diploma graduates are eligible to be registered as REW Grade H
  - Diploma graduates are eligible to be registered as REW Grade A/B
  - Competent Person under CLP Power Safety Rules

**A visible academic / professional / career path through vocational professional training**



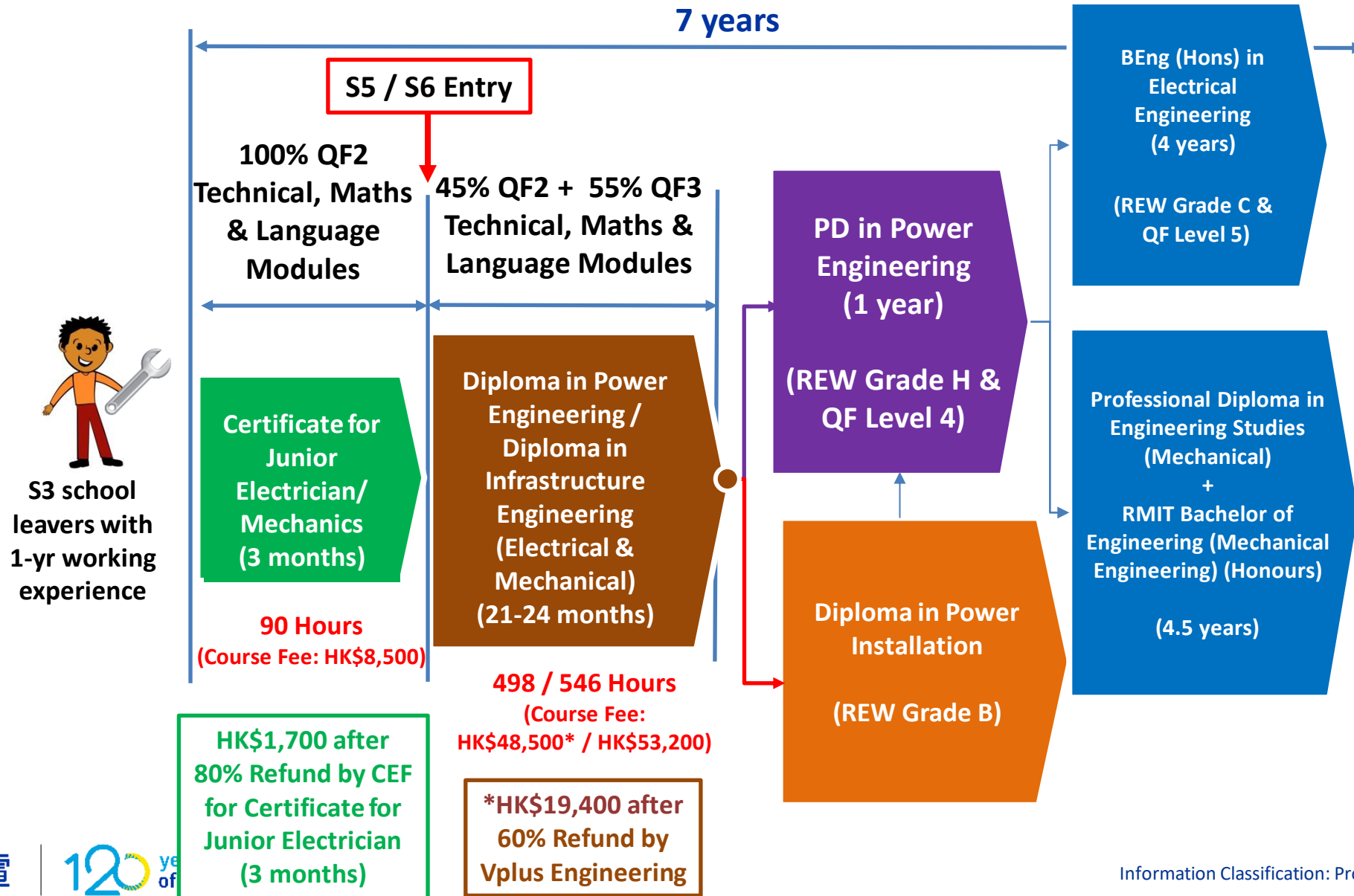
# Video - Professional Diploma in Power Engineering Programme



<https://www.youtube.com/watch?v=gIQ4ksqE3bU>



# Articulation Path for Diploma Graduates



# Bachelor of Engineering (Honours) in Electrical Engineering (Top-up)



- First BEng EE Programme in partnership between PolyU SPEED and CLP Power Academy
- In **Part-time** mode specially designed to address the market demand and students' needs under the operation of PolyU SPEED
- Normal duration: **4 years** (including one Summer Term) for 61-82 academic credits  
**Possible completion in 3 years**
- **Modified from the BEng EE (Part-time) programme** which has been operated very successfully for a long history under EE Dept of PolyU
- Admission:
  - Holders of **Higher Diploma / Associate Degree in Engineering or a Professional Diploma in Power Engineering or an equivalent qualification**
  - Mature student\* → **Age of 25 or above** and possess **relevant working experience in senior positions** and have completed post-secondary studies in related fields
    - \*Required to **pass an admission test** and demonstrate to an **Admission Interview Panel** their ability to complete the programme
- **Scholarships:**
  - PolyU SPEED Scholarship for Part-time Students
  - PolyU SPEED “Back-to-School” Scholarship

## MoU Signing Ceremony with PolyU - Partnering in Bachelor of Engineering (Hons) in Electrical Engineering programme (28 Mar 2018)

- CLP Power signed the Memorandum of Understanding (MoU) with PolyU-affiliated College of Professional and Continuing Education (CPCE) to pave the way for the partnership in offering nurturing a new generation of professional electrical engineering talents
- Under the co-operation, the CLP Power Academy will partner with the PolyU's School of Professional Education and Executive Development (SPEED) to organise the part-time Bachelor of Engineering (Honours) in Electrical Engineering programme
- Meeting the accreditation standards at **Qualifications Framework Level 5**, the programme will provide industry practitioners an upward mobility path by acquiring further academic qualification as well as in-depth vocational and professional knowledge



**Signed by:**

**Mr. Paul Poon (CLP Power Academy Vice Chancellor)  
Professor Peter Yuen (Dean of PolyU CPCE)**

**Witnessed:**

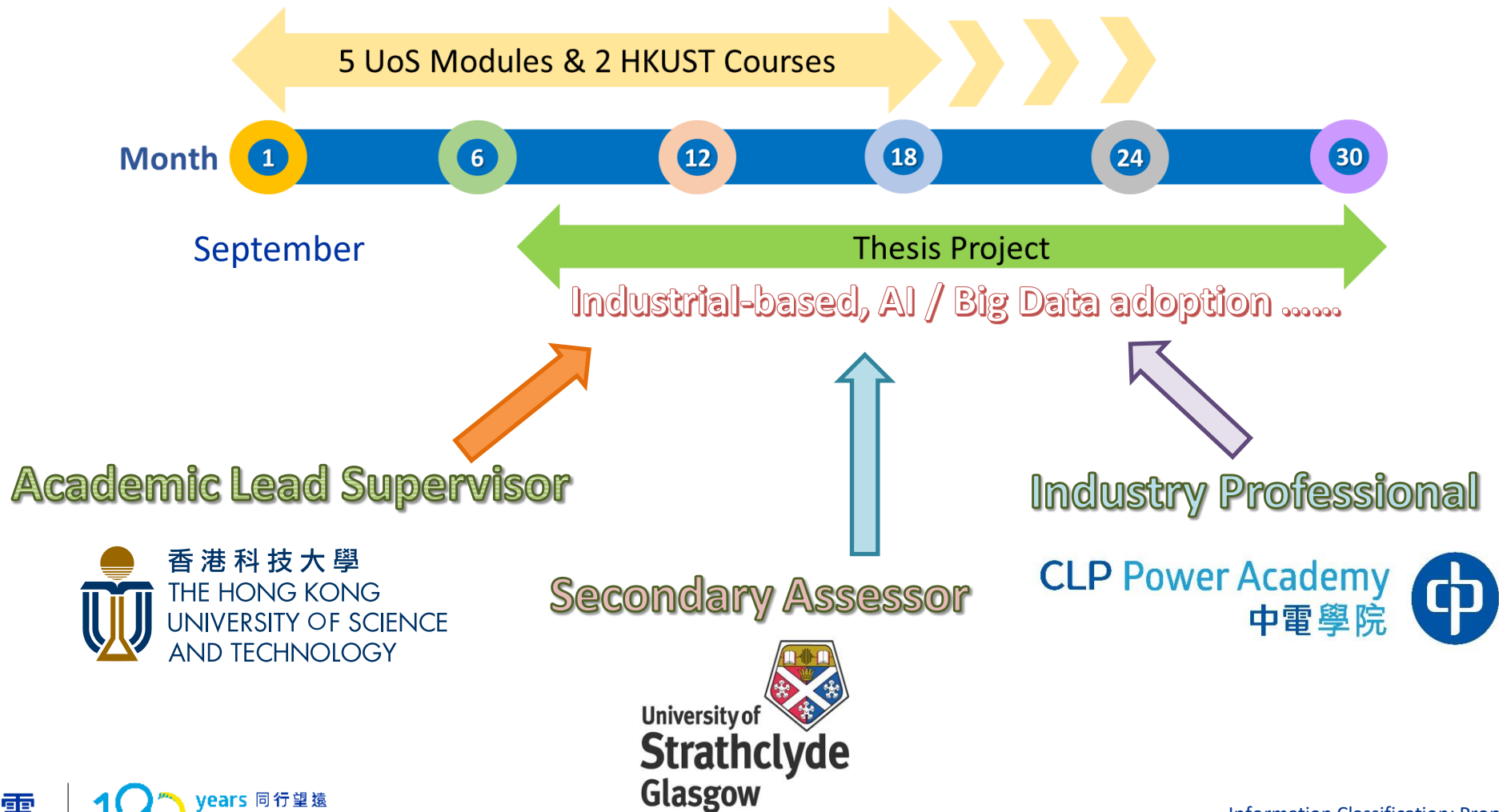
**Mr. Alfred Sit (Director of EMSD)  
Mrs. Betty Yuen (CLP Power Vice Chairman)  
Professor Timothy Tong (The PolyU President)**

**Management from CLP Power, PolyU, CPCE and SPEED posed for pictures with guests at the MoU signing ceremony**





# Hong Kong's first Academic-Industry Dual Master's Degree – MPhil and MSc in 2.5 years (Part-time)



# Dual Master's Degree – MPhil and MSc

## Strathclyde modules

(2 core, 2 optional, and 1 Professional Practice)

### Core modules:

- Key power systems concepts and foundations
- Power system operation, control and protection

### Optional modules (2 from 6):

- Power electronics conversion and control
  - Communications and the smart grid
  - Regulation and market structures
  - Managing risk and uncertainty in power system operation
  - Asset management and condition monitoring
  - A relevant business module relating to power utility management
- **Professional Practice module**

*Remarks: The offering schedule of specific courses will be confirmed shortly before the beginning of each academic term.*

## HKUST modules

(choose 2 courses related to the topic of the thesis project)

### Research areas: Big data analytics, artificial intelligence

#### Example of courses:

- COMP 5312 Introduction to Big Data
- COMP 5211 Advanced Artificial Intelligence
- COMP 6211 Advanced Topics in Artificial Intelligence
- MSBD 5003 Big Data Computing

### Research areas: Internet of things, power control

#### Example of courses:

- COMP 5211 Advanced Artificial Intelligence
- ELEC 5650 Introduction to Networked Sensing, Estimation and Control
- IBTM 5060 Building Internet of Things: Technologies, Big Data and Strategies for the Building Manager

### Research areas: Renewable energy sources and sustainability, energy policies

#### Example of courses:

- MECH 5230 Computational Fluid Dynamics and Heat Transfer
- MECH 5430 Thermodynamics and Kinetics of Materials

# Taking the BEST of both by partnering



School of Professional Education  
and Executive Development  
專業進修學院

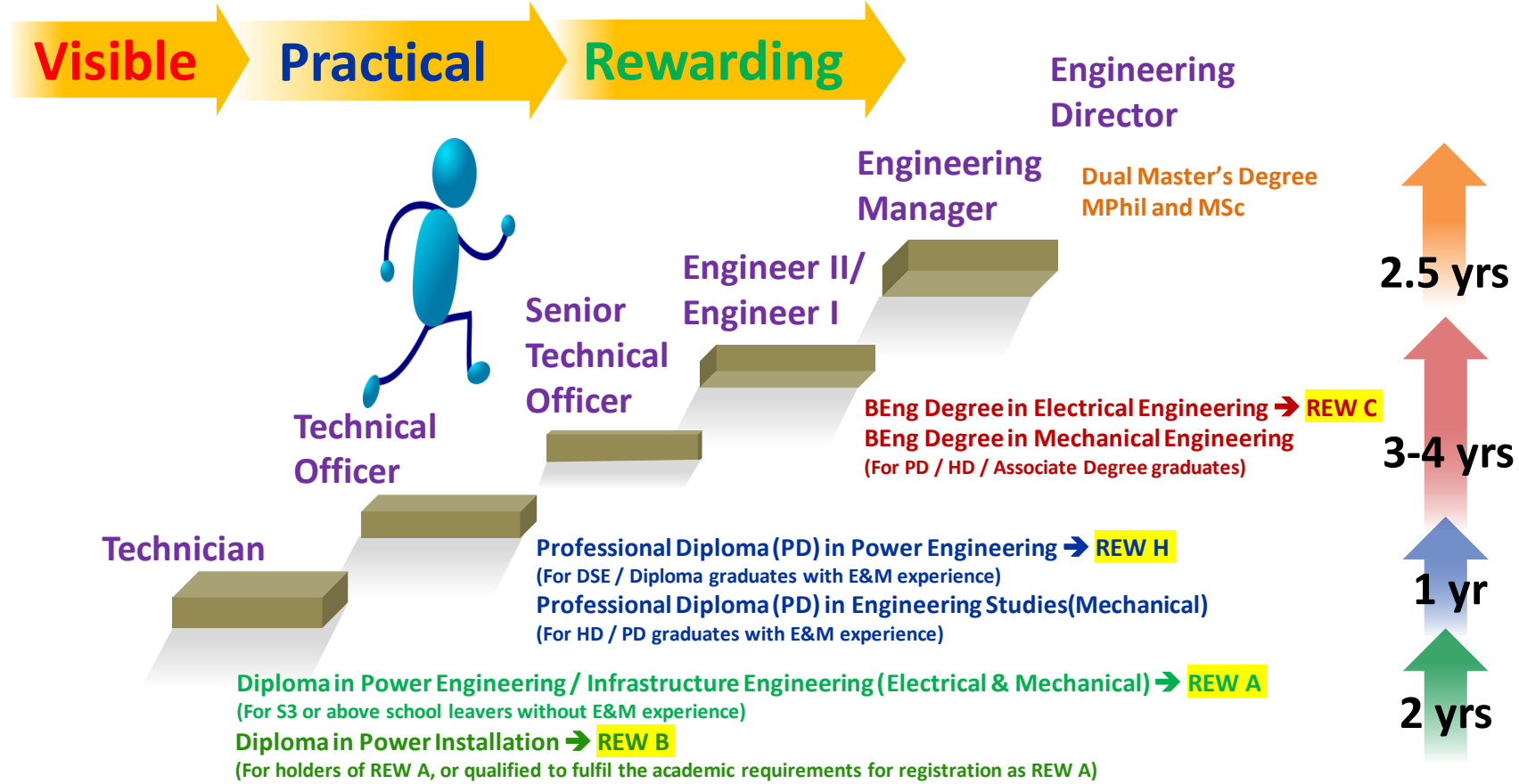
SPEED



CLP Power Academy  
中電學院



# Continuous Career Development (CLP as Case Study)



Job level	Monthly Income Range	% of E&M employees in the Engineering Sector
Professional / Technologist	> HK\$25,000	89%
Technical Officer	> HK\$18,000	85%
Technician	> HK\$15,000	88%

E & M Industry (for those experienced REW)	
2018 Q3	Daily Salary ↑ 7% (from \$1300 to \$1400) Monthly Salary ↑ 5%
2019 Q4	Daily Salary ↑ 3.6% (from \$1400 to \$1450) Monthly Salary ↑ 5% * Start from 1 Nov 2019

\* Information extracted from the HK & Kowloon Electrical Engineering & Appliances Trade Workers Union on 19 Sep 2018 & 26 Sep 2019 respectively



# All Directions of Supports

## University

- **VTC** as the course organizer with the expertise on Diploma & PD programme administration and academic quality assurance
- **PolyU SPEED** to provide articulation path to the top-up Bachelor degree in Electrical Engineering in **part-time mode** of study
- **HKU** and other local universities to offer articulation opportunities for BEng (EE) in **full-time mode** of study

## Young Generations taking E&M as Career Path

### Government

- **EMSD** to support on the REW (Grade A & H) accreditation
- Government funding through **ETSS** scheme for the engineering part-time programme at VTC
- Continuous to initiate **various infrastructure projects** in Hong Kong

### Industry

- **CLP** responsible for curriculum design and providing technical support/lectures
- **Other utilities / major organizations** to offer recognition to the PD as the academic qualification for Technician
- **New recruitments** riding on the new infrastructure projects

# Supports from CLPP Professional Engineers

## Practicality

- CLP professional engineers lead the compilation of course materials and deliver the lecture in most of the PD modules / as visiting lecturers in BEng electives
- Workshop training / laboratory sessions planned at CPPS and Shatin Centre
- Visit to Power Stations, Substations and major facilities

## Widening horizons and Interesting

- Guest lectures conducted by CLP senior staff / major contractor management / HR experts
- Sharing knowledge, experience, value of the company and aspirations of career
- Work experiencing in CLP

## Supportive

- CLP mentors were assigned to each student on studying support
- CLP senior engineers / managers as industry experts for initiation & supervision of the Capstone Project (for BEng students)



# Programme Extra - Visit to CLP Facilities & Guest Lectures

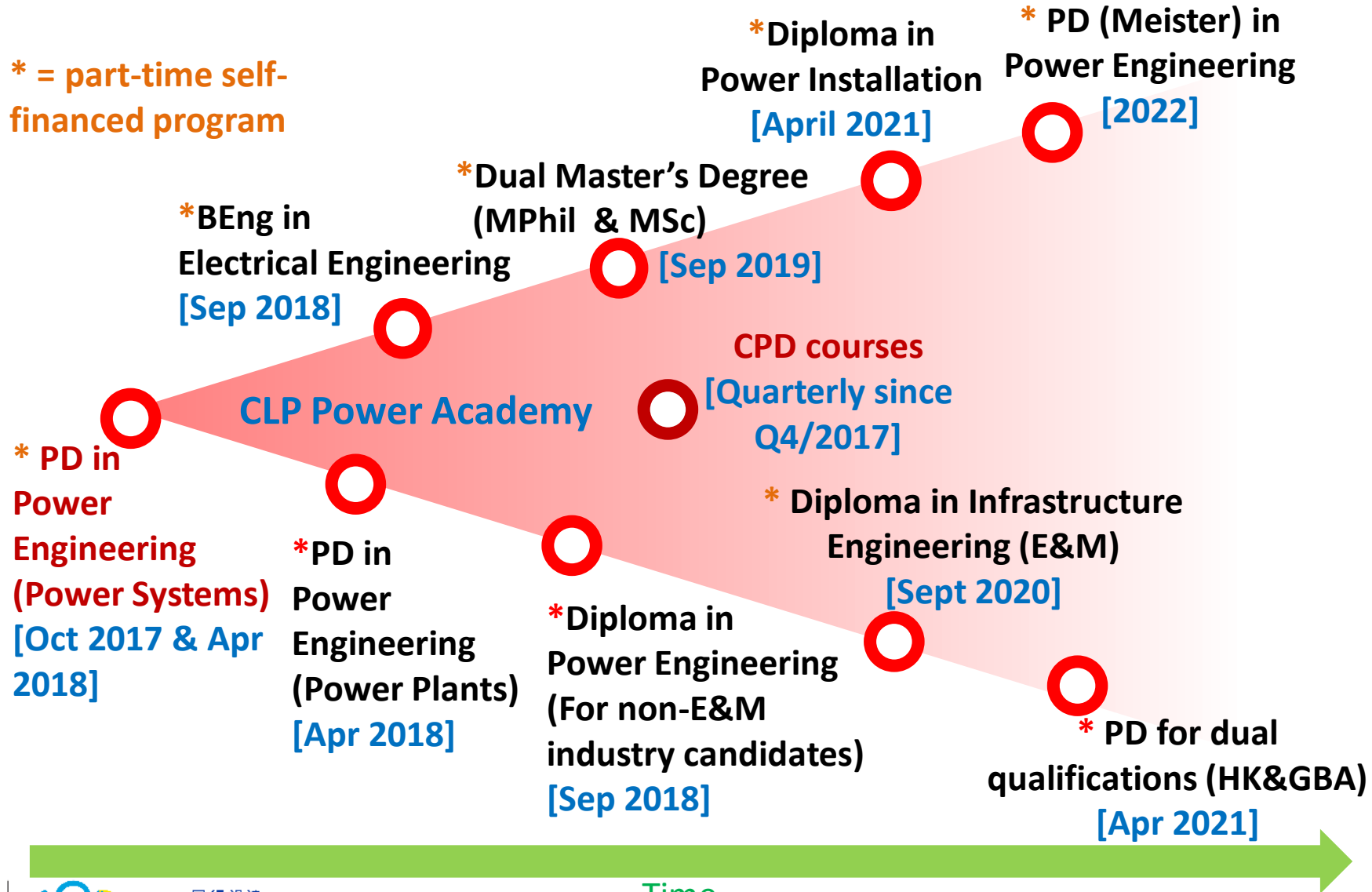


**Focusing on Engineering Career Knowledge**



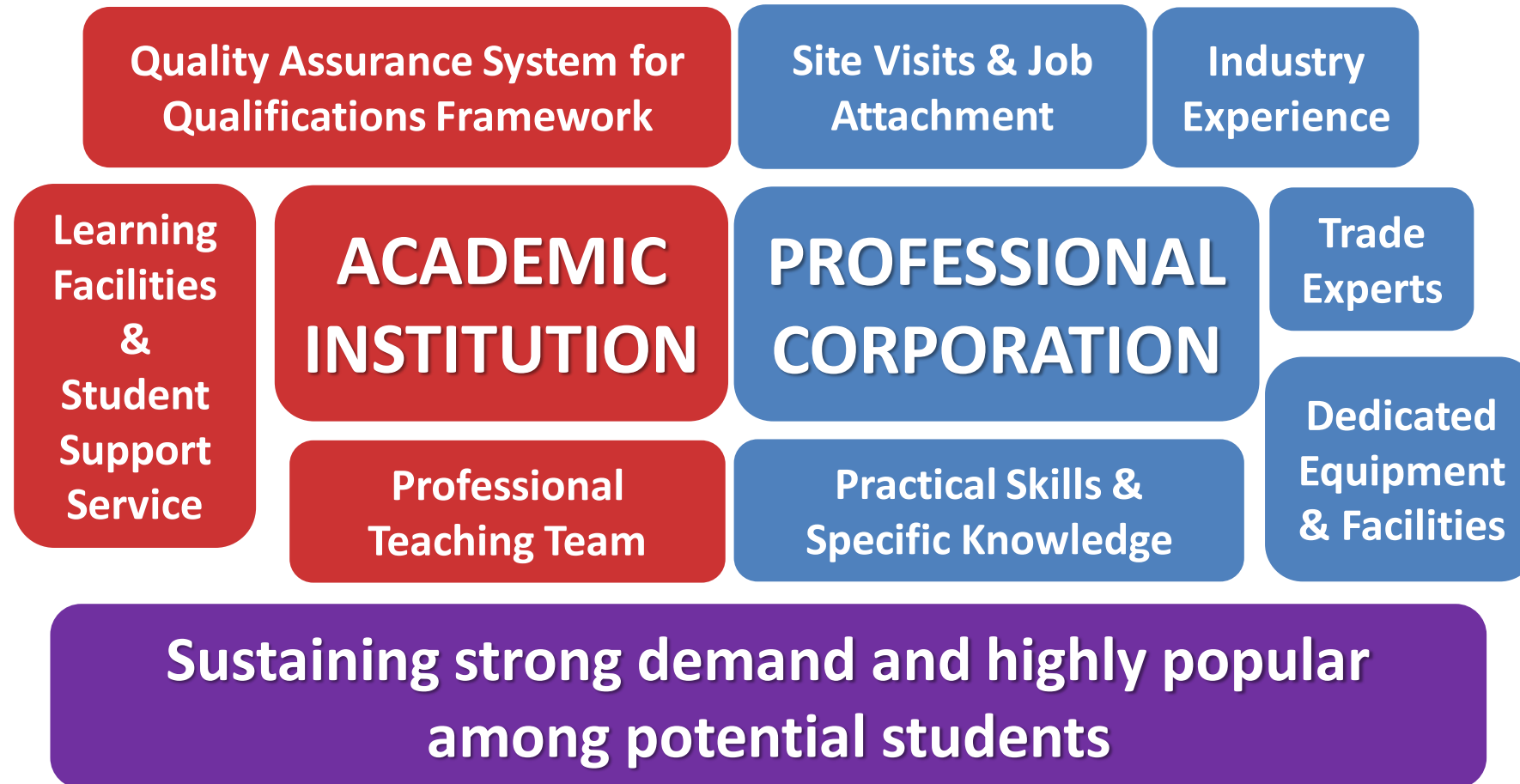
# Wider Coverage Provides More Career Paths

\* = part-time self-financed program





# Collaboration in Promoting Vocational & Professional Education & Training (VPET) – A Disruptive Initiative





# Professional Certificate in Power Engineering

A New Upward Mobility Pathway for Youths – Greater Bay Area

Signing of the "Memorandum of Understanding on Cooperation in Engineering Talents in Guangzhou-Hong Kong Power Industry" and witnessing a new milestone in the power engineering industry.



## Course Features:

- 1<sup>st</sup> Part-time course jointly organized by HKVTC, GITTC and CLPPA.
- Designed for students who have completed or are studying for a professional diploma in Electrical Engineering
- To provide technical training and access to electrician special operation certificate (High-Voltage electrician) for students who are interested in the development of Electrical Engineering in the Greater Bay Area.
- Blended learning of online teaching and practical training at GITTC's Guangzhou campus totally 112 hours.

Hong Kong side From Left :  
 Mr Paul Poon  
 Mr Eric Pang, Director  
 Dr Eric Liu



Guangzhou side From Right :  
 Mr Wu Hongdong  
 Mr Wang Jian



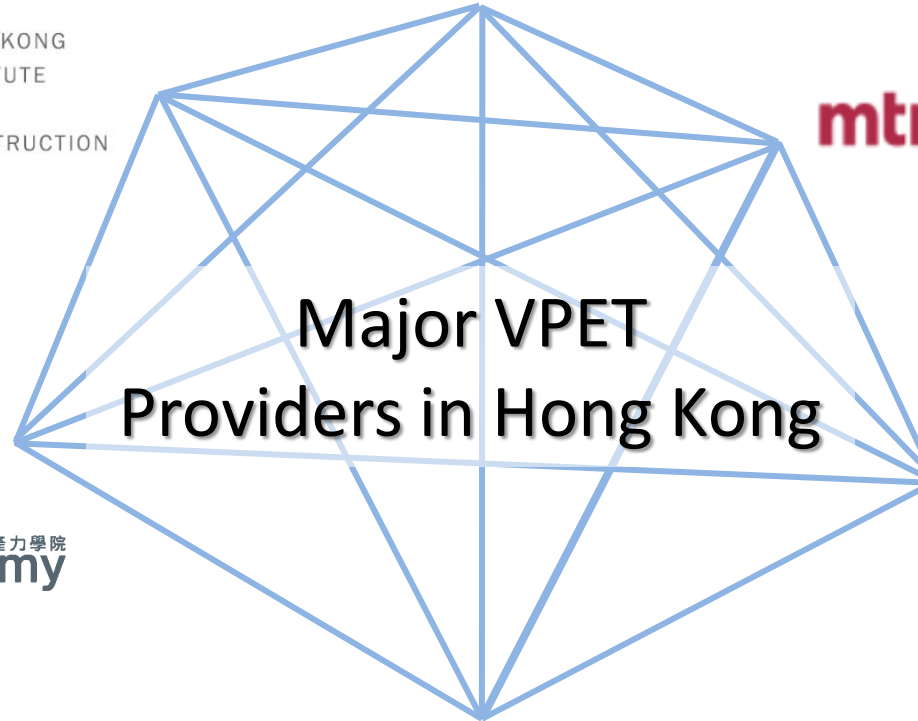
# Rapid Development of VPET in Hong Kong



**A New Upward Mobility Pathway for Youths through VPET**



# Corporate Tech Academy Network (CTAN)



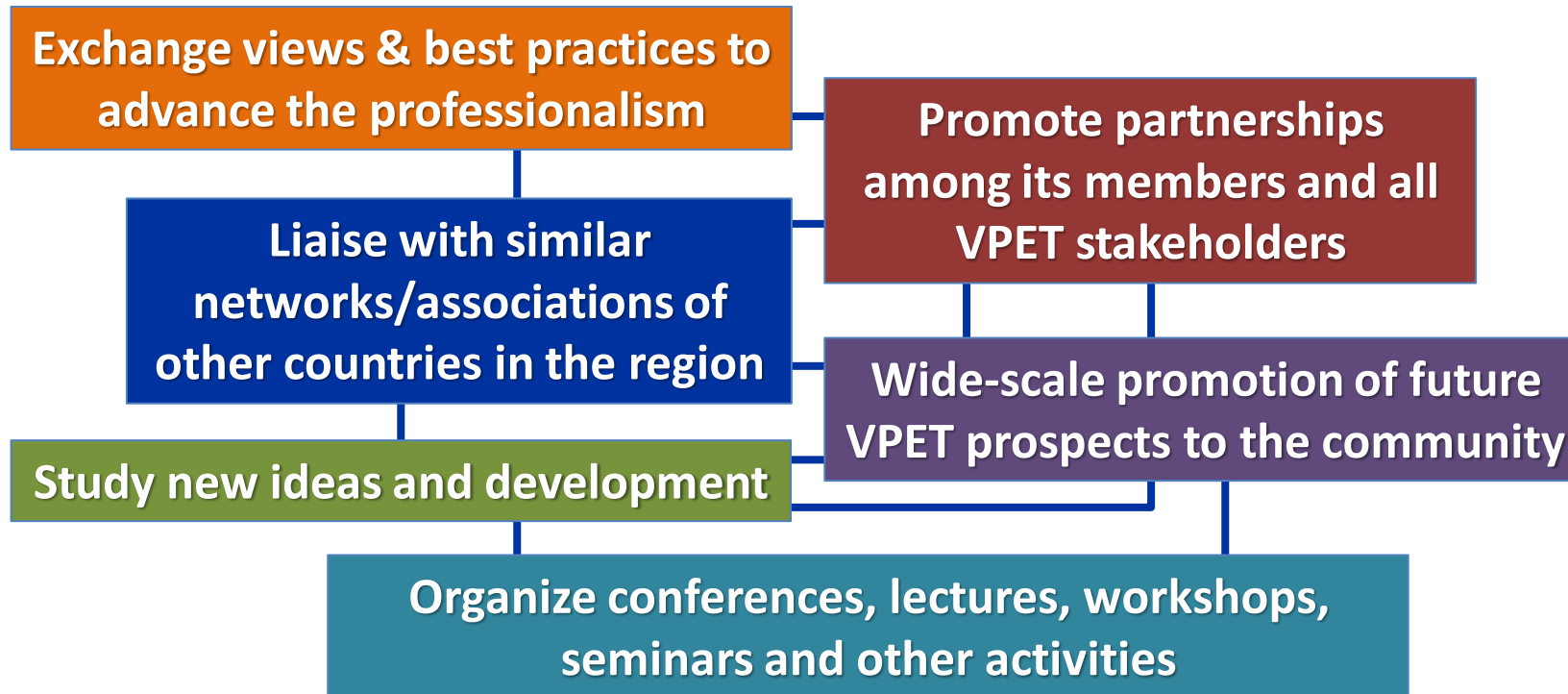
**More Academies are going to join the Network**



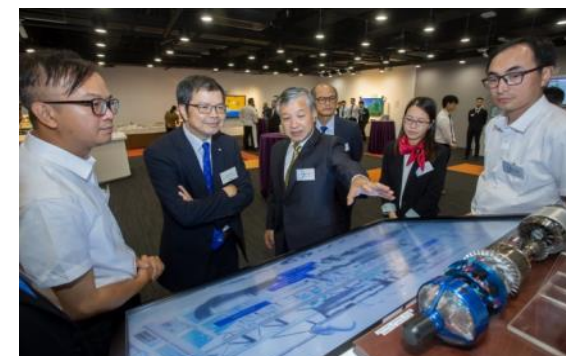
# Corporate Tech Academy Network (CTAN)

## Vision

**Enhancing, improving and promoting VPET** for the development of a skilled and qualified professional/technical workforce supporting the **sustainable growth, life-long learning culture and youth engagement** in Hong Kong



# CLP Power Academy Inaugural Ceremony cum Professional Diploma in Power Engineering Course Commencement (17 Oct 2017)





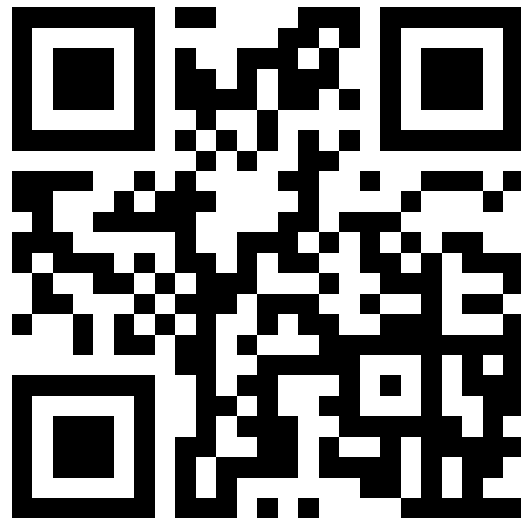
# Time to celebrate for CLP Power Academy Graduates and New Students (14 Jan 2019)



<https://youtu.be/BOBTR3k2UXc>

# End Q&A

CLP Power Academy:  
<https://bit.ly/3GRjRuQ>



CPD Programme:  
<https://bit.ly/3GL5eJA>

