太陽能光伏系統安裝指南

Guidance Notes for Solar Photovoltaic (PV) System Installation

免責聲明

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1 前言 Foreword

1.1 為了讓公眾更了解有關安裝太陽能光伏系統的事宜和申請上網電價的程序,政府於 2018 年成立一個由不同政府部門包括環境局、機電工程署、地政總署、規劃署、屋宇署和消防處 組成的工作小組,負責編製《太陽能光伏系統安裝指南》。

To assist the public to better understand the issues related to solar PV system installations and the FiT application procedures, a Working Group was formed in 2018 with members from Environment Bureau (ENB), Electrical and Mechanical Services Department (EMSD), Lands Department (LandsD), Planning Department (PlanD), Buildings Department (BD) and Fire Services Department (FSD), to develop the Guidance Notes for Solar Photovoltaic (PV) System Installation

1.2 指南為安裝太陽能光伏系統的準買主、擁有人及安裝者提供一般指引,讓他們了解與安裝、 操作和保養太陽能光伏系統的有關規定及申請上網電價的程序。

This set of Guidance Notes (hereinafter referred to as "the Notes") provides general guidelines for intending purchasers, owners and installers of solar PV systems to understand the installation requirements and FiT application procedures associated with the installation, operation and maintenance of such systems.

1.3 準買主、擁有人及安裝者亦可參閱《可再生能源發電系統與電網接駁的技術指引》的內容。該技術指引介紹有關小型可再生能源裝置與電網接駁的技術事宜和申請程序。該技術指引可於機電工程署網站下載,網址為

www.emsd.gov.hk/filemanager/en/content_299/TG_Grid_Connection_Renewable_Energy_P ower_Systems.pdf。

The intending purchasers, owners and installers may also make reference to "Technical Guidelines on Grid Connection of Renewable Energy Power Systems" which explains the technical issues and the application procedures relating to grid connection of small-scale renewable energy installations. The technical guidelines can be downloaded from the website of the Electrical and Mechanical Services Department at

www.emsd.gov.hk/filemanager/en/content 299/TG Grid Connection Renewable Energy P ower_Systems.pdf.

Terms	Definition
	定義
允許負載量	在我
Approved loading	The maximum current demand approved by an electricity supplier in respect
Approved loading	of a fixed electrical installation.
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總額定功率	安裝在每個地點或每幢建築物內,所有可再生能源發電系統的各個發電設
Aggregated Power	備的額定功率總和,不論有關設備是由業主抑或租戶安裝。
Rating	The arithmetic sum of the power rating of each item of power generating
	equipment of all the Renewable Energy Power Systems (REPSs) installed in
	each location or in each building, irrespective of whether they are installed
	by the landlord or tenants.
認可人士	指名列根據《建築物條例》(第123章)第3(1)條備存的認可人士名冊
Authorized Person	的以下人士 -
	(a) 以建築師身分名列於名冊者;
	(b) 以工程師身分名列於名冊者; 或
	(c) 以測量師身分名列於名冊者。
	It means a person whose name is on the authorized persons' register kept
	under section 3(1) of the Buildings Ordinance (Cap. 123)-
	(a) as an architect;
	(b) as an engineer; or
	(c) as a surveyor.
工作守則	機電工程署出版的《電力(線路)規例工作守則》最新修訂版。
СоР	The current revised edition of the Code of Practice for the Electricity (Wiring)
	Regulations issued by the Electrical and Mechanical Services Department.
	由場地擁有人或管理小組操作並安裝於現場的 220/380 伏特低壓供電網
Distribution System	絡。
Distribution system	The on-site 220/380V low-voltage electricity supply network operated by the
	site owner or the site management team.
 電力器具	用以發電、將電能轉為其他能量、輸送電力、分配電力、調控電力、量度
Electrical	電力或利用電能的任何機械、變壓器、儀器、用具、量度工具、保護器
equipment	件、線路裝設器材、附件、配件及類似物品。
	Machines, transformers, apparatus, appliances, measuring instruments,
	protective devices, wiring materials, accessories, fittings and similar things,
	used for generation, conversion, transmission, distribution, control,
	measurement or utilisation of electrical energy.
 電力裝置	由互有關連的電力器具組合而成的設備。
Electrical	An assembly of associated electrical equipment.
installation	This assembly of associated electrical equipment.
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《電力條例》	丢进注例签 40C 亲 再搬费了和图及事业气 图NI和然最上分入
	香港法例第 406 章,由機電工程署負責執行,用以規管電力安全。
Electricity	Chapter 406 of the Laws of Hong Kong, which is enforced by the Electrical
Ordinance	and Mechanical Services Department regulating electrical safety.
電力工程/	與低壓或高壓固定電力裝置的安裝、校驗、檢查、測試、維修、改裝或修
電力工作	理有關的工程或工作,包括監督工程、簽發工程證明書、簽發電力裝置設
Electrical work	計證明書。
	Work in relation to the installation, commissioning, inspection, testing,
	maintenance, modification or repair of a low voltage or high voltage fixed
	electrical installation and includes the supervision and certification of that
	work and the certification of design of that installation.
固定電力裝置	固定裝設在處所內的低壓或高壓電力裝置,但不包括從該裝置中的插座獲
Fixed electrical	供電,而且無須使用工具即可在插座處截斷電力供應的任何電力器具。
installation	A low or high voltage electrical installation that is fixed to premises but does
	not include any electrical equipment that is supplied with electricity after
	passing through a socket of the installation at which the supply can be
==> \sqrt	disconnected without the use of a tool.
電網	由電力公司營運的 220/380 伏特低壓供電網絡。
Grid	The 220/380V low-voltage electricity supply network operated by the power
	companies.
擁有人	(a) 管有或控制電力裝置的人;及
(註:右面的釋	(b) 以租約、准用約或其他方式持有電力裝置所在處所的使用權的人,包
義只適用於電力	括該人的代理人及處所的租客或佔用人。
裝置)	(a) A person who is in possession or control of an electrical installation; and
Owner	(b) A person who holds premises in which an electrical installation is located,
(Note: The	whether the premises are held under lease, licence or otherwise and includes
interpretation on	an agent of that person and a tenant or occupier of premises.
the right is only	
applicable	
to electrical installations)	
註冊電業承辦商	相據《索力條例》(第406等)第22條計皿的索業妥辦帝。
民國istered Electrical	根據《電力條例》(第406章)第33條註冊的電業承辦商。 An electrical contractor registered under section 33 of the Electricity
Contractor	Ordinance (Cap. 406).
註冊電業工程人員	根據《電力條例》(第406章)第30條註冊的電業工程人員。
Registered Electrical	An electrical worker registered under section 30 of the Electricity Ordinance
Worker	(Cap. 406).
-	
新界豁免管制屋宇 (俗稱村屋) New Territories Exempted Houses (NTEH) (commonly	新界豁免管制屋宇,一般是指位於新界及循《建築物條例(新界適用)條例》獲得豁免,因而不受《建築物條例》中部分條文(包括需事先獲得屋宇署批准和同意施工的條文)及其附屬規例所管制的村屋。一般新界豁免管制屋宇,是在興建時因按《建築物條例(新界適用)條例》內所指明的高度和有蓋面積上限等豁免條件設計和建造而獲得豁免,例如新房屋不得

known as village houses)

超過3層高,並且高度不超過8.23米(約27呎),而有蓋面積不超逾65.03平方米(約700平方呎)。

NTEH generally refer to those village houses situated in the New Territories which by virtue of the Buildings Ordinance (Application to the New Territories) Ordinance are exempted from certain provisions of the Buildings Ordinance and its subsidiary regulations, including the need for obtaining prior approval for and consent to the commencement of works from the BD. NTEH are in general designed and built in compliance with the exemption criteria in respect of the height and roofed-over area, etc. stipulated in the Buildings Ordinance (Application to the New Territories) Ordinance, which thus qualify them for exemption. For example, new housing should be of not more than 3 storeys and of a height of not more than 8.23 m (about 27 feet) and with a roofed-over area not exceeding 65.03 m2 (about 700 square feet).

3 簡介 Introduction

3.1 在二零一八年後生效的《管制計劃協議》中,上網電價是其中一項引入的重要新措施,以協助鼓勵私營界別考慮投資可再生能源,藉此產生的電力可以高於一般電費水平的價格售予電力公司,從而幫助私營界別收回投資在可再生能源系統和發電的成本。考慮到香港使用可再生能源的潛力,太陽能光伏系統以及風力系統將可獲上網電價。

In the post-2018 Scheme of Control Agreements (SCAs), Feed-in Tariff (FiT) is one of the new initiatives to be introduced to help encourage the private sector to consider investing in Renewable Energy (RE) as the power generated could be sold to the power companies at a rate higher than the normal electricity tariff rate to help recover the costs of investment in the RE systems and generation. Taking into consideration the RE potential in Hong Kong, FiT will be offered to solar PV systems as well as wind power systems.

3.2 除政府機構外,所有電力公司的客戶,計劃於其處所內安裝不多於一兆瓦(1 MW)太陽能光 伏系統及/或風力系統,並接駁到供電該區域的電力公司電網,即合資格向該電力公司申請, 按該系統產生的電量及上網電價計劃條款及條件,根據指定的價格收取上網電價。容量超過 一兆瓦的可再生能源系統,將根據個別情況考慮。

Except for government bodies, all customers of the power companies who plan to install solar PV systems and/ or wind power systems with a generating capacity of up to 1 MW at their premises in the respective power company's supply area are eligible for prescribed FiT rates from that power company based on the units of electricity generated, as long as the distributed RE systems are connected to the grid of the relevant power company subject to FiT Terms and Conditions. RE systems with a generating capacity exceeding 1 MW will be considered on a case-by-case basis.

3.3 不允許將可再生能源發電系統與任何非可再生能源發電系統或能源存儲設施連接,以免影響用於上網電價電錶的讀數。基於此原則,在可再生能源發電系統一方,任何能源存儲設施都不得連接在上網電價電錶前。

It is not allowed to connect the REPS with any non-renewable energy source or energy storage facility, which will affect the reading of the FiT Meter for measuring electricity generated from the REPS. Based on this principle, any energy storage facility must not be connected on the REPS side before the FiT meter.

3.4 太陽能光伏系統的投資成本會按系統發電容量大小及光伏板技術等而有所不同。一般而言,每千瓦發電容量的太陽能光伏系統的投資成本為數萬元,當中主要包括工資及檢查費用、結構支持組件、逆變器、光伏組件及相關電力裝置等的成本。

Capital cost of Solar PV systems varies according to the generating capacity and PV panel technology. Generally speaking, the capital cost of a solar PV system is around tens of

thousands dollars per kilowatt, covering costs of labour and inspection, structural support, inverter, PV modules and associated electrical installations, etc.

4 太陽能光伏系統主要組件 Major Components of Solar PV System

4.1 太陽能光伏板 Solar PV Panel

(i) 市場上一般能選購的太陽能光伏板通常由三類太陽能元件(或光伏組件)所組成 - 單晶硅元件、多晶硅元件或薄膜元件。三類太陽能光伏板的能量轉換效率及價格均有所不同,準買主、擁有人及安裝者可根據其太陽能光伏系統的設計及其預算選購合適的太陽能光伏板。而當中通常以單晶硅的轉換效率較高及較貴。

In general, the solar PV panels that can be found in the market are built up by three major types of solar cells (or solar modules) – monocrystalline cells, polycrystalline cells or thin film cells. The energy conversion efficiency and price of the three types of solar PV panels are different. Intending purchasers, owners and installers may purchase the appropriate type of solar PV panels according to the design of solar PV system and their budget. In general, the energy conversion efficiency and the cost of monocrystalline cells are higher than the other two.

(ii) 在選購太陽能光伏板時,準買主、擁有人及安裝者應選購按照有關國際標準或規格來設計的產品,並獲得認可機構或有關測試及認證當局簽發證明書的太陽能光伏板。準買主、擁有人及安裝者可要求供應商提供太陽能光伏板和其他主要配件的設計和安全標準規格證明書,並聲明該產品已符合有關的國際標準及提供適當的保用年期。

When purchasing solar PV panels, intending purchasers, owners and installers should select the solar PV panels designed and manufactured according to relevant international standards or specifications, and so certified by the recognised organisations or relevant testing and certification authorities. Intending purchasers, owners and installers may request suppliers to provide certificates for the design and safety standards of the solar PV panels and other key components, and confirm that the product has met the relevant international standards and provide appropriate period of warranty.

4.2 逆變器 Inverter

(i) 太陽能光伏系統的主要配件為逆變器。逆變器會把太陽能光伏板陣列輸出的直流電轉換 為交流電。安裝在逆變器內或外的隔離變壓器有助防止直流電注入配電系統。

Inverter is a key component of a solar PV system. Inverter converts the output direct current (DC) of solar PV panel array into alternating current (AC). The isolation transformer installed inside or outside the inverter helps to prevent the injection of DC into the distribution system.

(ii) 逆變器須兼備各種功能,如功率調節功能,以控制可再生能源發電系統的諧波電流及輸

出功率因數和調校電壓,及保證系統安全運作等。各種功能的詳細資料可參考《可再生能源發電系統與電網接駁的技術指引》,該技術指引可於機電工程署網站下載。

Inverter should incorporate various functions, such as a power conditioning function to control the harmonic currents and the output power factor of the RE system; adjusting the voltage and ensuring the safe operation of the RE system, etc. For further details of the various functions, please refer to the "Technical Guidelines on Grid Connection of Renewable Energy Power Systems", which can be downloaded from the website of the Electrical and Mechanical Services Department.

(iii) 在選購逆變器時,準買主、擁有人及安裝者應選購按照有關國際標準或規格來設計的產品,並獲得認可機構或有關測試及認證當局簽發證明書的逆變器。準買主、擁有人及安裝者可要求供應商提供逆變器和其他主要配件的設計和安全標準規格證明書,並聲明該產品已符合有關的國際標準及提供適當的保用年期。

When purchasing inverters, intending purchasers, owners and installers should select the inverters designed and manufactured according to relevant international standards or specifications, and so certified by the recognised organisations or relevant testing and certification authorities. Intending purchasers, owners and installers may request suppliers to provide certificates for the design and safety standards of the inverters and other key components, and confirm that the product has met the relevant international standards and provide appropriate period of warranty.

5.1 一般規定 General Requirements

(i) 太陽能光伏系統的產電量會因一系列因素而改變,包括安裝位置、方向、日照強度、太 陽能光伏板效率、太陽能光伏系統的設計和安裝方法。

The power output of a solar PV system will be affected by a series of factors including the installation location, orientation, solar irradiation, solar PV panel efficiency, the design and installation method of the solar PV system.

(ii) 太陽能光伏系統應安裝於天台及/或開放的空間。該位置應結構穩固,並且不被附近的建築物、大廈和樹木所遮擋,亦需預留額外空間安裝逆變器等裝置及作維修用途。為獲得最佳產電量,太陽能光伏板的安裝角度及方向建議為仰角 14 度至 22 度及面向南方。

Solar PV systems should be installed on the roof and/ or open areas which should be a structurally sound area and these areas should be unshaded from adjacent structures, buildings and trees. Extra space should be reserved for the installation of inverters and related equipment and for maintenance. To obtain the optimum power output, it is recommended that solar PV panels should be installed at a tilting angle between 14° and 22° facing south.

(iii) 在新界豁免管制屋宇(俗稱村屋)安裝太陽能光伏系統須按項目 5.2 的規定進行。在其他 私人樓宇安裝的太陽能光伏系統的支承架屬於《建築物條例》(第 123 章)下的建築工 程,任何人士如欲進行有關建築工程,必須按該條例的規定進行,詳情於項目 5.3。

Installation of Solar PV Systems in New Territories Exempted Houses (NTEH) (commonly known as village houses) should be carried out in accordance with the requirements given in item 5.2. For solar PV system in other private buildings, supporting structure is building works under the Buildings Ordinance (Cap. 123). Any person who intends to carry out the relevant building works shall comply with the requirements under that Ordinance, details given in item 5.3.

(iv) 就太陽能光伏系統配有低壓/高壓電力裝置,擁有人應僱用註冊電業承辦商進行相關電力工作,而受僱於註冊電業承辦商的註冊電業工程人員應根據工作守則的技術指引去進行工作。

For those solar PV systems involved low/high voltage electrical installation, the owner should employ a Registered Electrical Contractor (REC) to carry out the related electrical work, and the Registered Electrical Worker (REW) employed by the REC should follow the technical guidelines of the CoP to carry out the work.

(v) 一般來說,太陽能光伏系統的總額定功率應該在允許負載量之內。

Generally speaking, the Aggregated Power Rating of PV system should be within the approved loading.

- 5.2 在新界豁免管制屋宇(俗稱村屋)安裝太陽能光伏系統 Installation of Solar PV Systems in New Territories Exempted Houses (NTEH) (commonly known as village houses)
 - (i) 根據地政總署及屋宇署的新界豁免管制屋宇小型環保及適意設施政策,只要符合規定尺寸及重量,居民可繼續保留現存的太陽能光伏系統或可隨時在村屋加建太陽能光伏系統而無須事先獲得地政總署或屋宇署的批准,但有關設備只可以在村屋的天台及樓梯頂篷安裝。有關規定已分別載列於地政總署及屋宇署出版的「興建新界豁免管制屋宇須知」及「無僭建村屋安居又幸福」小冊子。

According to the Lands Department (LandsD)'s and Buildings Department (BD)'s policy on Green and Amenity Facilities in NTEH, a resident may retain the existing solar PV systems or install solar PV systems on the rooftop and stairhood of village houses without the need to obtain prior approval from the LandsD or BD provided that the installations comply with the prescribed dimensions and weight, which have been given in the booklets "Building New Territories Exempted Houses" published by the LandsD or "Village Houses without unauthorised building works put your mind at ease!" published by the BD.

2018 年施政報告提出,在符合特定的規定下,可容許於新界豁免管制屋宇天台裝設不高於 2.5 米的光伏系統。有關規定包括,安裝在屋頂上的設備(包括承托支承架)的平均荷載不得超過每平方米 150 公斤;安裝在樓梯頂篷上的設備(包括承托支承架)的平均荷載不得超過每平方米 75 公斤。詳情請參閱附錄 1。

As announced in the 2018 Policy Address, subject to fulfilment of specified conditions, the height restriction in relation to installation of solar PV systems at the rooftop of NTEH is relaxed to 2.5m. Such conditions include, for such facilities (including the supporting structure) installed on the main roof, the average loading imposed should not exceed 150kg/m². For such facilities (including the supporting structure) installed on the roof of stairhood, the average loading imposed should not exceed 75kg/m². For details, please refer to Appendix 1.

太陽能光伏系統必須妥善安裝,及不可影響屋宇結構安全;由天台地台起計超過 1.5 米高的系統須經由根據《建築物條例》註冊的認可人士核證,及提交有關安全證明書予地政總署備存。

The solar PV system should be properly installed and should not adversely affect the

structural safety of the building. For system exceeding 1.5m high measured from the roof level, it should be certified by an Authorized Person registered under the Buildings Ordinance for submission of a safety certificate to Lands Department for record.

(ii) 如村屋毗鄰的花園屬於私人業權或位於短期租約的土地,並符合土地用途及契約或租約條款,而相關的建築工程為小型工程(即小型工程項目第 1.19 (https://www.bd.gov.hk/chineseT/services/index_mwcs_item1_19.html)或 3.15項(https://www.bd.gov.hk/chineseT/services/index_mwcs_item3_15.html),相關業主或租客可以根據屋宇署的「小型工程監管制度」的簡化規定,聘用合資格人士負責進行豎設用於支承太陽能光伏系統的構築物,以確保符合《建築物條例》的要求。

If the garden adjacent to a village house is privately owned or situated on a site under short term tenancy which is in conformity / compliance with the relevant land use and lease or tenancy conditions and if the relevant building works are minor works, (i.e. Minor Works Item No. 1.19

(https://www.bd.gov.hk/english/services/index_mwcs_item1_19.html) or 3.15 (https://www.bd.gov.hk/english/services/index_mwcs_item3_15.html), the landlord or tenant concerned should appoint qualified persons to carry out erection of supporting structure for solar PV systems through the simplified requirements under the Minor Works Control System of the BD to ensure compliance with the requirements of the Buildings Ordinance.

(iii) 如涉及的建築工程並非豁免工程或小型工程項目,相關業主/租客應委任認可人士按《建築物條例》的規定,先向屋宇署呈交建築圖則,獲得批准及同意展開工程後才可進行。

If the building works involved are not exempted building works or minor works items, the building owner or tenant concerned should appoint an authorized person to submit building plans to the BD in accordance with the Buildings Ordinance and proceed with the works after obtaining prior approval for and consent to the commencement of works.

(iv) 一般而言,安裝在村屋天台的太陽能光伏系統若主要為輔助戶主供電的附屬設施,並不會牴觸相關的規劃用途。

Generally speaking, if the installation of solar PV system on the rooftop is primarily an ancillary facility for supplementing power supply to the village houses, it is not in contravention of the relevant planned use.

(v) 在新界豁免管制屋宇(俗稱村屋)安裝太陽能光伏系統的流程圖載於附錄 1,以供參考。

The flowchart of Installation of Solar PV Systems in NTEHs (commonly known as village houses) is attached in Appendix 1 for reference.

- 5.3 在私人樓宇安裝太陽能光伏系統 Installation of Solar PV Systems in Private Buildings
 - (i) 如太陽能光伏系統屬小型工程(即小型工程項目第 1.19 項 (https://www.bd.gov.hk/chineseT/services/index_mwcs_item1_19.html) 或 3.15 項 (https://www.bd.gov.hk/chineseT/services/index_mwcs_item3_15.html) ,相關業主或租 客可以根據屋宇署的「小型工程監管制度」中的簡化規定,聘用合資格人士負責進行 豎設用於支承太陽能光伏系統的構築物,以確保符合《建築物條例》的要求。

If the installation of solar PV systems on private buildings are minor works (i.e. Minor Works Items 1.19

(https://www.bd.gov.hk/english/services/index_mwcs_item1_19.html) or 3.15 (https://www.bd.gov.hk/english/services/index_mwcs_item3_15.html)) , the building owner or tenant concerned may appoint qualified persons to carry out the erection of supporting structure for solar PV systems through the simplified requirements under the Minor Works Control System of the BD to ensure compliance with the requirements of the Buildings Ordinance.

(ii) 如涉及的建築工程並非豁免工程或小型工程項目,相關業主或租客應委任認可人士按《建築物條例》的規定,先向屋宇署呈交建築圖則,獲得批准及同意展開工程後才可進行。

If the building works involved are not exempted works or minor works items, the building owner or tenant concerned should appoint an authorized person and submit building plans to the BD in accordance with the Buildings Ordinance. Building works can only be carried out after obtaining prior approval for and consent to the commencement of works from the BD.

(iii) 一般而言,在樓宇天台安裝太陽能光伏系統如主要為輔助樓宇或其戶主供電的附屬設施,並不會牴觸相關的規劃用途。

Generally speaking, if installation of solar PV system on the rooftops of private buildings is primarily an ancillary facility for supplementing power supply to the buildings or the households therein, it is not in contravention of the relevant planned use.

(iv) 在現有樓宇上設立太陽能光伏系統需要符合土地用途及契約條款,否則需要視乎土地契約條款向地政總署提出申請。

The installation of solar PV systems in existing buildings should conform / comply with the relevant land use and lease conditions. Otherwise, applications should be submitted to the LandsD subject to land lease conditions.

(v) 在私人樓宇安裝太陽能光伏系統的流程圖載於附錄 2,以供參考。

The flowchart of Installation of Solar PV Systems in Private Buildings is attached in Appendix 2 for reference.

- 5.4 在閒置土地安裝太陽能光伏系統 Installation of Solar PV Systems in Idle Land
 - (i) 如在閒置土地屬於私人業權或位於短期租約範圍,並符合土地用途及契約或租約條款,而相關的建築工程為小型工程(即小型工程項目第1.19項(https://www.bd.gov.hk/chineseT/services/index_mwcs_item1_19.html)或3.15項(https://www.bd.gov.hk/chineseT/services/index_mwcs_item3_15.html),相關業主或租客可根據屋宇署的「小型工程監管制度」的規定,聘用合資格人士負責進行豎設用於支承太陽能光伏系統的構築物,以確保符合《建築物條例》的要求。

If the idle land is privately owned or within an area of short term tenancy which is in conformity / compliance with the relevant land use and lease or tenancy conditions and if the relevant building works are minor works (i.e. Minor Works Item No. 1.19 (https://www.bd.gov.hk/english/services/index_mwcs_item1_19.html) or 3.15 (https://www.bd.gov.hk/english/services/index_mwcs_item3_15.html)) , the relevant landlord or tenant should appoint qualified persons to carry out erection of supporting structure for solar PV systems through the simplified requirements under the Minor Works Control System of the BD to ensure compliance with the requirements of the Buildings Ordinance.

(ii) 如涉及的建築工程並非豁免工程或小型工程項目,相關業主或租客應委任認可人士按《建築物條例》的規定,先向屋宇署呈交建築圖則,獲得批准及同意展開工程後才可進行。

If the building works involved are not exempted building works or minor works items, the landlord or tenant concerned should appoint an authorized person to submit building plans to the BD in accordance with the Buildings Ordinance. The works should be commenced only after obtaining prior approval for and consent to the commencement of works from the BD.

(iii) 一般而言,在閒置土地裝置太陽能光伏系統作獨立設施,會視作「公用事業設施裝置」。「公用事業設施裝置」在「商業」、「政府、機構或社區」、「住宅(戊類)」的附表Ⅱ、「工業」、「工業(丁類)」、「露天貯物」、「其 他 指 定 用 途」註明「商 貿」、「其 他 指 定 用 途」註明「工業村」及「其 他 指 定 用 途」註明「混合用途」的附表Ⅰ及附表Ⅲ的用途地帶內是經常准許的。

Generally speaking, if the solar PV systems are installed as a stand-alone facility on idle

land, it would be regarded as "Public Utility Installation". "Public Utility Installation" is always permitted in "Commercial", "Government, Institution or Community", Schedule II of "Residential (Group E)", "Industrial", "Industrial (Group D)", "Open Storage", "Other Specified Uses (Business)", "Other Specified Uses (Industrial Estate)" and Schedule I and Schedule III of "Other Specified Uses (Mixed Use)" zones.

(iv) 在私人農地上設置太陽能光伏系統方面,申請豁免書的費用按地政總署的既定水平收費, 個別土地的收費取決於其大小、位置及土地契約條款等因素,故所須的費用因個別土地 而異。

The wavier application fee for setting up solar PV systems on private agricultural land is set according to the established fee level of the LandsD, and the fee for individual site depends on factors like its size, location and the land lease terms. Therefore, it is difficult to generalise the fees required.

5.5 其他建議事項 Other Suggestions for Consideration

(i) 機電工程署已就香港太陽能光伏系統及相關設備的供應商和安裝承辦商進行調查。根據收到的回覆,供應商和承辦商的資料已詳列在《可再生能源設備供應商調查回覆摘要》和《可再生能源設備安裝承辦商調查回覆摘要》,詳情請參閱:

可再生能源設備供應商調查回覆摘要 http://re.emsd.gov.hk/tc_chi/gen/gother_equ.html

可再生能源設備安裝承辦商調查回覆摘要 http://re.emsd.gov.hk/tc_chi/gen/gother_EL.html

EMSD has conducted surveys on the equipment suppliers and installation contractors of solar PV systems and associated equipment in Hong Kong. According to the response received, information on the suppliers and contractors is set out in the "RE Equipment Suppliers Survey Returns Summary" and "RE Installation Contractors Survey Returns Summary". For details, please refer to the following links:

RE Equipment Suppliers Survey Returns Summary http://re.emsd.gov.hk/english/gen/gother_equ.html

RE Installation Contractors Survey Returns Summary http://re.emsd.gov.hk/english/gen/gother/gother_El.html

- 6 法例要求 Regulatory Requirements
 - 6.1 有關電力安全的要求 Requirements in relation to Electricity Safety
 - (i) 安裝太陽能光伏系統配有低壓/高壓電力裝置是電力工作。根據《電力條例》(第 406 章),電力工作須由註冊電業承辦商進行,而受僱於註冊電業承辦商的註冊電業工程人員應根據工作守則的技術指引去進行相關電力工作。同時,該太陽能光伏系統須符合《電力條例》及工作守則的相關技術規定。

Installation of solar PV System involved low/high voltage electrical installation is electrical work. In accordance with the Electricity Ordinance (EO, Cap. 406), the electrical work shall be carried out by a REC, and the REW employed by the REC should follow the technical guidelines of the CoP to carry out the related electrical work. In addition, the solar PV system shall comply with the relevant technical requirements of the EO and the CoP.

- (ii) 根據《電力條例》(第 406 章) 第 21 條,產生低壓或高壓電力的發電設施的擁有人必須向機電工程署署長(署長)註冊其發電設施,但如該發電設施符合以下情況,則屬例外:
 - (a) 屬於該例規定須向署長提交定期測試證明書(即 WR2)的電力裝置的一部分;
 - (b) 只供應電力予擁有人所擁有的電力裝置;
 - (c) 在航空器上使用;
 - (d) 在船艇上使用;
 - (e) 在氣墊船上使用;
 - (f) 裝於陸上交通工具,而又沒有與該交通工具以外的線路裝置接駁一起;或
 - (g) 在《工廠及工業經營條例》(第59章)所界定及管制的建築工程中使用。

因此,在一般村屋或大廈單位,若有安裝可再生能源發電設施接駁至電網而其單位的電力裝置的允許負載量不超逾 100 安培(即不屬於定期測試證明書(WR2)所涵蓋的電力裝置的一部分),其擁有人須向署長註冊有關可再生能源發電設施。。註冊費用為640元,登記表格和詳情請參閱機電署網頁

(https://www.emsd.gov.hk/tc/electricity_safety/how_to_apply/registration_for_generating_facility/index.html)。

In accordance with section 21 of the EO (Cap. 406), the owner of a generating facility that is used to produce electricity at low voltage or high voltage shall register it with the Director of Electrical and Mechanical Services (the Director) unless it:

- (a) forms part of an electrical installation that requires a periodic test certificate (i.e.WR2) to be submitted to the Director under the EO;
- (b) only supplies electricity to an electrical installation that is owned by the owner of the generating facility;
- (c) is used on an aircraft;
- (d) is used on a watercraft;
- (e) is used on a hovercraft:

- (f) is on a land vehicle where the facility is not connected to a wiring installation outside the vehicle; or
- (g) is used in construction work as defined and regulated under the Factories and Industrial Undertakings Ordinance (Cap. 59)

Therefore, in a general village house or a building, if the Renewable Energy Power System connected with power grid which forms part of an electrical installation of maximum demand smaller than 100A (not belong to an electrical installation that requires a periodic test certificate (WR2)), the owner of the Renewable Energy Power System shall register the facility with the Director. The registration fee is \$640. The application form and other details can be found on EMSD's website.

(https://www.emsd.gov.hk/en/electricity_safety/how_to_apply/registration_for_generating_facility/index.html).

6.2 有關樓宇安全的要求 Requirements in relation to Building Safety

(i) 新界豁免管制屋宇(俗稱村屋) NTEH

一般的新界豁免管制屋宇,是在興建時因按《建築物條例(新界適用)條例》內所指明豁免條件設計和建造,而獲得豁免不受《建築物條例》中部分條文(包括需獲得屋宇署批准及同意施工的條文)及其附屬規例所管制。因此,屋宇署並無該等村屋的發展及圖則批核記錄。個別村屋的設計、建造及狀況各有不同,所以在村屋安裝太陽能光伏系統前,業主應諮詢有關專業人仕的意見,此外,有關設備不可以影響樓宇結構安全。

NTEH are generally designed and built in compliance with the exemption criteria stipulated under the Buildings Ordinance (Application to New Territories) Ordinance which thus qualify them from exemption from certain provisions of the Buildings Ordinance and its subsidiary regulations, including the need for obtaining prior approval for and consent to the commencement of works from the BD. The BD has no record of the building developments and approved plans of the buildings. Since design, construction and conditions of individual NTEH are different, owners should consult building professional before considering installation of solar PV system in NTEH and such facilities should not adversely affect structural safety of the building.

(ii) 私人樓宇 Private Buildings

就安裝太陽能光伏系統支承架的規定,詳情請參考項目 5.3(i)、(ii)及(v)。 For installation of supporting structure for solar PV system, detailed requirements are given in item 5.3(i), (ii) and (v).

一般而言,豎設用於支承太陽能光伏系統的構築物必須符合《建築物條例》及其規例 所訂明的樓宇安全規定。太陽能光伏系統及其構築物不能令樓宇負荷過重,亦不能影響火警逃生途徑。如有關構築物豎設於用作火警庇護層的天台上,該構築物及火警庇 護層的天台必須維持足夠庇護空間和合適耐火分隔。其次,有關構築物亦不應影響天 Generally speaking, the erection of supporting structure for solar PV system should comply with the building safety requirements under the Buildings Ordinance and its allied regulations. The solar PV system and associated supporting structure should not cause overloading to the building and not affect the means of escape in case of fire. If the structure is erected on the roof which has been designed as a refuge floor, adequate refuge area should be maintained and proper fire separation should be allowed. In addition, the structure should not affect the drainage and waterproofing system on the roof.

此外,進行太陽能光伏系統構築物豎設工程前,業主和佔用人亦應查看大廈公契有否訂明任何限制,並應徵求業主立案法團、互助委員會或管理公司同意。

Furthermore, owners and occupants are also advised to check any restrictions as may be stipulated in the Deed of Mutual Covenant, and to obtain the agreement from the Owners' Corporation, Mutual Aid Committee or the management company prior to the carrying out of the installation works for solar PV system.

6.3 有關消防安全的建議 Recommendations in relation to Fire Safety

在新界豁免管制屋宇(俗稱村屋)安裝太陽能光伏系統,有以下消防安全建議: For Installation of Solar PV Systems in New Territories Exempted Houses (NTEH) (commonly known as village houses), the fire safety recommendations are as follows:

(i) 村屋如面向明確定義的緊急車輛通道/主要道路/鄉村道路等,天台最少一邊面向該通道的地方應留有不少於 1050mm*空間(其寬度由護牆邊緣量度起)不能安裝太陽能光伏板。 此外,亦應從天台出口通往上述空間留有寬度不少於 1050mm*的通道。

Should the subject NTEH have a side(s) facing well-defined Emergency Vehicular Access (EVA)/main road/village passageway, etc., at least one side of the roof facing such passageway should be free from installation of PV panels by maintaining a setback of not less than 1050mm* (measured from the edge of parapet wall). In addition, a passageway with a width of not less than 1050mm* leading from the roof exit to that side of the aforementioned roof should be maintained.

(ii) 如果該村屋並非面向明確定義的緊急車輛通道/主要道路/鄉村道路,則需要在天台不與鄰近建築物毗連的圍邊最少一邊,留有不少於 1050mm *的空間(其寬度由護牆邊緣量度起)不能安裝太陽能光伏板。此外,亦應從天台出口通往上述空間留有寬度不少於1050mm *的通道。

If the NTEH is not facing well-defined EVA/main road/village passageway, at least one side

of the roof not abutting adjoining building should be free from installation of PV panels by maintaining a setback of not less than 1050mm* (measured from the edge of parapet wall). In addition, a passageway with a width of not less than 1050mm* leading from the roof exit to that side of the aforementioned roof should be maintained.

(iii) 提供一支乾粉滅火筒。

A dry powder type fire extinguisher is provided.

- *参考《2011年建築物消防安全守則》B部分,表格B2
- * Reference is made to Table B2, Part B, Code of Practice for Fire Safety in Buildings 2011 [https://www.bd.gov.hk/chineseT/documents/code/c_fs2011.htm]
- 6.4 有關商業登記及報稅的要求 Requirements in relation to Business Registration and Tax Return
 - (i) 在 2018 年施政報告的《施政綱領》中,環境局建議個人(不是在某業務的經營過程中)在 其住宅安裝小型可再生能源系統以參與上網電價計劃,可獲豁免商業登記及就上網電價 繳付利得稅。環境局將就此向立法會提交修例建議。待有關修訂法例通過前,上述個人 就其參與上網電價計劃無需向稅務局申請商業登記及在其報稅表申報收取的上網電 價。任何不屬於被建議豁免的個人,須按《商業登記條例》的規定辦理商業登記及按《稅 務條例》的規定申報收取的上網電價。

As announced in the Policy Agenda under the 2018 Policy Address, ENB proposes that individuals (not in the course of business) who install small-scale RE systems at their residential premises would be exempted from the requirement of applying for business registration and the payment of profits tax in respect of the FiT payments received through participation in the FiT Scheme. ENB will submit legislative amendment proposals to the Legislative Council in this regard. Before the passage of the amendment legislation, the aforementioned individuals are not required to apply for business registration from the Inland Revenue Department or report FiT payments in their tax returns in respect of their participation in the FiT Scheme. Individuals who are not covered by the proposed exemption should apply for business registration and report FiT payments in their tax returns in accordance with the Business Registration Ordinance and the Inland Revenue Ordinance respectively.

(ii) 任何法團或合夥在業務的經營過程中參與上網電價計劃,或為了圖利而參與上網電價計劃,透過出售可再生能源予電力公司而獲得上網電價,必須申請商業登記及在報稅表申報收取的上網電價。

Any corporation or partnership participating in the FiT Scheme in the course of a business, or participating in the FiT Scheme for profit purposes is required to apply for a business

registration and report in the tax return FiT payments derived from selling units of electricity generated by the RE systems to the power companies.

(iii) 為鼓勵工商界使用環保設施,自 2008/09 課稅年度起,根據《稅務條例》(第 112 章) 第 161條,環保裝置的資本開支可獲利得稅扣除。政府於二零一八至一九財政年度政府 財預算案提及,企業購置合資格的建築物能源效益和可再生能源裝置,其資本開支可獲 更優惠的稅務安排,由目前分五年扣除改為全數在一年內扣除。(詳情可參考於二零一八年三月一日發出的政府新聞稿)

http://www.info.gov.hk/gia/general/201803/01/P2018030100572.htm?fontSize=1

To encourage the business community to adopt environmental protection installations, since the year of assessment 2008-09, pursuant to Section 16I of the Inland Revenue Ordinance (Cap. 112), profits tax deduction has been allowed for the capital expenditure on such installations. As mentioned in the 2018-19 Budget, the Government will further enhance tax concessions for capital expenditure incurred by enterprises in procuring eligible energy efficient building installations and renewable energy devices by allowing tax deduction to be claimed in full in one year instead of the current time frame of five years. (Details can be referred to press release issued by the Government of HKSAR dated 1 March 2018)

http://www.info.gov.hk/gia/general/201803/01/P2018030100661.htm?fontSize=1

- 7 操作及保養 Operation and Maintenance
 - 7.1 太陽能光伏系統屬於發電設施。擁有人須符合《電力條例》及其附屬規例下有關維修保養發 電設施的要求。

Solar PV system is classified as a generating facility. The Owner shall comply with the maintenance requirement of generating facility under the Electricity Ordinance and its subsidiary regulations.

7.2 太陽能光伏系統的擁有人應遵從製造商/供應商提供的安裝指引及技術手冊所載的操作及 維修指示。擁有人應妥善儲存及保管所有技術文件,以供日後參考之用。

The owner of a solar PV system should follow the operation and maintenance instructions as specified in the installation guidelines and technical manuals provided by the manufacturer/ supplier. The owner should properly store and keep all the technical documents for future reference.

7.3 擁有人應按照製造商/供應商提供的技術文件,安排對太陽能光伏系統包括太陽能光伏板、 逆變器及支承構築物進行定期檢驗及例行維修(包括檢查系統各項功能)

The owner should arrange regular inspections and routine maintenance and functional check of the solar PV system including solar PV panel, inverter and their supporting structure in accordance with the technical documents provided by the manufacturer/supplier.

7.4 太陽能光伏板表面的灰塵或污垢會減低發電量,建議擁有人定期進行簡單清潔工作。

Dust or dirt on the surface of the solar PV panels reduce the amount of electricity generated. It is recommended that the owner should perform simple cleaning work on a regular basis.

7.5 有關太陽能光伏系統的電力工作(包括檢查、保養、維修相關固定電力裝置等),擁有人應僱用註冊電業承辦商進行,而受僱於註冊電業承辦商的註冊電業工程人員應會根據工作守則的技術指引去進行相關電力工作。

Regarding the electrical work in related to the solar PV system (including inspection, maintenance, repair of relevant fixed electrical installation etc.), the owner should employ a REC to carry out the work, and the REW employed by the REC should follow the technical guidelines of the CoP to carry out the relevant electrical work.

7.6 建議市民可要求承辦商在太陽能光伏板工程合約條款加入不短於一年的完工後的保用期。 當首個保用期過後,市民可自行決定是否再委托原本的承辦商,還是另聘新承辦商提供維修 保養服務。 It is recommended that the public may request contractors to offer at least one-year defect liability period (DLP) after project completion on the terms of the solar PV project contract. After the expiry of the DLP, the public may decide whether to entrust the original contractor or hire another new contractor to provide the maintenance service.

7.7 市民亦需留意,根據《電力條例》(第 406 章) 第 22 條,註冊發電設施的擁有人必須使其 發電設施經常保持運作安全,以及在該發電設施所在處展示告示,列明為使該設施經常保持 運作安全而僱用的註冊電業承辦商的名稱及註冊號碼。

The public should also note that under section 22 of the Electricity Ordinance (Cap. 406), the owner of a registered generation facility shall maintain the generation facility in continuous safe working order, and display at the facility a notice showing the name and registration number of the REC employed for maintaining the facility in continuous safe working order.

- 8 上網電價申請程序摘要 Outline of Application Procedures of Feed-in Tariff (FiT)
 - 8.1 適用於個別可再生能源系統的要求將因應個別情況而定,就申請上網電價的主要申請程序可參考附錄 3 的流程圖。

While the requirements applicable to a particular renewable energy (RE) system would depend on individual circumstances, a flowchart of the key application procedures involved in applying for FiT is attached in Appendix 3 for reference.

- 9 本地及海外標準 Local and Overseas Standards
 - 9.1 與太陽能光伏系統的相關本地及海外標準、守則及實務指引,載列於附錄 4 作為參考。

A list of local and overseas standards, codes and best practices relating to solar PV system is given in Appendix 4 as reference.

10 查詢 Enquires

機電工程署可再生能源服務台

EMSD RE Helpdesk

電話 Tel.: 6395 2930 傳真 Fax: 2890 6081

電郵 E-mail: eepublic@emsd.gov.hk

網址 Website: re.emsd.gov.hk

中華電力有限公司

CLP Power Hong Kong Limited

電話 Tel.: 2678 0322 傳真 Fax: 2678 6368

電郵 E-mail : <u>csd@clp.com.hk</u> 網址 Website : <u>www.clp.com.hk</u>

香港電燈有限公司

The Hongkong Electric Co., Limited

電話 Tel.: 2843 3228

電郵 E-mail: <u>RE@hkelectric.com</u> 網址 Website: <u>www.hkelectric.com</u>

Appendix 1

在新界豁免管制屋宇(俗稱村屋)安裝太陽能光伏系統的流程圖

Flow Chart for Installation of Solar Photovoltaic Systems in New Territories Exempted Houses (NTEH) (commonly known as village houses)

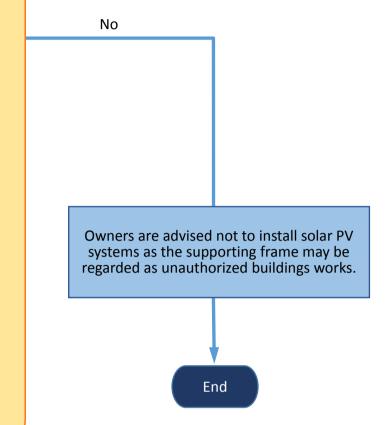
Plan to install solar PV systems in NTEH Whether the Solar Photovoltaic (PV) System satisfies the following requirements: -System on main roof The system including its supporting structure should not be higher than 2.5m measured from the roof level. The average loading imposed should not exceed 150kg/m². (b) It should not project more than 750mm from the external wall. (c) (d) For system arranged in the form of continuous spread covering, its coverage (only the coverage area within the building is accounted) should not be more than half of the roofed-over area of the NTEH. For system arranged in clusters, each cluster should have coverage of not more than 5m² (only the coverage area within the building is accounted) and should be separated from each other by not less than

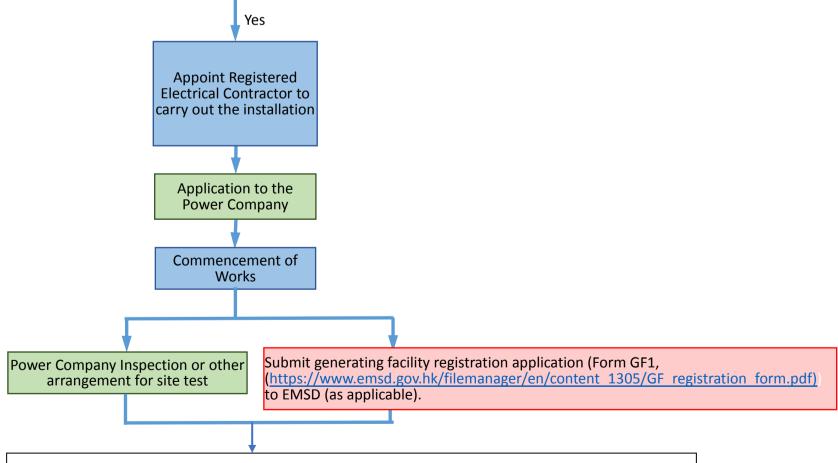
System on roof of stairhood

- (f) The system including its supporting structure should not be higher than 1.5m measured from the level of the roof of the stairhood.
- (g) The average loading imposed should not exceed 75kg/m².
- (h) It should not project more than 750mm from the edge of the roof.

Common requirements

- (i) The roof on which the system would be installed should be cleared of all unauthorised building works (UBWs), including those acknowledged by the Buildings Department (BD) under the Reporting Scheme for UBWs in NTEHs implemented by BD.
- (j) The space underneath the system should not be enclosed^.
- (k) It should be properly installed and should not adversely affect the structural safety of the building. For system exceeding 1.5m high measured from the roof level, it should be certified by an Authorized Person registered under the Buildings Ordinance (BO) for submission of a safety certificate⁺ to Lands Department for record.
- (1) Such facilities should not be installed on the canopy.
- ^ If the space is enclosed, BD will take enforcement action under the BO.





Submit a safety certificate⁺ signed by an Authorized Person certifying that the system has been properly installed and has not adversely affected the structural safety of the building to LandsD if the system is exceeding 1.5m high measured from the roof level. (⁺ The safety certificate (Form C/PVS) is available at Lands Department and all N.T. District Lands Offices. It can also be downloaded from Lands Department's website (http://www.landsd.gov.hk).)

End

計劃於新界豁免管制屋宇安裝太陽能光伏系統

有關太陽能光伏系統是否符合以下條件:

屋頂上的系統

- (a) 系統連支架的高度由天台地台起計不得超過 2.5 米。
- (b) 平均荷載不得超過每平方米 150 公斤。
- (c) 系統不得伸出外牆超過 750 毫米。
- (d) 就以連續覆蓋方式安裝的系統,其覆蓋範圍(只計算屋 宇內被覆蓋的範圍)不得多於所在新界豁免管制屋宇有 蓋面積的一半。
- (e) 就以羣組方式安裝的系統,每個羣組的覆蓋面積(只計算屋宇內被覆蓋的範圍)不得多於5平方米,而每個羣組之間相距不得少於1米。

樓梯頂篷上的系統

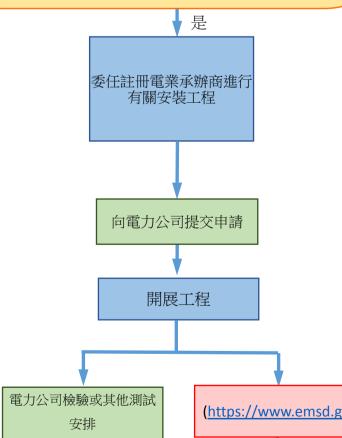
- (f) 系統連支架的高度由樓梯頂篷起計不得超過 1.5 米。
- (g) 平均荷載不得超過每平方米 75 公斤。
- (h) 系統不得伸出頂篷邊緣超過 750 毫米。

共同規定

- (i) 安裝系統的屋頂或樓梯頂篷上,不可有任何僭建物,包括屋宇署就新界豁免管制屋宇僭建物所推行的僭建物申報計劃之中,已申報並被屋宇署確認的僭建物,亦必須清拆。
- (j) 不可圍封系統下面的空間¹。
- (k) 系統必須妥善安裝,及不可影響屋宇結構安全;由天台 地台起計超過 1.5 米高的系統須經由根據《建築物條 例》註冊的認可人士核證,及提交有關安全證明書+予 地政總署備存。
- (1) 有關設備不可裝設在簷篷上。
- ^ 如有關空間被圍封,屋宇署會根據《建築物條例》採取執法行動。

業主不被建議安裝太陽能光伏系統,因為不符合條件的支架可被視為僭建物。

否

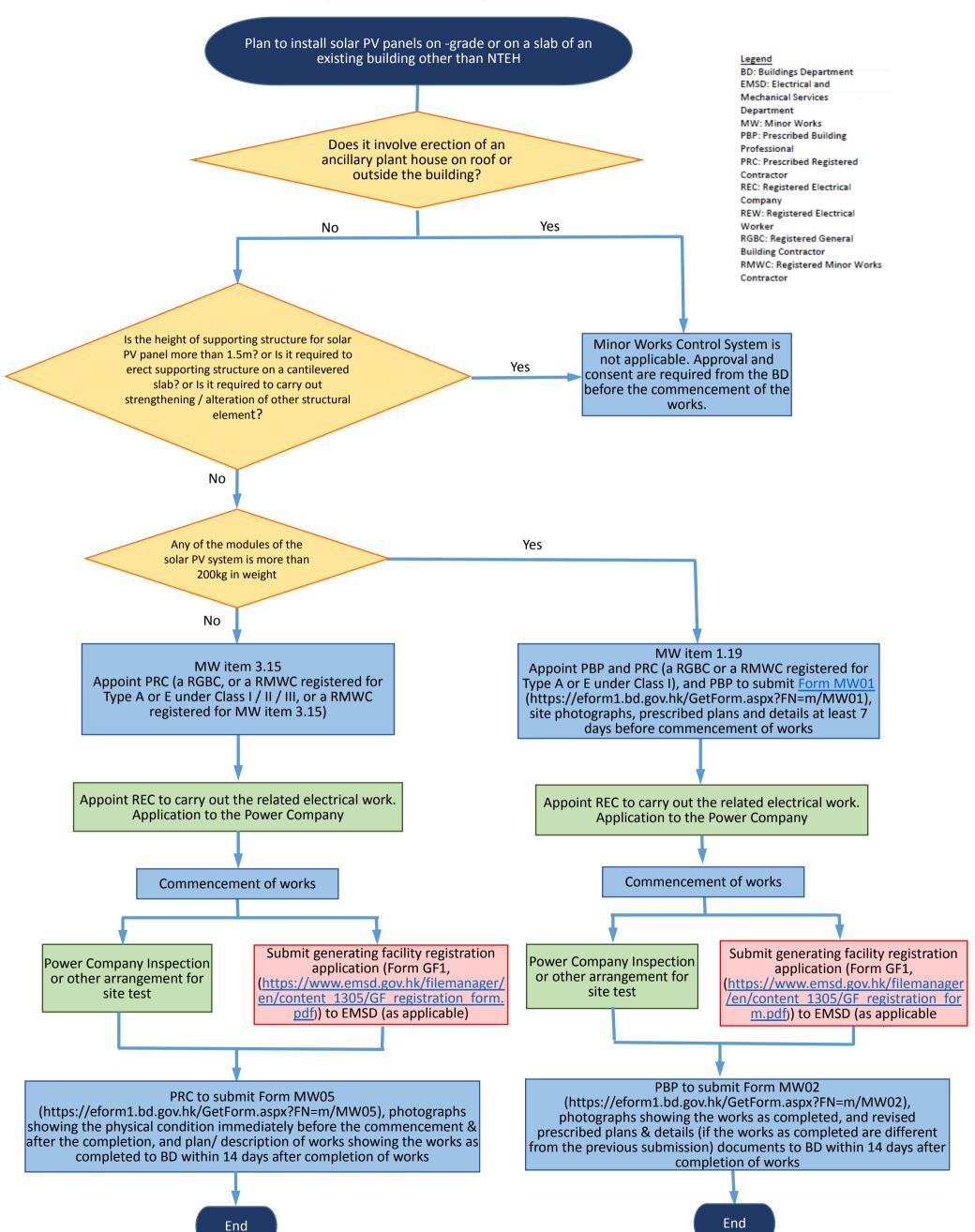


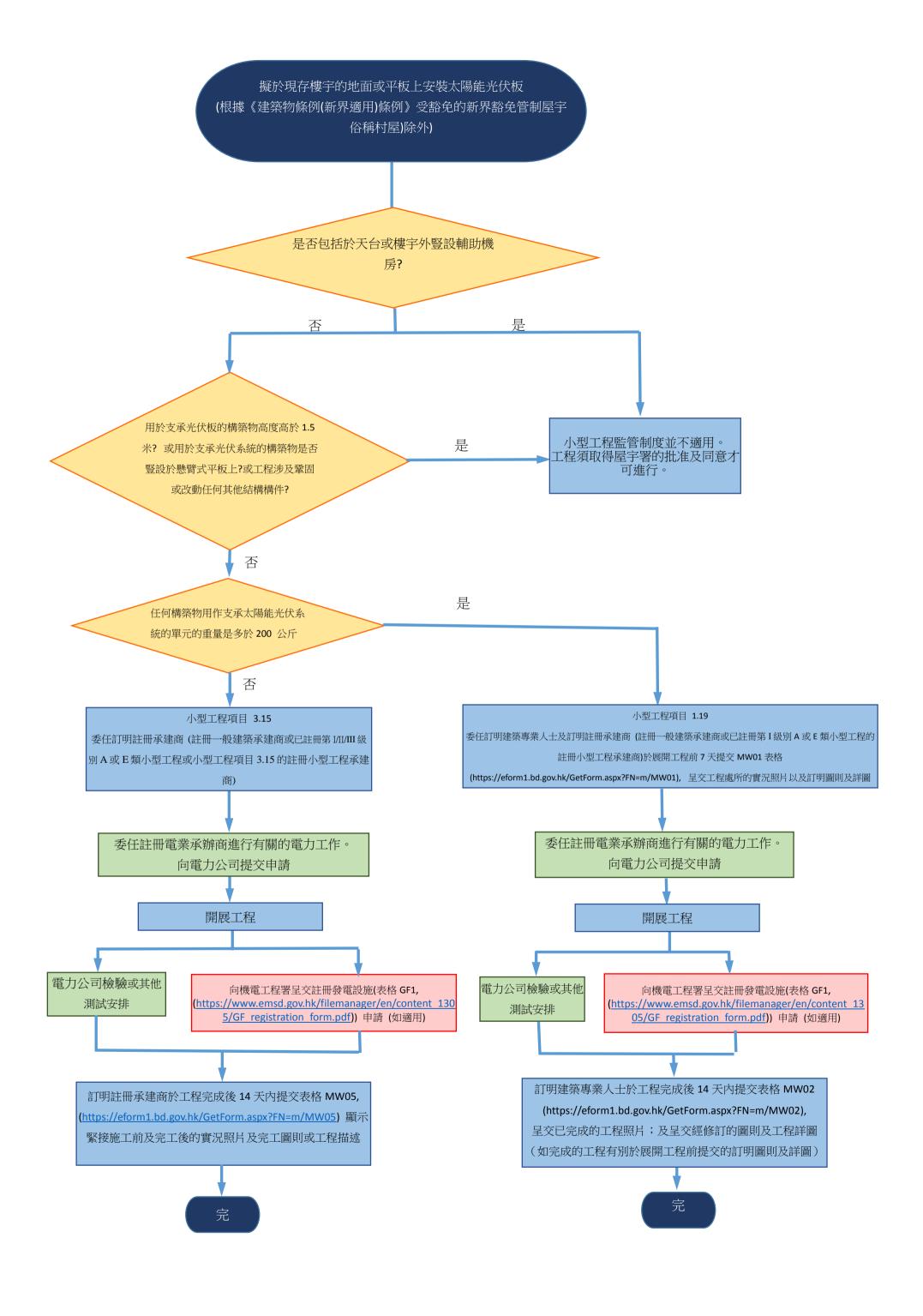
向機電工程署呈交註冊發電設施(表格 GF1,

(https://www.emsd.gov.hk/filemanager/en/content 1305/GF registration form.pdf) 申請 (如適用).

若涉及由天台地台起計超過 1.5 米高的系統,須向地政總署提交一份由認可人士簽發的安全證明書 + , 證明該系統已妥善安裝,及不會影響樓宇結構安全。(+ 有關安全證明書(表格 C/PVS) 可地政總署及新界各分區地政處索取,亦可從地政總署網頁(網址: http://www.landsd.gov.hk)下載。)

Flow Chart for Installation of Solar Photovoltaic Systems in Private Buildings





附錄 3

Appendix 3

申請上網電價的主要申請程序流程圖

Flowchart on key application procedures involved in applying for Feed-in Tariff (FiT)

申請接駁電網及上網電價

遞交申請表格及文件 予電力公司

中電:可再生能源上網電價 https://www.clp.com.hk/zh/co mmunity-andenvironment/renewableschemes/feed-in-tariff 港燈:上網電價計劃 https://www.hkelectric.com/zh /customer-services/smartpower-services/feed-in-tariffscheme

電力公司進行技術評估

安裝系統

進行系統測試、 電力公司安裝電錶及電網接駁

詳情請參閱電力公司的網站或 聯絡它們:

中電熱線電話: 2678 0322 港燈熱線電話: 2843 3228

Application for Grid Connection and FiT

Application and Document Submission to the Power Companies

CLP: Renewable Energy Feed-in
Tariff
https://www.clp.com.hk/en/commu
nity-and-environment/renewableschemes/feed-in-tariff
HKE: FiT Scheme
https://www.hkelectric.com/en/cus
tomer-services/smart-powerservices/feed-in-tariff-scheme

Technical Assessment by the Power Companies

System Installation

On-site Check, FiT Meter
Installation, Grid Connection by the
Power Companies

Please refer to the power companies' websites or contact them for further information:

CLP hotline: 2678 0322

HKE hotline: 2843 3228

附錄 4

Appendix 4

本地及海外標準和實務指引

Local and Overseas Standards and Best Practices

本地守則及規則

Local codes and rules

Title

《電力(線路)規例工作守則》(機電工程署)

Code of Practice for Electricity (Wiring) Regulations, EMSD

《供電則例》(香港電燈有限公司)

Supply Rules of The Hongkong Electric Company, Limited

《供電則例》(中華電力有限公司)

Supply Rules of CLP Power Hong Kong Limited

用於晶硅光伏組件和非晶光伏組件認證的主要國際電工標準:

Major IEC standards for certification of crystalline PV modules and amorphous PV modules:

標準/指南/推薦規範	標題
Standards/Guides/Recommendations	Title
國際電工標準 61215 IEC 61215	地面用光伏組件 - 設計鑒定和定型 Terrestrial photovoltaic (PV) modules - Design qualification and type approval
國際電工標準 61730	太陽能光伏組件安全驗證
IEC 61730	Photovoltaic (PV) module safety qualification

用於逆變器認證的主要國際電工標準:

Major IEC standards for certification of Inverters:

標準/指南/推薦規範	標題
Standards/Guides/Recommendations	Title
國際電工標準 62109	應用於光伏系統的功率轉換器的安全
IEC 62109	Safety of power converters for use in photovoltaic power
	systems

與光伏系統相關的國際電工標準:

Some IEC standards relating to PV systems :

標準/指南/推薦規範	標題
Standards/Guides/Recommendations	Title
國際電工標準 60364-7-712	低壓電氣裝置 - 第 7-712 部分 : 特殊安裝和位置的要求 -
IEC 60364-7-712	光伏供電系統

	Low voltage electrical installations - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems
國際電工標準 61724	光伏系統性能監察
IEC 61724	Photovoltaic system performance
國際電工標準 61727	光伏系統 - 電網介面的特性
IEC 61727	Photovoltaic (PV) systems - Characteristics of the utility interface
國際電工標準 62116	接駁電網式光伏系統逆變器防孤島功能試驗步驟
IEC 62116	Utility-interconnected photovoltaic inverters - Testing procedure of islanding prevention measures
國際電工標準62446	光伏系統 -測試、文件 維修要求
IEC 62446	Photovoltaic (PV) systems – Requirements for testing, documentation and maintenance

用於晶硅光伏組件和非晶光伏組件認證的主要中國國家標準(國標) Major Chinese National Standards (Guobiao) for certification of crystalline PV modules and amorphous PV modules

標準/指南/推薦規範	標題
Standards/Guides/Recommendations	Title
GB/T 9535-1998	地面用晶體硅光伏組件設計鑑定和定型 Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval
GB/T 18911-2002	地面用薄膜光伏組件設計鑒定和定型 Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval