

Solar leasing in Singapore – Electricity licenses

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Introduction

Singapore’s race to net zero emissions, coupled with the continued rise in fuel and utility prices and decrease in cost of solar photovoltaic (PV) panels, have greatly incentivised companies in Singapore to deploy solar PV systems at their premises as a source of sustainable, self-sufficient and cost-effective energy. Given Singapore’s land constraints, such solar PV systems are often deployed on rooftops of buildings.

Reflecting the increased interest in green energy locally, there has been a consistent increase in the total generation capacity of solar PV systems in Singapore, from 45.7MWac in 2015 to 341.5MWac in Q1 2021, with 53.1% accounted for by the non-residential private sector. This trend is expected to continue in the foreseeable future.

Access to rooftop solar PV systems

There are generally two ways to gain access to rooftop solar PV systems in Singapore, being solar ownership or solar leasing. The key differences are set out below:

	Solar ownership	Solar leasing
General description	Owner/occupier of the premises installs and operates a rooftop solar PV system on its premises at its expense, usually by engaging a solar developer to install the system on its behalf.	Owner/occupier of the premises leases its rooftop space to a solar developer to install and operate a rooftop solar PV system, in exchange for the entitlement to purchase electricity generated by the system at a pre-agreed discounted price.
Cost of installation and maintenance	Owner/occupier of premises bears all capital and operating costs.	No upfront capital costs to owner/occupier of premises. Solar developer bears all capital and operating costs during the contracted term (usually between 20 and 25 years).
Ownership of rooftop solar PV system	Owner/occupier of premises.	Solar developer, for the duration of the contracted term.
Electricity generated	Electricity generated belongs to the owner/occupier of the premises.	Electricity generated belongs to the solar developer, and is usually purchased by the owner/occupier of the premises at a pre-agreed discounted price.

The solar leasing model has been gaining traction in Singapore as many owners/occupiers of premises prefer having access to cheaper-than-market “green” electricity without any upfront costs. Furthermore, owners/occupiers do not need to deal with the hassle of operating and maintaining the installed rooftop solar PV system, as the solar developer will remain responsible for the PV system for the duration of the contracted term. The solar leasing model is especially popular amongst lessees of commercial buildings, whereby such lessees have little incentive to install a permanent solar PV system on their leased premises.

Unsurprisingly, there has been a growing interest in the business of solar leasing in Singapore, with many solar developers keen on entering the market to become a solar lessor under the solar leasing model. In connection with the foregoing, there are some critical licensing requirements relating to (i) the generation of electricity by solar PV systems, and (ii) the sale of electricity generated by such solar PV systems, that potential solar lessors should take into account.

Electricity licensing

Electricity Act

The primary legislation governing the electricity sector in Singapore is the Electricity Act 2001.

Under Section 6 of the Electricity Act 2001, no person is entitled to engage in the generation or retail of electricity in Singapore, unless the person is:

- (i) authorized to do so by an electricity license granted by the Energy Market Authority of Singapore (EMA); or
- (ii) exempted by EMA.

Any person who contravenes the foregoing shall be guilty of an offence.

The above requirement similarly applies to generation of electricity by means of solar PV systems, and the retail of such generated electricity.

Electricity licensing requirements

Electricity licenses for generation of electricity

Unless exempted by EMA, a developer engaging in the generation of electricity by means of a solar PV system is required to obtain from EMA either:

- (i) a Wholesaler License; or
- (ii) a Generation License.

The type of electricity license required is dependent on two factors:

- (i) individual name-plate rating of the solar PV system; and
- (ii) whether the solar PV system is connected to the power grid.

The table below illustrates the type of electricity license (if any) required to be obtained by a developer intending to engage in the generation of electricity by means of a solar PV system.

Solar PV system		Electricity license for generation of electricity by solar PV system
Individual name-plate rating (R)	Whether connected to power grid	
R < 1 MW	No	Exempted. ¹
	Yes	Exempted. ²
1 MW ≤ R < 10 MW	No	Exempted. ³
	Yes	Wholesaler License, subject to limited exemptions ⁴ (e.g. where the relevant entity is already registered with Energy Market Company as a market participant pursuant to an appropriate electricity license).
R ≥ 10 MW	No	Generation License.
	Yes	Generation License.

Factor 1 – Individual name-plate rating

The individual name-plate rating of a solar PV system for determining the required electricity license is based on the lower of (1) the aggregate installed capacity of the solar PV system or (2) the aggregate alternating current (AC) inverter capacity measured at the point of connection to a power grid (i.e. the point at which the solar PV system is connected directly or indirectly to the substation of SP PowerAsset Ltd).

Where a solar PV system unit is paired with a battery energy storage system (BESS) (i.e. they share the same inverter), such setup will be considered a single generating system with name-plate capacity determined as the lower of (1) the aggregate installed capacity of the BESS and the solar PV system or (2) the aggregate AC capacity of the shared inverter.

Factor 2 – Whether connected to power grid

The solar PV system is considered to be connected to the power grid as long as the solar lessee's premise, which the solar PV system is connected to, is itself connected to the power grid.

Application process

Application for the Generation License or Wholesaler License may be made via the [GoBusiness Licensing Portal](#) on EMA's website. Each Wholesaler License and the Generation License is granted to a specific licensee only, and only such licensee (and not its affiliates or subsidiaries) is authorized to generate electricity pursuant to such electricity license.

¹ Exemption under Electricity (Electricity Generation Licence) (Exemption) (No. 2) Order.

² Exemption under Electricity (Electricity Generation Licence) (Exemption) (No. 2) Order.

³ Exemption under Electricity (Electricity Generation Licence) (Exemption) (No. 2) Order.

⁴ Exemption under Electricity (Electricity Generation Licence) (Exemption) (No. 2) Order.

Electricity licenses for sale of electricity

Solar lessors have the option to sell electricity generated by its solar PV systems on Singapore's wholesale electricity market (SWEM) or to specific non-residential consumers (including such consumer within the same premises on which the solar PV system is installed on), or a combination of both.

Selling on wholesale market

Both the Wholesaler License and the Generation License entitles the licensee to sell electricity on SWEM, as long as the licensee is registered with Energy Market Company (the sole market company licensed by EMA to operate and administer SWEM) [as a market participant](#). Such electricity will be sold at the [price determined by Energy Market Company on a half-hourly basis](#).

Retailing to specific consumers

On the other hand, the sale of electricity to contestable consumers will generally require an additional Retailer License to be obtained by EMA. Contestable consumers are consumers that opened a contestable consumer account with SP Services Limited, and can choose to purchase electricity from licensed retailers, directly from SWEM, or indirectly from SWEM through SP Services Limited (the market support services licensee that facilitates access to SWEM). Contestable consumers are typically limited to non-residential consumers, as there is a minimum annual electricity usage requirement.

One exception where an additional Retailer License is not required is where a solar developer holding a Wholesaler License wishes to sell electricity generated by a sub-10 MW solar PV system installed on its customer's rooftop to that same customer. In such situations (which is typical of a solar leasing arrangement), such holder of a Wholesaler License does not need to obtain a separate Retailer License, as a Wholesaler License already permits the licensee to sell generated electricity to contestable consumers within the same premises on which the solar PV system is installed on.

Application process

Application for the Retailer License may be made via the [GoBusiness Licensing Portal](#) on EMA's website. Similar to the Wholesaler License and the Generation License, the Retailer License is granted to a specific licensee only, and only such licensee (and not its affiliates or subsidiaries) is authorized to retail electricity pursuant to such electricity license.

Conclusion

In a typical solar leasing arrangement where the rooftop solar PV system installed on an owner's/occupier's premises has a name-plate rating of less than 10 MW and the electricity generated will only be sold to the same premises with the excess to the wholesale electricity market, only a Wholesaler License is required. However, solar developers looking to enter into this space should be aware of the other permutations of the licensing requirements and regulatory developments to ensure proper compliance in all circumstances.

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Key contact



Ron Oong
Partner

D +65 6885 2894
E ron.oong@dentons.com

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