

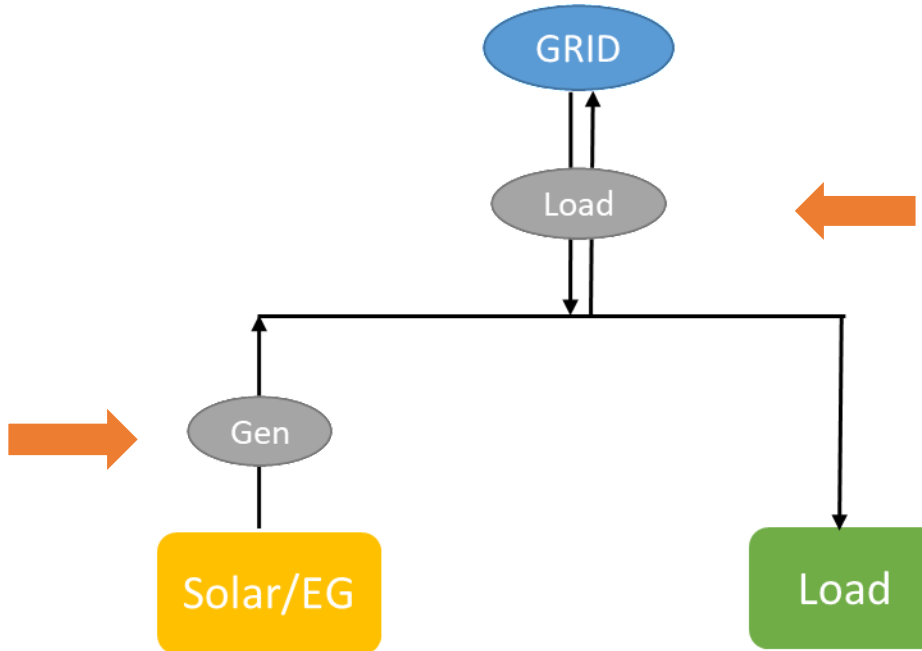
Solutions to Allow Consumers to Adopt New Technologies to Reduce Electricity Costs

Problem Statement

- With the proliferation of new technologies such as solar PV and energy storage, consumers and companies are looking at adopting them as an embedded generation (EG) to reduce their electricity costs. This has also created new business models such as the leasing model whereby consumers could lease these new technologies instead of investing in high upfront capital cost.
- However, due to the current design of the billing system and different settlement frameworks for different technologies, consumers will face challenges if they want to (a) install different types of new technologies; and/or (b) lease them from different entities.
- We expect more consumers to face these problems in future, as we expect growing interest in renewables and energy storage. If resolved, this could open up vast opportunities for consumers and businesses to cut operational costs; and new business opportunities for investors.
- Hence, EMA is keen to explore solutions with industry to allow consumers to have more options when choosing to adopt new technologies.

Due to the current design of the billing system, only one generation account is allowed per load account

- Only one generation account is allowed per MSSL account holder.
- If registered under Enhanced Central Intermediary Scheme (ECIS), SPS will pay MSSL account holder on any net exports.
- If registered as Market Participant (MP):
 - For embedded solar consumers, EMC will pay MP for any net exports.
 - For conventional Embedded Generation (EG), EMC will pay MP for any gross exports.



- Each consumer premise i.e. MSSL account holder only has one load account to measure the export and import of electricity.
- SPS/Retailers will charge MSSL account holder on any net imports.

This limitation creates problems for consumers who (i) wish to install different EG types and/or (ii) have EG units from different entities. The result is a loss of competitive choice for consumers, and creates a new set of allocation and settlement problems.

- Business models affected:
 - Consumer who install 2 or more different type of EGs, e.g.
 - Solar + Energy Storage
 - Solar + Conventional Generator
 - Conventional Generator + Energy Storage
 - Consumer who install EGs with 2 or more different owners, e.g.
 - Self-own + Solar Leasing
 - Solar Leasing A + Solar Leasing B
- We expect more consumers to face these problems in future, as we expect growing consumer interest to install renewables, energy storage and EGs. Solar companies are also offering increasingly competitive solar leasing options.



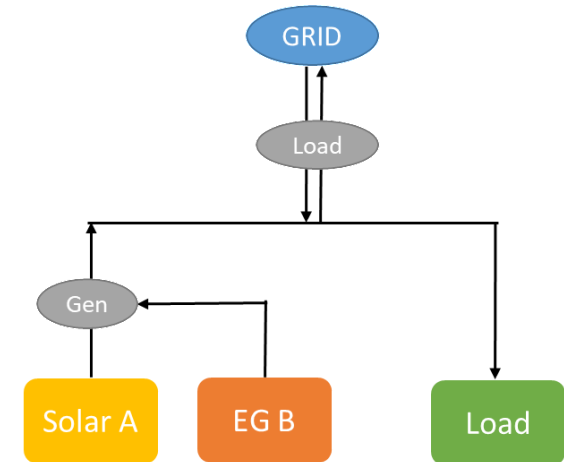
Consumers that insist on attempting these business models would be required to have their different generators share a single generation account. This leads to a series of problems:

- Need different parties to commercially agree to share a generator account.
 - The incumbent generator could be disagreeable, thus limiting competitive choice for consumers
- Even if there is agreement to share generation account:
 - No precedence on how energy sold and metering errors are allocated amongst generators
 - No precedence for resolving conflicts in settlement regime (see next slide)

EGs under different settlement framework may face challenges in aggregating under one generation account

- Net Settlement was introduced so that consumers can enjoy the benefits of EG & Solar in a simplified manner. Consumers can simply use their EG/Solar to offset their demand, and then buy any outstanding electricity from the market or sell any excess electricity to the market.
- However, conventional EG registered in the market is under gross settlement regime, but with price neutralization* arrangement to effect net settlement.
- Although both enjoy net settlement, the mechanism/formula to effect that are different. As such, it is challenging to allow them to be connected to the same load account.

	Net settlement <i>(consumers are either charged for their net consumption, or paid for their net generation within each trading period)</i>	Gross settlement <i>(consumers are paid for the gross generation, and are charged for gross consumption)</i>
Embedded solar registered under ECIS	√	X
Embedded solar registered as MP	√	X
Conventional EG registered under ECIS	√	X
Conventional EG registered as MP	X	√ (with price neutralization)



*All EGs registered in the wholesale market will get price neutralization (i.e. whereby the price differential between energy generated and energy consumed is being neutralized to effect net settlement). If the EG consumer is buying electricity from a retailer, his generation will be price-neutralised with the retailer (for his consumption). The parties have to negotiate on how/whether to pass through the price neutralisation to the consumer.

As system and regulatory changes take time, EMA will like to consult industry for alternative solutions.

- EMA needs to work with SPS and EMC to make changes to the IT system and regulatory framework. However, these take time to implement and to operationalise.
- Hence, EMA will like to invite industry players to propose alternative solutions during the interim period.
- Submitted proposals will be evaluated by EMA, and could be implemented under a Regulatory Sandbox if deemed viable.