

Selling your electricity

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Selling your electricity

Selling your generated electricity is essential for receiving compensation and ensuring a steady income stream. This income plays a crucial role in obtaining financing for your project. Various approaches to selling electricity exist, with some being well-established and fully supported by existing regulations, while others are more experimental and may require regulatory adjustments to gain support.

Self-consume your electricity behind your meter.

This is a simple approach. It means using the electricity you generate before it reaches your meter, so it's not measured or accounted for by the meter or external parties like retailers or lines companies. The meter only measures the net electricity flowing through it.

This method has the least impact on the grid and others. However, it requires aligning your electricity usage with your generation as much as possible. For example, if you have solar, it's best to use appliances like water pumps or dryers during the sunniest part of the day. If you have hydro or geothermal power, your usage can be more spread out throughout the day. Nevertheless, you'll likely still export electricity to the grid and draw electricity from it. The grid essentially acts as a large battery, which is why we have a national grid instead of many separate community energy projects.

A typical household with solar energy may aim to self-consume around 50% of the generated electricity, while a commercial or community installation could target self-consumption of 75% or higher. However, if the solar installation is oversized due to factors like low incremental cost, the self-consumption percentage will be lower.

Sell your electricity to a retailer.

Selling your electricity to an electricity retailer is a well-established practice is often the simplest option to manage. It is commonly referred to as "selling the power back to the grid," although the grid itself doesn't directly buy or sell power.

Currently, you can only have one retailer, which means if you sell electricity you generate to them, you must also purchase the electricity you use from the same retailer. There are two important considerations: the price you receive for the electricity you produce and the price you pay for supplemental electricity you need to buy.

Opting for fixed prices for both can provide stability in revenue and costs, making it easier to secure financing and reducing risks.

If the prices you receive and pay for electricity vary with the spot market price, you are exposing yourself to significant market risks. Before opting for this approach, careful analysis is required to determine if it makes economic sense.

Generally, retailers offer four options:

- **Time of Use (ToU) spot:** This rate exposes you fully to the wholesale market spot price. The price you buy and sell electricity is determined by the real-time price in the spot market. Retailers typically charge a fee (around 10% of trade value) for providing access to the spot market. However, this structure requires close attention as periodic price spikes can quickly erode savings and expose your project to financial risks.
- **Time of Use (ToU) fixed:** The day is divided into six 4-hour slots, each with a different price. However, the price remains fixed for each slot every day and is locked in for a defined period, such as two or three years. Usually, the lowest price is during midnight to 4 am, and it increases towards 8 am. It remains moderate during the middle of the day, and it may rise during the evening peak before declining towards midnight. This structure rewards shifting electricity use from high to low pricing periods. EDBs typically reserve this rate for larger users with higher connection capacities and annual usage.
- **Fixed and flat:** This rate is a flat rate regardless of the time of day and is based on the demand-weighted average of the time of use rates. Similar to ToU fixed, "fixed and flat" is locked in for a defined period, such as three years, and can be purchased several months in advance. While it protects you from market price fluctuations, it doesn't provide much flexibility for shifting electricity use or generation.
- **Non-half hourly:** This refers to using monthly meter readings to calculate your bill rather than half-hourly readings. This is the flat rate commonly used by household consumers. Although it is a flat rate, there is no long-term contract, so the rate may increase or decrease from time to time (mostly increasing).

Select the plan that is best for you overall.

To select the plan that offers the best overall value for your specific circumstances, you need to consider several factors beyond just the retail energy rate. Here are the key factors to consider:

- **Evaluate your energy usage patterns:** Assess your energy consumption habits and determine if you have flexibility in when you use electricity. For example, can you shift your energy use to off-peak hours?
- **Understand your generation capacity:** Determine the amount of excess electricity you can generate, whether it's from solar panels or stored in a battery. This will impact the amount you can sell back to the retailer.
- **Compare different rate options:** Consider the four options mentioned earlier (Time of Use spot, Time of Use fixed, Fixed and flat, and Non-half hourly) and compare their benefits and drawbacks. Evaluate how each rate aligns with your energy usage patterns and generation capacity.
- **Analyse the price structure:** Look beyond the retail energy rate and consider the lines charge structure for both Transpower and your EDB. These charges may have time-of-use components that can either amplify or neutralise the gains from your energy rate decision. Evaluate the impact of these charges on the overall cost.
- **Consider contract terms:** Take into account the duration of the contract. Some rates are fixed for a defined period, while others may require renegotiation after a few years. Assess if the contract duration aligns with your long-term plans and preferences.
- **Assess market risks:** If you opt for a rate that varies with the spot market price, understand the level of market risk you are willing to take. Analyse historical price fluctuations and assess if the potential benefits outweigh the risks.
- **Seek professional advice if necessary:** If you're uncertain about the complexities of the energy market or the specific details of your circumstances, consider consulting with a professional energy advisor who can provide personalised recommendations based on your needs.

By considering these factors holistically, you can determine the plan that offers the best overall value, balancing the price you receive for your excess electricity with the price you pay for supplemental electricity, while also taking into account the lines charge structure and your energy usage patterns.



Export or buy-back rates

As of March 2023, retailers in Aotearoa New Zealand paid between 7 to 17 cents per kilowatt-hour (kWh) for excess solar power generated by solar panels. When your solar panels produce more electricity than you need and you don't have batteries to store the surplus, the extra power is sent back to the grid. Your electricity retailer will have a fixed price at which they will purchase this solar power from you. This payment will be reflected as a credit on your power bill, reducing the cost of the electricity you buy from the grid. If the accumulated solar buy-back credit increases, you might have the opportunity to receive payment for the surplus solar power. However, not all energy retailers offer this option, so it's recommended to inquire with them beforehand.

Sell your electricity to a third party under a PPA

A Power Purchase Agreement (PPA) ensures a reliable and long-term arrangement for buying electricity from a specific power generation project. This agreement provides confidence to the project developer in terms of revenue and helps secure financing. The buyer, which could be a utility company or a private entity with a power demand, agrees to purchase a predetermined amount of energy at a fixed price for a specified period, usually around 20 years. The PPA typically covers all the energy produced by the specific project.

For example, let's say Spark builds a data centre requiring 20 MW of power on a particular plot of land and allows a developer to construct a 2 MW solar project on the same land. Spark can enter into a PPA with the solar project to buy all the energy it generates, while obtaining the remaining energy from the market. Since the data centre's power usage is consistent, it will always require at least 2 MW for a minimum of 20 years. The price in the PPA could be fixed with an annual increase over the 20-year period. Having this PPA in place before construction allows the project developer to use it as proof of revenue to secure a loan from a bank.

In cases where there is no direct physical connection between the generation and the load, or if the solar project is on a different piece of land, the PPA becomes more complex. It would need to incorporate a Contract for Difference (CfD) component. The CfD allows the transaction to be settled in the wholesale market while ensuring the buyer pays or receives an adjustment from the generator to account for the difference between the agreed fixed price and the spot price. This provides stability to the power producer with a fixed price. However, the energy purchaser would still have some exposure to the spot market and may contract with a retailer to manage this risk.

It's important to note that a PPA is a specific type of contract that provides certainty of offtake and payment to a particular power project. It differs from other forward contracts, bilateral agreements, or energy supply agreements commonly used in New Zealand. For instance, when an industrial company like the Tiwai refinery buys power from a utility company, the contract focuses on ensuring a reliable supply to the load rather than guaranteeing offtake from a specific power project. Therefore, it is less useful for financing a particular energy project.

When considering a PPA, it's essential to understand that this structure is relatively new for energy projects in New Zealand, and even experienced energy professionals may not be familiar with all its elements. It is advisable to seek the assistance of someone knowledgeable in structuring the PPA to facilitate financing effectively.

Sell or donate your electricity to a separate and specific ICP

This approach is sometimes called peer-to-peer electricity trading.

Currently, according to existing regulations, peer-to-peer electricity trading at the consumer level between separate and specific ICPs is only permitted when facilitated by a registered retailer. The registered retailer assumes responsibility for ensuring the accuracy of billing, compliance with regulations, and ensuring the availability of electricity supply to both parties when generation is not accessible. It is essential that both the buyer and seller are customers of the same retailer, and each customer can only have one retailer for all their electricity requirements. Essentially, the buyer and seller establish a direct agreement for the sale and purchase of electricity outside of the wholesale market. If the buyers and sellers were with different retailers, they would not be able to enter into a direct agreement, and the energy trade would be settled within the market.

Please note that at the time of writing, there were ongoing trials to allow multiple retailers to serve a single consumer¹. This would enable different retailers to offer various electricity products at different times of the day to the same customer.

¹ [araake.co.nz/projects/mtr/](https://www.araake.co.nz/projects/mtr/)

Sell flexibility services separately

From the perspective of an EDB, any distributed energy resource (DER) that has the ability to adjust its consumption of real or reactive power can be considered flexible. This flexibility, when available at the request of the EDB, enables them to achieve better balance in the local grid.

Demand response and other flexibility agreements or incentives for DERs are common in more developed markets, but they are just beginning to be introduced in New Zealand. To ensure the effectiveness of such arrangements, several key elements should ideally be in place:

- The EDB needs to be able to assess the value of the flexibility. For instance, they should have a measure for the constraint that the flexibility can alleviate, and be able to calculate the value of easing that constraint. They should also have an alternative, such as a line upgrade, against which they can compare the value.
- The value of the flexibility should be sufficiently high to make it worthwhile for the DER owner or customer.

- The EDB needs to be able to communicate and make the flexibility opportunity visible to the DER owner or customer.
- Both parties need to agree on the terms and conditions regarding when and how the flexibility can be utilised.
- The EDB should have the necessary operational expenditure (OPEX) budget to compensate the DER owner or customer for providing the flexibility service.
- The DER owner or customer should have the technical and contractual capability to reliably deliver the required flexibility.

Although Transpower has implemented flexibility arrangements at the wholesale level, there are relatively few instances where this has been implemented at the distribution grid level. Currently, each opportunity is unique and typically limited to large-scale or aggregated consumers, requiring extensive negotiation between the involved parties.





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