

Residential Electrification

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Three actions the Senate could take to facilitate residential and business electrification:

1. Request the Department of Climate Change, Energy and the Environment to fund “**Efficient Company and Cooperative Financing**” (see below) trials in each State and Territory.
2. Request the **Reserve Bank** to model the sharing of interest on bank loans to **target zero inflation by increasing productivity when creating new government money**.
3. Request that the Australian Energy Market Commission allow **consumers to become shareholders in transmission and distribution businesses when they buy electricity**.



The impending global warming catastrophe has highlighted the financial system's failure to channel funds towards solutions that address the crisis and reduce the use of fossil fuels. The main reason is **the failure of the financial system to prioritise consumer and society interests over investors' profit**.

Investors want higher prices to increase their profits, and they take all the profits they can. **Markets and taxes are used to distribute "excess" profits from investors, but increasingly, the distribution does not happen**, and profits accumulate in overpriced assets—including overpriced grid assets. The financial system "slows" down, **reducing the productivity of capital**. It takes the form of investing in unproductive assets, inflating their value and keeping money in inefficient silos of value.

A solution to the problem is for consumers to share future profits each time an investor makes a profit. Instead of using taxes to redistribute profits or to adjust unnecessary or unearned profits, we build **financial systems where consumers receive a share of the profit with each sale.**

Reforming the financial system can provide billions for Australia's rewiring by freeing up existing stagnate capital. With **this innovation** to supply the funds, **Australia will likely be rewired.**

Efficient Capital

Capital is money that we can invest to create more money. Capitalism is investing money to get more money by making a profit. **Money is a means of exchanging things of value**; investing is spending money to build or buy assets that create products and services to exchange. If the money we receive from an exchange exceeds the money we spend to create the goods, we have made a profit.

The essence of capitalism is the accumulation of wealth as money or assets. Accumulation occurs when we profit and earn more than we spend. Capital itself does not make a profit, and when we believe and act as though it has, **the system becomes very inefficient because it assumes a profit before it is made and allocates the profit to parties who did little to make it.** The total system has to adjust to accommodate this unearned profit.

Today's financial system often demands twice the investment to create a specific return because intermediaries take an unearned profit as an extra fee during the exchange. Eliminating unearned income by sharing profits when a profit is made doubles capital productivity. Productivity in this context is measured by the investment required to make the same profit.

This solves the paradox of a world where we produce more for less, but productivity does not improve. The solution is to change the finance system to share profits with those who pay for products with those who invested to create the products. Today, many intermediaries charge for their services by taking a share of profits plus an extra fee. **Banks are one such intermediary. The government uses them to create new money for use by the people.**

Efficient Loans

Improving the efficiency of bank loans is essential to enhance the productivity of the financial system and shows the principle behind the financial system productivity improvement. Governments regulate bank loans to inject new money into the economy. **The government can reduce the cost of creating new money by changing regulations.**

The **government licenses banks** to create money by lending government-guaranteed money the bank does not have. As the money is repaid, the bank destroys the debt but does not destroy the interest from the loan. The bank takes out its costs and keeps all the profit.

The bank keeps charging interest when the loan plus interest has been repaid because it treats the interest as though it were part of the loan. The borrower did the work to create the interest, yet the bank takes it all plus any interest on the interest. This is unfair and unnecessary. It becomes fair if the borrower takes a share of the interest when it is repaid.

If the **interest is shared on each loan repayment, the loan will be repaid more quickly**, and the bank will not charge unnecessary interest.

Standard Loan (4% Interest, 100% Bank Share)				Productive Loan (5% Interest, 30% Bank Share)			
	Loan	Interest	Repayment		Loan	Interest	Repayment
	\$1,000.00				\$1,000.00		
Years	10			Years	10		
Interest Rate	4%			Interest Rate	5%		
Bank Share	100%			Bank Share	30%		Productivity Increase
Repayment	\$122.44			Repayment	\$108.13	Consumer	13.24%
Total Interest	\$234.61			Total Interest	\$281.86	Bank	16.76%
	Loan	Interest	Repayment		Loan	Interest	Repayment
1	\$1,000.00	\$40.00	\$122.44		\$1,000.00	\$50.00	\$108.13
2	\$917.56	\$36.70	\$122.44		\$906.87	\$45.34	\$108.13
3	\$831.82	\$33.27	\$122.44		\$812.35	\$40.62	\$108.13
4	\$742.65	\$29.71	\$122.44		\$716.41	\$35.82	\$108.13
5	\$649.92	\$26.00	\$122.44		\$619.03	\$30.95	\$108.13
6	\$553.47	\$22.14	\$122.44		\$520.19	\$26.01	\$108.13
7	\$453.17	\$18.13	\$122.44		\$419.86	\$20.99	\$108.13
8	\$348.86	\$13.95	\$122.44		\$318.04	\$15.90	\$108.13
9	\$240.37	\$9.61	\$122.44		\$214.68	\$10.73	\$108.13
10	\$127.54	\$5.10	\$122.44		\$109.77	\$5.49	\$108.13
	\$0.00	\$234.61	\$1,224.41		\$0.00	\$281.86	\$1,081.26

Figure 1—Productivity Improvement by Sharing Interest

The loan productivity improvements are startling for such an easily implemented change.

Figure 1 on the left shows a standard bank loan of \$1,000 at 4% over ten years, where the Bank Share of interest is 100%. On the right, it shows a loan at 5% over ten years, where the Bank Share is 30%. The borrower pays 13.24% less, while the Bank receives 16.76% more.

The loan on the right is more efficient as the financial system requires less money to create \$1,000 of Capital. The productivity improvement is 30% simply by sharing the profit from creating money.

The Reserve Bank could require home loan lenders to share profits, immediately dropping inflation and making buying a home more affordable. For more, [see this petition to the Reserve Bank](#).

Efficient Company and Cooperative Financing

Companies raise money by selling shares. Shares are a different form of loan. Instead of interest, the company promises to pay a share of the profits as dividends and to increase the value of the shares with retained profits. **As with loans, investors want to take all the profits.** However, sharing profits with customers is a more efficient, reliable way to fund and sell company shares.

To illustrate how this works, the following outlines how to establish and operate a small local company or cooperative to rewire the community.

The Background

A neighbourhood of 100 houses- has electricity assets of \$100,000 installed privately in different houses. **The community wants to work together to establish a virtual mini-grid where the 100 homes operate as a single entity** and members jointly finance and operate the mini-grid. **To the Australian Energy Market, it looks like a single entity.** The objective is to make mini-grids as

self-sufficient as possible, self-funding, democratic and owned and controlled by the consumers, whether they are tenants or homeowners.

Initially, renewable assets are solar panels, batteries, electricity meters, heaters, air conditioners, and hot water storage. Each house consumes \$2,000 worth of electricity each year. There are \$100,000 of existing assets that save households an average of \$200 annually. The first renewable asset the group will buy will be a metering system for the households that costs \$1000 to install and a further \$100 each year. Metering typically saves about \$300 per year for each \$1000 spent.

The neighbourhood Company funds the installation of the metering system with savings from the existing \$100,000 in renewable assets. **Each year, the \$200 in savings becomes metering, saving a further one-fifth of \$300 or \$60.** The savings compound until there are no further investments to reduce costs.

Financial Structure and Operation of a Local Energy Company

The company issues shares to purchase electricity assets. Members pay the same price for electricity as they would from the Australian Energy Market, and the profit goes to the local company. Each year, 5% of member shares are transferred to other members who pay for electricity from the company. The company replaces the contributing member's shares with twice as many new shares. Hence, each payment for electricity transfers half the payment as new shares, and the other half is used to pay the operating costs and make a profit. **The company spends the profit from savings plus the transferred share value on buying new assets.**

With a local energy company, all electricity buyers become investors, and there is a continuous turnover of shares in the member market. The price of shares is always fixed at the company's assets value, meaning there is no need for a market to set the company price. When the price of the shares is the same as the company's assets, we have the minimum amount of money in the financial system and the maximum productivity of the financial system.

Assets are revalued monthly, and the number of shares is adjusted to match those issued.

Examples

One member has \$20,000 worth of shares, and each year sells \$1000 worth and receives another \$1000 in shares. They can exchange their shares to pay for their electricity. They have paid \$ 2,000 to receive another \$ 1,000 worth of shares and are left with \$19,000 worth of shares. Their shares will gradually deplete, but they will have at least 20 years of free electricity by paying for it by selling shares.

A member who has no shares pays \$2,000 for electricity and receives \$1,000 worth of shares. They can ask to sell those shares and use the money to pay for \$1,000 worth of electricity, meaning they will halve the cost of their electricity. The \$2,000 minus the company operating costs is invested to reduce electricity costs further.

What has happened?

Most of the cost of electricity is the cost of capital. When consumers own the capital, it reduces each consumer's costs to the operating costs of the mini-grid. The consumers acquire capital from

investors by paying for their electricity. Those consumers become investors, and there are only consumer investors after some time. The middle-man of investors has gone, and with them, the cost of capital.

Provided the new capital is invested in reducing the cost of electricity, each mini-grid will reduce the costs of operating and maintaining the mini-grid because they no longer need to pay the grid owners "forever". The current Australian Energy Market is at least double the price it needs to be because of the low productivity of financial markets.

It is expected that long-term costs will stabilise around 20% of the existing cost of electricity. Each company can adjust its prices if it needs to invest in other technologies. However, it will be many years before prices drop below 50% as many investments in renewables are still to be made, and many communities are expected to set up systems to use low-priced electricity.

At current prices of electricity of 30 cents per kWh, the current estimates for payback times of different hardware are:

- Batteries 20 years
- Metering 3 years
- Solar Panels 5 years
- Reverse Cycle heating and cooling eight years
- Better insulation in poorly insulated houses can save the purchase cost within three years.

The Senate Inquiry in Residential Electrification.

[The terms of reference to the inquiry can be found here.](#) The following takes each term and notes how this submission addresses the term.

(a) the economic opportunities of household electrification, including but not limited to:

(i) long-term reduction of energy price inflation,

Local mini-grid energy prices will drop to 20% of the grid price.

(ii) long-term employment opportunities, and

(iii) the scaling up of domestic capacity;

Mini-grids will use local service providers and increase local employment. Most households in Australia will become self-sufficient.

(b) the macro-barriers to increasing the uptake of home electrification;

(c) the total upfront cost and longer-term benefits of household electrification and alternative models for funding and implementation;

The upfront costs are paid from the savings achieved by each household. The funding is the minimum cost possible.

(d) the marginal cost of abatement for household electrification compared to alternative sectors and options to decarbonise the economy;

Other sectors can use the same approach and minimise the cost of decarbonisation for their sectors. They can decarbonise faster than households.

(e) the optimal timeline for household electrification accounting for the likely timing of decarbonising electricity;

The timeline will be determined by the availability of labour and the savings to be made. Better metering and solar panels will be the priority as they make the most savings for the least cost.

(f) the impacts and opportunities of household electrification for domestic energy security, household energy independence and balance of international trade;

Many mini-grids will become self-standing quickly, increasing energy security and independence. Almost all the money will be spent in Australia on Australian goods and services, improving the balance of international trade.

(g) the impacts of household electrification on reducing household energy spending and energy inflation as a component of the consumer price index;

Lowering the cost of electricity incrementally over a period of time will gradually reduce the CPI. However, combining this with the reforms to the [Reserve Bank will stop house price inflation](#) and accelerate the move to zero inflation.

(h) solutions to the economic barriers to electrification for low-income households;

The approach was developed to level the playing field and treat everyone equally. The current financial system tends to move money to those who need it the least.

(i) the effectiveness of existing Australian Federal, state and local government initiatives to promote and provide market incentives for household electrification;

Many existing initiatives are available to the wealthy and do not work for the less well-off. Those designed for the less well-off cost the government more. Having consistent schemes with a local community-sharing approach will remove government ongoing costs and work for all.

(j) Australia's current standing against international standards, particularly concerning the uptake of rooftop solar, batteries and electric household appliances; and

Australia will be well ahead of international standards because the approach works across all sectors of the economy.

(k) any other matters.

There is considerable resistance to sharing as those with power and money (like fossil fuel shareholders) want to keep their relative advantages. However, they need not fear as they will gradually lose some of it but reduce the risk of losing it all. Top-down trickle economics overloads the economy, making it unstable. Bottom-up economies with most people with secure income and wealth increase stability.

