

# Renewable Energy Appliances – Purchase or Rent?

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Two competing models are emerging for provision of off-grid electricity systems in the Developing World. Early adopters had to purchase outright, but increasingly provision of off-grid electricity as a service (Pay-As-You-Go) is gaining in popularity. The main advantage is that the user does not have to save up the entire capital cost before getting any electricity. There are also practical advantages, and a few downsides.

Which model is adopted may be influenced by culture, dogma, the demands of financiers, or the ethical stance of the provider. I was not sure which side of the fence I fell, and I needed to sort my thinking out. However, I struggled to find a straightforward balancing of the arguments.

It is generally not disputed that for a commodity good delivered and consumed over a period of time (for example electricity), a service agreement makes much better sense than a once-and-for-all purchase. However, how should it work for the appliances connected to that supply – should the user buy them or rent them? And how will the issue look from a supplier's point of view?

Of course, in any particular case, the decision will be based on a detailed weighing of the facts, and some considerations may carry much more weight than others. One or other may offer a particularly good deal. What may make sense for a small low-cost appliance may be unwise for a large expensive one, and so on.

However, I thought it would be instructive to count the number of arguments that might be employed in favour of one or other alternative, bearing in mind that what will particularly favour the consumer will be disadvantageous to the supplier, and vice versa. There is also the environment to consider – even if the financial argument is clear, if it also causes profligate consumption of natural resources or worsens global warming, we may want to discourage it.

So, bearing in mind all of these caveats, I produced for myself the table below, giving each factor an equal weighting to keep it as objective as possible. I can honestly say I had no idea how the result would come out. However, the conclusion turned out to be very clear:

## **Conclusions:**

**Capital Purchase** is bad for the consumer, OK for the supplier, and bad for the environment.

**Pay-As-You-Go** may be OK for the consumer if the fine print is OK, is a net disincentive to the supplier, but good for the environment.

Now of course you can argue that this is a massive over-simplification, and of course it is, but it might prove useful to you as it has to me, in helping you to marshal your arguments one way or the other. It may also act as a checklist for you to weigh up each consideration in turn.

My table was as follows:

		Advantageous to			Advantageous to			
	Capital Purchase	Customer	Supplier	Environment	Service (PAYG)	Customer	Supplier	Environment
Acquiring the system	Immediate total ownership and responsibility				Term agreement, repayments based on time or metered usage			
Finding the purchase price	Customer must find entire system cost before receiving any utility – or enter into a separate finance agreement – this is often a challenge in Africa	-			Customer gains utility immediately on signing contract	+		
Business finance	Profit taking can happen quickly		+		Risk continues for term of contract, return on investment comes in slowly		-	
Duration of function	Indeterminate, dependent on quality of manufacture, and care in use - could be longer or shorter than equivalent PAYG term	?			Contract term defined - but may be longer or shorter than customer needs, or than supplier wants to honour	?	?	
Quality of product	Supplier has an incentive to produce cheaply, at the expense of quality. User likely to lack the skills to differentiate quality product. Likely to be seduced by impressive new technical features			-	Service supplier has incentive to provide robust appliances, and is therefore likely to be conservative about new developments.			+
Customer trust	Customer must put trust in the quality of the product to last for an extended period – typically based on the brand name.	-			The supplier writes the contract. Customer must trust the terms of the contract to be fair, even if they don't understand them. For example, supplier may retain the right to raise prices during the term.	-	+	
Legal basis	Dependent on Trade Descriptions and Warranty requirements, and enforceability, typically by the customer	-			Relies on contract law, and enforceability, typically by the supplier		-	
Default mechanism	Warranty repair for a limited period – risk to customer that warranty may not be free. No redress after warranty period.	-			Recovery of goods – risk to supplier of not being able to trace goods, or their not still being in a re-usable state		-	

		Advantageous to				Advantageous to		
	Capital Purchase	Customer	Supplier	Environment	Service (PAYG)	Customer	Supplier	Environment
Care of the product	Entirely the responsibility of the user – the user has an incentive to take good care of the product to extend its life.			+	Whether something which is not owned is more or less likely to be cared for than something owned outright, seems to be culturally dependent.			?
Preventive maintenance (if necessary)	Unlikely to happen – especially in Africa! (Conflicts with the row above!)	-		-	Supplier will have to ensure this happens, to retain value of his asset - he will have to cover the cost of this		-	+
Competition	Wide selection of competing suppliers	+	-		Locked in to the supplier for the term of the contract	-	+	
Adding electricity supply capacity to the system	Purchase upgrade. If no upgrade path, may need to partially recover cost of original system by sale as secondhand	-			Sign amended agreement with service supplier	+		
Acquiring new appliances	Purchase from retail supply chain, like grid appliances – wide choice, latest features.	+	-		Select only from options available from system supplier. Sign amended agreement.	-	+	
Compatibility between supply and appliances	Compatibility issues likely unless standards developed and system capacity understood	-			Supplier takes responsibility for compatibility/capacity issues and upgrades system if necessary	+		
Creation of type approval standards	Essential to guarantee compatibility (some additional technology may also be required)	+	-		Desirable to improve system reliability and safety - but the type approval process is expensive and slow. Also wide compatibility encourages theft or sale of appliance.	+	-	
Creation of quality assurance standards	Will increase the product lifetime and product safety. Compliance is expensive, but an approval mark will give the consumer confidence of this.	+	-		Will reduce maintenance costs, but initial compliance is expensive and time-consuming - so short term loss, long term gain			?
Appliance is damaged	Pay for repair, or write off, and buy new replacement	-	+		Service supplier replaces. <i>What happens if neglect or abuse is suspected?</i>	+	-	

		Advantageous to			Advantageous to			
	Capital Purchase	Customer	Supplier	Environment	Service (PAYG)	Customer	Supplier	Environment
Appliance repair	A repair service market may be created. Some products may be impossible to repair – and it will cost money to find this out.	-	+		Service supplier will need a repair shop. Users will have to be willing to accept a secondhand unit.	-	-	+
End of life	User must dispose of product – any recycling mechanism must be organised separately.			-	Supplier –may- take responsibility for recovery of the product. With a small number of product variations, recycling is easier.		-	+
Supplier closes down, or focuses business elsewhere	Utility continues as long as system continues to work.	+			<i>Situation unclear</i> – system may stop working completely	?		
User loses source of income	Utility continues as long as system continues to work.	+			User defaults. System stops working or is recovered by supplier.	-		
		Advantageous to			Advantageous to			
	Capital Purchase	Customer	Supplier	Environment	Service (PAYG)	Customer	Supplier	Environment
	Disadvantageous	10	4	3	Disadvantageous	5	8	0
	The devil is in the detail	1	0	0	The devil is in the detail	3	3	1

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