

DSR protections toolkit

Household demand-side response (DSR) may provide important benefits to consumers. In order for consumers to be able to engage with confidence, appropriate protections will need to be in place. The following are some initial potential consumer protections that could be developed by the regulator or Government, while others could be developed by suppliers or other market actors who want to give their customers assurance in DSR.

New innovative business models may offer the opportunity to reduce or remove the need for additional consumer protection in that the complexity, risks and opportunities of DSR could be managed on behalf of the consumer with simplified creative value propositions.

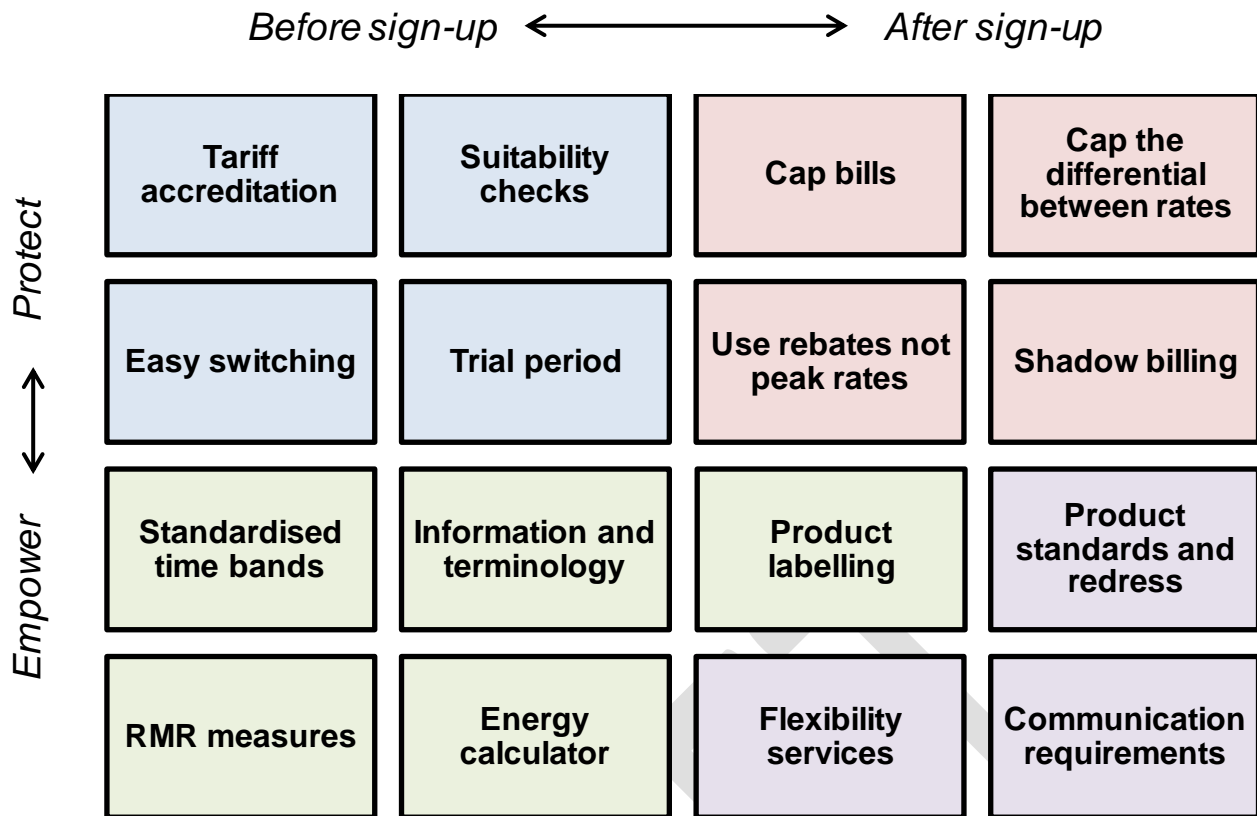
Creative engaging consumer value propositions that enable DSR activity will be critical for the scale of consumer take-up needed to fully leverage value chain benefits and aligned consumer protection will be important in that aim. It is hoped that more ideas will emerge from early DSR trials in the LCNF and elsewhere.

Different forms of DSR such as static or dynamic ToU have distinct characteristics and risks and might require different protections. Those protections that limit the downside for consumers might in some cases also reduce potential benefits, so a trade-off would have to be made.

It should also be noted that implementing tool kit items where Ofgem has a remit would only cover part of the future energy services/DSR market. The part of the market (traditional industry actors such as DNOs and suppliers) covered by Ofgem could potentially be put at a competitive disadvantage relative to these new actors, and consumers would be only partially protected.

The hypothetical measures described below would have four aims, roughly:

- **Assisting consumers' decisions about whether a given tariff is suitable**
- **Putting an appropriate limit on consumer's financial liability**
- **Ensuring sufficient and clear information on DSR offers is available.**
- **Enabling participating consumers to shift their load**



Assisting consumers' decisions about whether a given tariff is suitable

- Tariff accreditation – as a transition to a DSR regulatory regime, it may be appropriate for Ofgem to accredit DSR tariffs, perhaps on a similar system to the Green Energy Scheme, to uphold the RMR's attempts to make the energy market simpler, clearer and fairer. New tariffs would be required to meet a set of high-level principles agreed with stakeholders.
- Suitability checks – usage habits, family size, medical conditions or other issues may mean that some consumers would struggle to save money with DSR. Introducing some form of self-assessment mechanism at the point of sign-up would give people a chance to decide if a given offer was right for them. This could include a personal projection assuming no changes in behaviour based on their smart meter data (though data protection issues would need to be thought through) plus a series of questions to test their likely willingness to make some changes and the value that these changes would deliver for them. It could alternatively be more basic.
- Easy switching – confidence in the ability to change supplier or tariff will be more important than ever when consumers are trying out DSR. Assurance could be given that no obstruction to this would be allowed, for example, from tariff offers bundled with smart appliances that tie people into a contract. It should be noted that some tariffs are already offered on this basis such as Flow's CHP boiler tariff (which received an RMR derogation) and Npower's Nest thermostat tariff. At the least an exit fees should be made clear. In any case this kind of offer might be limited to an early stage in the development of smart appliances. Other barriers to switching should also be considered.

- Trial period – the first bill or first several bills could be considered as a trial, and if a consumer was paying more than they would have done otherwise, they could pay the lower rate and opt to be moved back to the old tariff. This would require shadow billing (see below) and consideration would have to be given to what happens if a customer moves from one supplier on a flat tariff to another supplier on a ToU. The comparison might have to be relative to the new supplier's flat tariff, which could be different to that of the old supplier.

Putting an appropriate limit on consumer's financial liability

- Cap bills – occasional very high shock bills as a result of inability to shift behaviour sufficiently are one of the major risks of DSR. A cap could be set on what the consumer has to pay per billing cycle, either in absolute terms or relative to what they would pay on a non-DSR rate. One situation that would have to be avoided would be where consumers knew they could depend on a capped bill and could therefore use unlimited energy.
- Cap the differential between rates – many forms of DSR would depend on a differential between peak and off-peak rates, which if set too steeply might expose consumers to excessive risk. A relative cap could be fixed.
- Use rebates not peak rates – if an event such as a network fault triggers a need for short-term high-level DSR, a short high peak rate would mean that consumers who could not respond were penalised. But the same could be achieved using a rebate to reward response instead. This approach has been used by NEST to avoid the summer air-conditioning peak in Austin, Texas.
- Shadow billing – the view of the consumer subgroup is that DSR can best motivate behaviour changes through savings, not through penalties. So consumers' bills on variable tariffs could be compared by default to what they would have paid on a flat tariff, and consumers would pay whichever was less. This could also be used for a trial period to help DSR consumers try before they buy.

Ensuring sufficient and clear information on DSR offers is available.

- Standardised time bands – comparing variable tariffs would be much simpler if the time bands for different rates were fixed (perhaps with some degree of staggering or regional variation to avoid ramp-up problems). Since the diurnal patterns of usage are consistent this should not obstruct the use of DSR. This is the approach has been successfully adopted in Italy, for example.
- Information and terminology – thorough and objective information should be available online and as leaflets from an impartial source such as Ofgem, embedded in training for energy advice providers, and made available for use by third party advice providers. It might also be advantageous to adopt a standard set of terminology, so that concepts such as peak and off-peak times, or static as opposed to dynamic time-of-use tariffs, were called by the same names by different companies to make their offers more comparable.

This would follow the example of the standard terms guidance agreed by EnergyUK members for other parts of the market.

- Product labelling – energy savings and interoperability claims on the labels of smart appliances should not be overstated and could be usefully regulated through the EU's Ecodesign Directive. Furthermore we have called on the EU to open up energy label data, to allow third parties to compare and contrast more complex data than can be shown on a single label.
- Retail Market Review measures – Ofgem has recently introduced a number of measures to make the energy market simpler, clearer and fairer. Three that could perhaps be adapted to make DSR more accessible to consumers are:
 - The Tariff Comparison Rate (TCR), a price per kilowatt hour figure for all flat tariffs, which could be updated to accommodate variable tariffs.
 - The Tariff Information Label, which displays the TCR and estimated annual bill, and could include practical and financial details of DSR.
 - Cheapest Tariff Messaging, which provides information about how much consumers could be saving on another tariff, could clarify exactly how much consumers' behaviour change under DSR was worth.
- Energy calculator – several countries or regions have introduced an online tool that can help consumers interpret their usage and behaviour to navigate DSR. One example is the online Ontario Energy Calculator.

Enabling participating consumers to shift their load

- Product standards and redress – if smart appliances or smart plugs are to play a part in automating household electricity load, then standards should ensure first that there is a free, accessible override function so consumers keep control of their own usage, and second to reduce any risk of malfunction or inconvenience posed by running appliances when asleep or out of the house. There would also need to be clear lines of sight on accountability, to pre-empt the potentially complex questions of liability between multiple different manufacturers and service providers.
- Flexibility services – to enable innovation in DSR, shifts of usage could be managed through third party service providers (or suppliers providing new services) and managed through separate agreements. These would need to be regulated, by Ofgem and/or at other levels, perhaps through an accreditation scheme.
- Communication requirements – even if the majority of load shifting is ultimately due to household automation, consumers will need to understand the price of their electricity and be aware when it is changing. Best practice for communication could be developed and regulated for.

Consumer risk assessment

Our assessment of the consumer risks posed by the various DSR options proposed by work stream 6 is below. The group stresses, however, that any such rating can only be approximate and does not capture the full complexity of all possible risks.

DSR options			Potential risks and rewards					
			Cost Risk	Volume Risk	Relative Complexity		Autonomy / Privacy Loss	Notes (see below)
					Set up	Ongoing		
STATIC ToU Pricing	1	Restructuring DUoS charges via the Supplier (Either differential (i) unit charge or (ii) capacity charge)						
		(a) Manual	Medium	None	High	High	None	1
		(b) Automation within premises	Low	Low	Medium	Low	Low	2,5
		(c) Remote control by Supplier	Low	Medium	Low	Low	High	2
	2	Restructuring DUoS charges direct from DNO to customer (Either differential (i) unit charge or (ii) capacity charge)						
		(a) Manual	Medium	None	High	High	None	1,3
		(b) Automation within premises	Medium	Low	Medium	Medium	Low	2,4,5
		(c) Remote control by DNO	Medium	Medium	Medium	Medium	High	2,4
	3	Two band DUoS Capacity charge via Supplier						
		(a) Manual	Medium	None	High	High	None	1
		(b) Automation within premises	Low	Low	Medium	Low	Low	2,5,6
		(c) Remote control by Supplier	Low	Medium	Low	Low	High	6
	4	Two band DUoS Capacity charge direct from DNO to customer						
		(a) Manual	Medium	None	High	High	None	1,3
		(b) Automation within premises	Medium	Low	Medium	Medium	Low	2,4,5,6
		(c) Remote control by DNO	Medium	Medium	Medium	Medium	High	4,6
Dynamic ToU Pricing	5	DNO Critical event tariff						
		a) Remote automation	Medium	Medium	Low	Low	High	
	6	Dynamic DUoS tariff via supplier						
		a) Manual	High	None	High	High	None	1,3
		b) Automation	Medium	Low	Medium	Low	Low	2,4,5
		c) Remote control via Supplier	Low	Medium	Low	Low	High	4
	7	Dynamic DUoS tariff direct from DNO to customer						
		a) Manual	High	None	High	High	None	1
b) Automation		Medium	Low	Medium	Medium	Low	2,5	
Capacity constraint	8	Load limiter						
		a) DNO load limiting (Fixed)	None	High	Medium	Medium	High	2
		b) Supplier load limiting (Dynamic)	None	High	Medium	Medium	High	2
		c) Supplier load limiting - PPM customers	None	High	Medium	Medium	High	7
Education & Awareness	9	Deployment of energy efficiency measures	Low	None	None	None	None	8
	10	Demand reduction through information provision	Low	None	None	None	None	8
Community Action	11	Community schemes						8
Controllable loads *	12	Mandated product standards						
		a) Without over-ride	None	High	None	None	High	2
		b) With over-ride	None	Medium	None	None	Medium	2

* Note: These are just facilitators for options 1 - 8 b) to c)

Risks	
Cost risk	The risk of the tariff costing more than before or a malfunction of the controls causing unexpected usage during peak times
Volume risk	The risk of curtailment of supply (i.e. inability to use certain appliances a time of the customers choosing)
Complexity	The risk that it is too complicated for the customer to a) set up or b) maintain compliance during operation
Autonomy / Privacy	The risk that the customer loses control over the use of their appliances and/or feels intruded upon. The smart meter data protection regime is out of the subgroup's remit.

Notes		
1	Volume risk of price signal	If DSR is manual rather than automated then in a sense there is no volume risk, but some consumers might feel rightly or wrongly that they had no choice but to reduce usage at peak times, which might constitute another form of volume risk.
2	Volume, cost and complexity risk of automation	Three risks associated with automation that are hard to show on this matrix should be noted. <ul style="list-style-type: none"> automation does not pose a volume risk in the sense of curtailment as load-limiting does, but the remote control of appliances might cause consumers some volume related detriment in other ways. It remains to be seen how reliably automation can take place 'invisibly' to the consumer. this volume risk would be mitigated by having an override, but this would then re-introduce a cost risk. the complexity of automation for the consumer to run would be relatively low, but consumers might nonetheless be confused about the principles controlling their appliances and how to change or override their system.
3	Complexity risk of conflicting signals w/o automation	If a consumer with manual DSR receives a price signal directly from the DNO, this could pose a complexity risk (on top of the inherent complexity of the price signal) if a price signal from the supplier or a third party was also available. See consumer risk register for further details.
4	Cost risk of conflicting signals w/ automation	If a consumer with automated DSR receives a price signal directly from the DNO, this could pose a cost risk if a price signal from the supplier or a third party was also available. If the signals did not match, the consumer might miss out on the highest value load shifting or, worse, automatically shift load into a period that was net more expensive. See consumer risk register for further details.
5	Autonomy/privacy risk of automation at premises	The risk to privacy of automation at premises is hard to quantify. It would partly depend how it was carried out and how truly in control the consumer felt.
6	Two-band automation volume risk	It is unclear how automation could be reliably used to stay in the lower of two bands of capacity charge unless by imposing a load limit, which would be a high volume risk. See consumer risk register for further details.
7	Function of load limiting PPM consumers	This option is not related to DSR. See WS6 interim report.
8	Autonomy/privacy risk of non-financial schemes	The three options not based on a price signal or automation are ostensibly low risk, but might be perceived as intrusive and therefore be a risk to autonomy.

Correspondence between risks and protections

Some of the measures in the protections toolkit would be more suitable for certain DSR options, or certain risks, while others might be applicable to all of them. In general those protections identified as 'before sign-up' (i.e. **Informing consumers' decisions about whether a given tariff is suitable** and **Helping consumers choose a DSR offer and know what they are getting**) are directed to reducing complexity risk, while those identified as 'after sign-up' (i.e. **Putting an appropriate limit on consumer's financial liability** and **Enabling participating consumers to shift their load**) address a cost risk. Consumers should be provided with clear, accessible information early in the process to avoid confusion and poorly-grounded decisions, whereas later in the process protections should be put in place to empower them to make a saving and reduce the chance of them making a financial loss. However, this correspondence is not hard and fast, as providing clear information to reduce the ongoing complexity risk would continue to be important throughout the process.

Mitigating the volume and autonomy/privacy risks is more complicated. To some extent, these 'risks' are an inherent part of DSR. A consumer who accepts a cheaper tariff in return for a load limiting arrangement could not do so without compromising the reliability of his or her electricity volume and autonomy. In this situation it would be more important to make sure that he or she knew exactly what to expect, made the decision in possession of the facts, and retained the right to change his or her mind with incurring unfair costs.

There might, however, be some specific volume or autonomy/privacy risks that need to be protected against specifically. For example, if a consumer was medically dependent on electrical equipment, this would pose a particular volume risk, which could be addressed through the 'suitability checks' measure in the toolkit.