CATALYST
ENERGY SOLUTIONS

"Catalyst is staffed with some of the country's leading sustainability and energy experts. For more than 10 years our business has been focussed in energy management, procurement solutions and implementation.

Catalyst provides a blend of consultancy that is rare in our industry, balancing technical expertise with the commercial reality of client requirements.

We get personal; we'll work in partnership with you to understand your business, your ethical perspective and your carbon requirements.

Of course, your future plans are paramount in developing the correct solution or strategy. We set a clear path with targets, review periods and milestones so we can work with you to optimise your energy position."

What is Reactive Power?

What is Reactive Power and how is it measured?
Reactive Power (kVArh) is the difference between working power (active power, measured in kW) and total power consumed (apparent power, measured in kVA).

Some electrical equipment used in industrial and commercial buildings requires an amount of 'reactive power' in addition to 'active power' in order to work effectively. Reactive power therefore generates the magnetic fields which are essential for inductive electrical equipment to operate, especially transformers and motors. This load is measured via the reactive register on your half-hourly meter.

What is Power Factor and how is it caused?
Power Factor is a term used to describe the relationship between 'active' and 'reactive' power; it denotes how effectively electrical power is being used:

- Bad power factor - is low (less than 0.95), indicating that more reactive power is required.
- Good power factor - is high (greater than 0.95) indicating that power is used more effectively.
- 'Perfect' power factor - (1.0) is known as unity and does not use any reactive power.

Most electrical equipment, such as motors, compressors, welding sets and even fluorescent lighting, create an inductive load on the supply. An inductive load requires a magnetic field to operate which then causes the electrical current to "lag" the voltage i.e. the current is not in phase with the voltage.

How is Reactive Power charged?
Reactive power is charged according to the accumulated volume on your reactive register. These charges will also vary depending on two elements:

1) **Contract type:** If you have a *fully inclusive* contract, you will pay the rate to which you agreed on your contract. If you have an *energy only (supply only)* contract, you will pay the rate which has been passed through from your Local Network Operator, which may vary if they change their charging methodology.

2) **Local Network Operator charging methodology:** Charging steps differ depending on your site location in Great Britain and the operator serving your network.

   Where the first step excludes a percentage figure, the LNO does not currently charge for reactive power.

   Where the first step is 33%, the Local Network Operator does not charge for reactive power for the first 33% of units (kWh). Charges therefore apply when the difference between the total units recorded on the reactive register (kVArh) is less than 33% of the total units consumed (kWh).

   Where the first step is 50%, the Local Network Operator does not charge for reactive power for the first 50% of units (kWh). Charges therefore apply when the difference between the total units recorded on the reactive register (kVArh) is less than 50% of the total units consumed (kWh).

ID	Name	Operator	1st	2nd
10	Eastern England	EDF Energy	33%	90%
11	East Midlands Electricity	Central Networks	33%	-
12	London Electricity	EDF Energy	33%	90%
13	Northern Wales	Scottish Power	33%	-
14	West Midlands	Central Networks	33%	-
15	North Eastern England	CE Electric	-	-
16	North Western England	United Utilities	33%	-
17	Northern Scotland	Scottish & Southern Energy	-	-
18	Southern Scotland	Scottish Power	33%	-
19	South Eastern England	EDF Energy	33%	90%
20	Southern England	Scottish & Southern Energy	-	-
21	Southern Wales	Western Power Distribution	50%	-
22	South Western England	Western Power Distribution	50%	-
23	Yorkshire	CE Electric	-	-