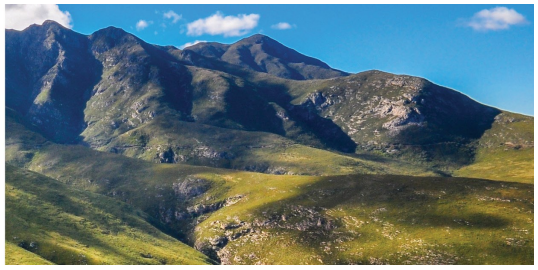

Edition 58 July 2022

Electricity Capacity Limits

The new electricity tariffs for small consumers will be based on the capacity limit of each supply. Consumers will have a choice to select the capacity they need but if they do not, the municipality will select a capacity which is considered appropriate considering the average consumption of consumers.

Almost 90% of small consumers are using less than 600 kWh/m and will be placed on a 20 Amp limit. This means that these consumers will not be subject to any fixed charges, but may have to apply some management of their loads so as not to exceed the capacity and trip the supply.

The table below shows the typical capacity of various appliances. It must be noted that newer / more expensive appliances can be more efficient and vary significantly. You need to check you own appliances.

TYPICAL CAPACITY				
ELECTRICITY -				
Application	No	Watts	Amps	Total Amps
Lights (CFL or LED)	6	10	**0,04**	0,26
TV, DSTV	1	150	**0,65**	0,65
Radio/Hi Fi	1	40	**0,17**	0,17
Computer	1	100	**0,43**	0,43
Phone chargers	3	10	**0,04**	0,13
Fridge	1	150	**0,65**	0,65
Freezer	1	150	**0,65**	0,65
Toaster	1	700	**3,04**	3,04
Kettle	1	2000	**8,70**	8,70
Hot plates	2	1000	**4,35**	8,70
Big stove plates	2	1700	**7,39**	14,78
Oven	1	2400	**10,43**	10,43
Iron	1	1200	**5,22**	5,22
Hair dryer	1	800	**3,48**	3,48
Heater	1	2000	**8,70**	8,70
Dishwasher	1	2000	**8,70**	8,70
Washing machine	1	2000	**8,70**	8,70
Tumble dryer	1	2000	**8,70**	8,70
Geyser	1	2000	**8,70**	8,70
Pool pump	1	800	**3,48**	3,48
Borehole pump	1	700	**3,04**	3,04
Air conditioner	8	600	**2,61**	20,87
Under floor heating	1	2500	**10,87**	10,87

MANAGE YOUR LOAD WITHIN 20 Amp Capacity.

This section will show how loads could be managed so as not to exceed the 20 Amp capacity.

A typical load management scenario is as follows:

- Fridges, freezers, alarm systems, charges etc. will be on the whole day.

When arriving at home after work:

- Switch on lights, radio, TV, H-fi, computers, chargers, fans and such low power appliances.
- Now schedule the high power cooking appliances: Switch on the kettle and wait until the water has boiled. Only then use the microwave oven to unfreeze, warm up or cook the food and make toast.
- Only then switch on the stove plates and complete all the food preparation. Some big stoves have large plates using as much as 10 Amps. Not more than one of these should be switched on at the same time.
- Most electrical ovens also have capacity close to 10 Amps and should thus not be used with the big stove plates.
- Once this is done one can switch on heaters, hair dryers, etc.
- Dishwashers could be loaded and switched on when people go to bed. Washing machines and tumble dryers should only be switched on when cooking and space heating is done, Ideally these should be switched with timer switches early in the morning.
- Geysers generally have capacity of 9 to 13 Amp. These can also be switched on and off using the geyser circuit breaker in the distribution board, but it is recommended to install a timer to only switch them on during the night and sometime during the day as proposed below.

  24h00-04h00. Night-time main heating.

  13h00-15h00 Daytime top up if required.

Most geysers are switched off by the municipality during the morning and evening peak periods which should be taken into consideration when setting the timers.

Please note that the capacity levels given is the maximum of each appliance. Most appliances have thermostats which switch the element / motor off when the desired temperature has been reached on when moving to another mode of operation. This shows a very conservative calculation.

The usage of the various appliances when applying a load management strategy as proposed is shown in the table below. Where decimals are used is to reflect the fact that the appliances will not be on for the whole time.

For example, the fridge would be running most of the time while preparing the food as it would be opened and closed regularly whereas this is not the case when nobody is at home.

The table below shows that capacity required from each of the appliances and the total Amps during the selected periods of time. This shows how much can actually be done with a 20 Amp supply. It is realised that the situation for each household is different and that this still allows a lot of flexibility within each period.

SWITCH ON TIMES	12h00	04h00	06h00	08h00	14h00	17h30	18h00	18h30	19h30	21h00
APPLICATION PERIOD	Geyser	Washing / dryer	Breakfast	Leave for work / school	Geyser boost	Food preparation	Cooking	Baking	Space heating	Dishwashing
Lights (CFL or LED)	1.0	1.0	6.0	1.0	1.0	6.0	6.0	6.0	6.0	3.0
TV, DSTV	-	-	1.0		-	1.0	1.0	1.0	1.0	-
Radio/Hi Fi			1.0			1.0	1.0	1.0	1.0	1.0
Computer	-	-	1.0	1.0	-	1.0	1.0	1.0	1.0	-
Phone chargers	3.0	4.0	4.0			2.0	2.0	3.0	3.0	3.0
Fridge	0.2	0.2	1.0	1.0	0.2	1.0	1.0	1.0	1.0	1.0
Freezer	0.2	0.2	1.0	1.0	0.2	1.0	1.0	1.0	1.0	1.0
Toaster			0.2			0.2		0.2		
Kettle			0.1			1.0			0.1	
Hot plates			2.0							
Big stove plates							2.0			
Oven								1.0		
Iron			0.5						0.2	
Hair dryer			0.2						0.2	
Heater									1.0	
Dishwasher										1.0
Washing machine		1.0								
Tumble dryer		1.0								
Geyser	1.0				1.0					

AMPS	12h00	04h00	06h00	08h00	14h00	17h30	18h00	18h30	19h30	21h00
Lights (CFL or LED)	0.04	0.04	0.26	0.04	0.04	0.26	0.26	0.26	0.26	0.13
TV, DSTV	-	-	0.65	-	-	0.65	0.65	0.65	0.65	-
Radio/Hi Fi	-	-	0.17	-	-	0.17	0.17	0.17	0.17	0.17
Computer	-	-	0.43	0.43	-	0.43	0.43	0.43	0.43	-
Phone chargers	0.13	0.17	0.17	-	-	0.09	0.09	0.13	0.13	0.13
Fridge	0.13	0.13	0.65	0.65	0.13	0.65	0.65	0.65	0.65	0.65
Freezer	0.13	0.13	0.65	0.65	0.13	0.65	0.65	0.65	0.65	0.65
Toaster	-	-	0.61	-	-	0.61	-	0.61	-	-
Kettle	-	-	0.87	-	-	8.70	-	-	0.87	-
Hot plates	-	-	8.70	-	-	-	-	-	-	-
Big stove plates	-	-	-	-	-	-	14.78	-	-	-
Oven	-	-	-	-	-	-	-	10.43	-	-
Iron	-	-	2.61	-	-	-	-	-	1.04	-
Hair dryer	-	-	0.70	-	-	-	-	-	0.70	-
Heater	-	-	-	-	-	-	-	-	8.70	-
Dishwasher	-	-	-	-	-	-	-	-	-	8.70
Washing machine	-	8.70	-	-	-	-	-	-	-	-
Tumble dryer	-	8.70	-	-	-	-	-	-	-	-
Geyser	8.70	-	-	-	8.70	-	-	-	-	-
AMPS TOTAL	9.13	17.87	16.48	1.78	9.00	12.22	17.70	14.00	14.26	10.43

Another way to assist consumers in determining their capacity needed is by using the pulses / flashes on the pre-payment meters during peak usage.

These provide pulses at a rate equal to the demand on the supply:

- **6.5 pulses per 10 Seconds is 10 Amps**
- **12.8 pulses per 10 Seconds is 20 Amps/**
- **10 pulses per 10 seconds or 1 pulse per second is close to 16 Amps.**

When the pulses come close to 1 per second you need to not switch on more appliances or switch off other appliances before switching in new ones.

It is realised that this is a process that will take time but as consumers start shifting load and adjusting to "the new normal" as required by NERSA and the Cost of Supply studies, they will see the benefit.

Please follow the media and visit the George website at https://george.gov.za/electro-technical/electrical-tariff-amendments-2022/ for further information in understanding the new tariffs and how to manage their loads within a limited capacity.

Do you want to discuss your energy consumption and find out what the best Capacity will be for your needs, phone 044 801 9243, have your Municipal Account Number and Prepaid Meter Number handy OR email your query to elec.applications@george.gov.za

(Hierdie Nuusbrief Vol 58, Julie 2022 is beskikbaar in Engels op die webwerf www.george.gov.za/Documents/MediaDocuments/GM Newsletter with Accounts)