NOT REPORTABLE

IN THE HIGH COURT OF SOUTH AFRICA
(EAST LONDON CIRCUIT LOCAL DIVISION)

Case no: EL1123/2011
ECD1956/2011
Date heard: 9-13 March;
7 December 2015
Date delivered: 11 December 2015

In the matter between

MERCEDES BENZ SOUTH AFRICA **Plaintiff**

vs

BUFFALO CITY MUNICIPALITY **Defendant**

JUDGMENT

PICKERING J:

[1] On 9 December 1999 plaintiff, a motor vehicle manufacturer, and the defendant, the Buffalo City Municipality, concluded a contract, Exhibit "A", in terms whereof defendant undertook to supply plaintiff with a bulk supply of electricity to plaintiff's factory in East London on certain conditions.

[2] Plaintiff alleges that on 26 September 2009 and at its factory premises, a voltage fluctuation occurred which fell outside the parameters of the agreed supply of electricity and in consequence whereof, *inter alia*, its machinery and equipment was damaged beyond repair and had to be replaced and its production was interrupted for a period of three days. Plaintiff accordingly instituted action against defendant, pleading a breach of the aforesaid agreement, for damages in the sum of R2 300 243,82. In the alternative, a claim founded in delict is pleaded. This alternative claim has, however , been abandoned by plaintiff.

[3] Certain preliminary issues arose for decision in consequence of defendant's plea. These related to a claim for rectification of the agreement

as well as to the interpretation of clause 5.3 thereof encompassing a so-called indemnity clause, which, so defendant contended, exempted it from liability against plaintiff's claim based on a breach of contract and precluded plaintiff from claiming damages arising out of the breach of the agreement.

[4] These issues were eventually determined by the Full Bench of this Division which dismissed both the claim for rectification and the defence founded on clause 5.3.

[5] The issues of liability had earlier been separated from all other issues and the matter eventually came before me for trial only on the separated issues of liability.

[6] In the agreement, "Annexure A", defendant undertook, with effect from 4 January 2000, to provide the plaintiff with "*a new bulk supply of electricity*" from a substation at West Bank, East London, in replacement of the existing supply from other points of supply. The new supply would be governed by the terms of the agreement.

[7] It was further agreed that plaintiff was obliged to purchase all of its required electricity from defendant and that plaintiff would effect payment of a "*connection fee*" in the sum of R2,5 million.

[8] In terms of clause 12.2 of the voltage at the point of supply was stipulated at 11000 volts. The further relevant clauses of the agreement provide as follows:

> "*4.1 The Council shall provide the Consumer with a reliable and continuous supply of Electricity equal to or exceeding the minimum quality of supply laid down in Standard NRS 048-2:1996 as applied by the National Electricity Regulator. For the above purposes the West Bank Substation supply point shall be classified as a "*Category 2 Site*" for measurement purposes in terms of clause 4.2 of NRS 048-3:1998.*

The Consumer shall take adequate measures to protect its own equipment and plant. This shall include measures to protect the Consumer's motors and/or equipment against damage that may arise under low voltage conditions or from single-phasing, and also measures to protect itself where its plant is of such a nature that damage may be caused to it by an outage, voltage dip or voltage surge.

4.2 Electricity shall be supplied as three-phased alternating current at a nominal frequency of fifty Hertz. It shall be noted that, as the Council obtains the bulk electricity supply from Eskom, frequency of supply is dependent upon the frequency of Eskom's supply of the Council. It is a specifically agreed condition of supply that the maximum percentage by which the supply voltage may differ from the declared voltage for a period longer than ten consecutive minutes shall be 7,5% (seven comma five per centum) above or below the declared voltage.

4.3 The Council shall use its best endeavours to obtain a commitment and work together with their supplier to reduce the percentage rate referred to in 4.2 from 7,5% (seven comma five per centum) to 5% (five per centum.)

[9] The background to the conclusion of this agreement appears from the evidence of Mr. Barry Canning, a mechanical engineer in the employ of defendant for thirty years and presently the Senior Divisional Manager for Production Planning and Plant New Model Introduction. He testified that in 1999 when the contract between the parties was concluded he was Project Manager for the introduction of the new W203 model car.

[10] He stated that prior to 1999 the plaintiff's factory was predominantly a so-called CKD factory, building cars out of kits for the South African market.

[11] During 1999 a programme was started for the export of cars from the East London plant which required that the production process be stepped up to a "*part by part*" plant. This entailed an increase in production volume from thirty cars a day to two hundred a day and required a change in the production process to a much more technologically advanced plant, including a change from manual operations to robot operations. This in turn required a more electronically advanced system in order to control the robotic processes.

[12] In the light of these changes plaintiff required a more controlled and sophisticated system to supply the factory with clean, quality electrical power. Negotiations were accordingly entered into with defendant and it was agreed that defendant would build a substation, known as the West Bank substation, outside the plaintiff's boundary wall and supply power to the substation in order to supply a stable supply of electricity to the plaintiff's plant.

[13] Mr. Canning stated that plaintiff was part of the global distribution network for Daimler which had its central head office in Stuttgart. The world-wide standard of Daimler required that the maximum percentage by which the supply voltage could differ from the declared voltage be no more than 5% above or below the declared voltage. Defendant, however, requested that such percentage be 7,5% because it would be difficult for it to adhere to the 5% limit. Eventually, after discussions with its head office, plaintiff agreed thereto. In explaining the necessity for the limitation on the percentage increase/decrease Mr Canning stated that prior to agreeing there to the equipment parameters were looked at and discussions were held with Daimler's technical and professional team in Germany. He stated that "generally the parameters that were on the equipment is that they can go up to 10% for a very short period of time before they expect a failure, but that is really going to the limit". The German agents eventually agreed to the percentage limit of 7,5% but requested that it be reduced when a new contract was negotiated.

[14] In paragraph 5 of its particulars of claim plaintiff alleged as follows:

"At all material times defendant was aware, that in the event its supply of electricity to plaintiff was not maintained within the parameters stipulated by the agreement, plaintiff's machinery and equipment would be damaged requiring replacement and production in plaintiff's factory would be lost and required to be made up at an additional cost so as to meet its obligations of supply. The agreement, annexure A, was concluded on the basis thereof".

These allegations were denied by defendant.

[15] Plaintiff further alleged that defendant had breached the terms of the agreement in that it:

"*6.1 Failed to regulate the supply of electricity to plaintiff and to ensure that the supply fell within the parameters stipulated;*

6.2 Failed to ensure that any variation beyond 7,5% of the required voltage of electricity supplied did not continue for a period in excess of 10 minutes;

6.3 Failed to properly maintain and set its plant and equipment in the West Bank Sub-station.

6.4 Failed to carry out on-load tap change tests simultaneously and to correctly set the out-of-step timer so as to avoid an out-of-step sequence in the supply of electricity.

6.5 Failed to ensure that an out-of-step alarm was in proper working order alternatively failed to monitor and observe the activation of the out-of-step alarm which indicated a voltage fluctuation outside the parameters of the agreed supply."

[16] Plaintiff alleged further as follows:

"*7. In consequence of Defendant's breach of the agreement, and on 26 September 2009 and at Plaintiff's premises, a voltage fluctuation occurred which fell outside of the parameters of the agreed supply of electricity, more particularly in that at 14h27 a power dip occurred with a low value of 9,624 volts that was*

> *followed by an over voltage over a period of approximately 6 hours which peaked at 12,274 volts and which constituted a low deviation of 12,51% and high deviation of 11,58%.*"

[17] In response to both these paragraphs defendant merely pleaded that the allegations were not admitted and put plaintiff to the proof thereof.

[18] It became common cause that the voltage fluctuation referred to in paragraph 7 of the particulars of claim did in fact occur. The circumstances giving rise thereto were also not seriously disputed and appear chiefly from the evidence of Mr. Ansell, an electro-mechanical engineer in the employ of a firm of consulting electrical mechanical engineers, namely, Clinkscales Maugham Brown, as well as from the evidence of Mr. Quinton Knight, an electrical engineering technologist in the employ of plaintiff and involved with electrical infrastructural planning. It is apposite to mention at this stage that Mr Ansell confirmed the evidence of Mr Canning to the effect that the reason for the 7.5% limitation was to do with the prevention of damage to plaintiff's equipment because, so he stated, "in general the customer cannot do much about controlling the voltage, they are just receiving it".

[19] Defendant had installed in the West Bank substation two transformers, the function of which was to transform the 132000 volt supply it received from Eskom to the 11000 volt supply it had contracted to deliver to the plaintiff. Each of these transformers was fitted with a mechanical device known as an automatic tap changer whose function it was to adjust the transformers, as and when required, in order to maintain the output of electricity to plaintiff's substation at a constant 11000 volts. The tap changer moves within the transformer and selects the different "*winding ratios"* built into the transformer in order to ensure a constant, stable supply at the nominal voltage on the output side. As stated by Mr. Knight, the tap changers regulated the voltage coming out based on what is coming in. If, for example, the voltage on the defendant's side changed from 11000 to 12500 volts the tap changers would adjust themselves accordingly to keep the voltage supply to plaintiff's plant at 11000. Mr. Knight reiterated that they protected the load side from what was

coming in. As Mr. Ansell put it, the defendant's transformers convert the 132000 volts received from Eskom to 11000 volts, at a fixed ratio. The tap changers allow the ratio to be adjusted so that, should the 132000 volts increase or decrease, the 11000 volts would remain close to 11000.

[20] Reverting to the events of 26 September 2009, Mr. Ansell explained that there was a regional fluctuation in the voltage supplied to defendant by Eskom which initially resulted in low voltages. This caused the tap changers in the defendant's West Bank substation to adjust the transformers to compensate for the reduction in supply. Eskom responded by bringing on-line a generating station on the West Bank to make up the shortfall. This increased the voltage of the incoming supply and the tap changers then operated in the opposite direction in order to maintain a consistent voltage on the outgoing supply. In the process, however, they fell out of step and were no longer synchronised. This in turn activated an out of step alarm on the system which automatically stopped the operation of the tap changers. The output from the transformers in defendant's West Bank substation was therefore not regulated as the Eskom supply returned to normal and this resulted in the over voltage in the supply of electricity to the plaintiff's substation, an over voltage which was only corrected after approximately six hours.

[21] In this regard defendant's expert witness, Mr. David Duncan, an engineer with very extensive experience as a specialist in the protection engineering field, testified that after he had been approached by defendant for advice he had inspected parts of plaintiff's plant as well as defendant's West Bank substation. He stated that he was specifically looking for information related to the incident because, he said, "*there is a normal requirement that any operator doing any work in a substation will recall all the incidents that were created while working at that substation and unfortunately we could not find such a document at the substation at the time.*"

[22] He stated further that he requested information from those of defendant's employees who might have been involved in the incident and who

could therefore shed light on what had caused the malfunction of the tap changers but his efforts in this regard were fruitless.

[23] He confirmed, however, that the two tap changers had gone out of synchronisation and had then gone into a lockout position. Mr. Duncan stated that in consequence of the lockout a warning light would be displayed on the tap change central room at the West Bank substation which, however, was not manned "*24/7*". There was no Supervisory Central and Data Acquisition system in place and no means of communicating the lockout position to defendant's staff. This effectively meant that the lockout situation of the tap changers would only come to the notice of defendant's employees when they next visited the substation or when they were alerted to the problem by plaintiff's employees.

[24] Mr. Duncan stated that the drop in supply from Eskom was a drastic and extraordinary event.

[25] With that as background I turn to the evidence relating to the events of 26 September 2009.

[26] Mr. Heindre Kritzinger, an electrical specialist in the employ of plaintiff testified that during September 2009 he was an Electrical Specialist specifically in relation to the maintenance of plaintiff's paint shop.

[27] On Saturday, 26 September 2009, he was on standby duty when, at 14h30, he was called by plaintiff's Central Control Room and informed that a power dip had been detected. He stated that although the plant was in "*after hours mode*" for the weekend, there were certain areas in the paint shop that had to function at all hours, including the paint circulation systems. This was confirmed by the aforementioned Mr. Canning who stated that every Friday evening there was a controlled shut down of the plant, whereby it was put into a sleep or standby mode. Only the essential equipment such as circulating pumps would remain running. Mr. Canning stated that a constant power supply was critical and that if the plant was shut down completely extreme

damage would be caused to plaintiff's factory equipment. It would also affect the restart procedure whereby the approximately fifty robots which were in sleep mode and which accordingly kept their memory, would, in the event of a complete shutdown, lose that memory and have to be re-taught how to weld a car.

[28] Mr. Kritzinger stated that on arrival at the factory he inspected the overall status of the paint shop and found that most of the systems were in fault states and were not functioning. According to him the normal procedure in such a case was to start up the compressed air. There were two large compressors which ran during production hours and a standby compressor which was left on over a weekend. He could not, however, get the standby compressor working because the circulating pump kept tripping.

[29] He then successfully started up one of the large compressors whereafter he reset and cleared all the faults in the critical areas of the paint shop. Whilst he was still in the paint shop ensuring that everything was up and running another fault was experienced with the electricity. He went back to check on the compressors and discovered that the large compressor had tripped as a result of an overload on the circulating pump. He explained that "*overload*" was a protection mechanism designed to prevent the motor from "*pulling too many amps*". An ampere is the base unit of electrical current. He stated that he measured the amperes drawn by the motor and found that it was way above its normal specification, resulting in the circulating pump tripping. He then telephoned his manager, Mr. Johan Greyvenstein, for advice.

[30] Mr. Greyvenstein instructed him to measure the voltages supplied to the circulating pumps. He did so and found that the voltage measured over the pump was out of its tolerance, the voltage on single-phase being 260 volts whereas it should have been approximately 230 volts, a difference of 13%; and the voltage on the three-phase side being 465 volts whereas it should have been 400 volts, a difference of 16,2%. Single-phasing is a fault condition on a three-phase supply when one or two of the phases is

interrupted and the end user is supplied only on the remaining one or two phases.

[31] Mr. Greyvenstein then came into the factory. He conducted a check of the plant's substation to which Mr. Kritzinger was not allowed access. Mr. Greyvenstein measured the incoming voltage at 12,5KVA where it should have been 11KVA a difference of 13,63%.

[32] The defendant's standby electricians were then phoned. They arrived approximately thirty minutes later and checked the substation on their side. They thereafter reported that one of their "*step down transformers*" was faulty and had got stuck in a position where it could not regulate the 11KVA on their side. They rectified the fault and restored the correct incoming supply whereafter Mr. Kritzinger switched on the main supply to the paint shop, cleared all the faults, and restored everything to working order.

[33] Mr. Greyvenstein, who is a qualified electrical technician, heavy currents, has been employed by plaintiff since 2003.

[34] He confirmed that there are certain critical processes in the paint shop that are required to run for twenty four hours a day, seven days a week. The systems are monitored by the Central Control Room which reacts to any alarms which are triggered if any of the equipment should go into a faulty state, whereafter the electrical specialist is called in.

[35] Mr. Greyvenstein stated that at approximately 6pm he received a call from Mr. Kritzinger who reported to him what was happening. Mr. Kritzinger advised him that he was unable to restore operation of the compressor number one cooling pump, because the cooling pump was tripping on overload. In other words, it was drawing more current than the full load capacity of the motor, and was tripping in order to protect the motor.

[36] On being informed by Mr. Kritzinger of the voltage measurements he proceeded to the factory because the next step to be taken was "*to check the*

high tension side of the system and Kritzinger had no authority to enter the high voltage substation."

[37] On his arrival Greyvenstein proceeded directly to the paint shop substation where he checked the voltage supply on the analogue voltage meters situated on the incoming supply. The analogue voltage meters indicated a voltage of approximately 12500 volts, which was the highest voltage that he had seen since the commissioning of the system.

[38] He then, as he put it, worked his way upstream and checked the next substation, which is the main substation feeding all the different plants on plaintiff's side. Those voltage meters also indicated a voltage of approximately 12500 volts. At that point he realised that this was not an electrical system problem on plaintiff's side but that it was the voltage supply coming in from the defendant's substation that was too high. He himself, however, had no authority to access defendant's substation, which was situated outside the plaintiff's boundary wall adjacent to plaintiff's substation.

[39] He accordingly contacted defendant's after hours emergency electrical supply officials. After approximately half an hour the standby officials arrived. In the meantime he had taken the precaution of switching off the two main feeds from the main substation to the paint shop main substation.

[40] The defendant's employees corrected the fault whereafter the voltage meter in plaintiff's main substation measured approximately 11200 volts. After that Greyvenstein switched on the two feeds to the paint shop, thereby restoring the electrical supply to it.

[41] He stated that the system is equipped with a so-called Vectograph, situated in the plaintiff's main substation. He explained that the Vectograph measured the incoming voltage and indicated abnormalities such as power spikes or dips. He was not aware of any over-voltage protection system anywhere in the high tension circuit nor was he aware of any preventative measures which had been installed in order to protect plaintiff's equipment

against the consequences of any over-voltage. There was, in particular, no so-called UPS or Uninterruptible Power Supply system installed in order to protect the equipment in the paint shop.

[42] He stated that at the plant certain equipment known as "*power factor correction capacitor banks*" was installed.
Exhibit 'B', a schematic diagram of plaintiff's internal reticulation system, depicts the position of these capacitor banks throughout the plaintiff's plant. Although Mr Duncan initially took issue with the evidence as to the situation of the capacitor banks averring that they were installed in a position that would influence the reading on the Vectograph, he then agreed that exhibit B was in fact a correct depiction thereof and that such influence would not therefore occur because the capacitor banks were in fact "downstream" from the Vectograph. Mr Greyvenstein stated that the function thereof was to correct the power factor of a load by improving the efficiency of the electric current, thereby reducing the costs of electricity to the consumer. He was not aware whether the capacitor banks were on or off at the time the incident occurred.

[43] It is common cause that plaintiff's own transformers convert the 11000 volts they receive from defendant to usable voltage of 400 volts nominal in three phase or 230 volts in single phase.
Mr Greyvenstein confirmed that the transformers of plaintiff's plant which received the electricity supply from defendant's substation were not set at the so-called "nominal value" of 400 volts but at 420 volts. I should mention that 400 volts is the three phase equivalent of 230 volts, the latter being the standard voltage of a domestic plug. It is common cause that the nominal value is a ratio setting which would normally be 11000 volts to 400 volts. The ratio was set higher at 420 volts because, as the demand for electricity in the plant increased at the point of use, so the normal supply of voltage throughout the system would decrease. This was because the different types of equipment that received electricity from the transformers were not all located in the immediate vicinity of the transformer but were located at various points in the plant, varying from a couple of metres to approximately 100 metres.

Because there are losses of electricity over that distance as it is conveyed through the cables, a higher setting of 420 volts at the transformer would ensure that at the point of consumption the voltage would not be below 400 volts.

[44] The aforementioned Mr Knight confirmed that a Vectograph was installed on the incoming supply of electricity supplied by defendant to plaintiff. This was situated at the "*point of common couplings*", that is, as close as possible to the connection with the defendant's cables. He explained that a Vectograph is essentially a power quality meter which samples the incoming power at high frequency.

[45] On the Monday, following the weekend of 26 September, he downloaded the information from the Vectograph for 26 September and produced various graphs which were admitted in evidence as Exhibit "A".

[46] He explained that, in order to translate graphically the terms of the agreement, he had drawn on the graph A8 a horizontal green line representing the agreed voltage supply of 11000 volts. He also drew two horizontal red lines, one above and one below the green line, these lines representing the maximum percentages by which the voltage could differ in terms of the agreement from the declared voltage for a period longer than ten consecutive minutes, namely 7.5 % above and 7.5 % below the declared voltage.

[47] According to the Vectograph record of Saturday, 26 September 2009, plaintiff's plant experienced a power dip at approximately 14h27 followed by an over voltage in supply over an extended period of approximately six hours. The graph depicted on A3 begins at 13:32:01 with a steady line reflected at 11000 volts. This is followed at some time after 14h00 by a sudden and substantial dip at to 9624 volts, thus indicating a variation of -12.51 %. The line then rises and crosses the +7.5 % line, at approximately 15h45, remaining above it for a substantial period of time and reaching a peak value of 12274 volts or +11.5 % at 21:28:19. Mr. Knight stated that it was normal for

voltage to fluctuate but that such normal fluctuations were very short, usually lasting milliseconds, and one would not be able to plot them on a graph of this scale. The present Vectograph, however, indicated that there was something very wrong on the supply side.

[48] He stated that there were no protection systems installed to protect against over voltage. There was no reason, so he said, for plaintiff to have anticipated that there might be a problem with over voltage. He was referred under cross-examination by Mr. Smuts S.C.,who with Mr Louw appeared for the defendant, to the provisions of clause 9.2 of the agreement. Those provisions read as follows:

> "*The Consumer shall ascertain from the Council the nature of the protection provided on the supply and the Consumer shall take adequate measures to protect its own equipment and apparatus. This shall include measures to protect the Consumer's equipment and apparatus against damage that may arise under low voltage conditions or from single-phasing."*

[49] With reference thereto Mr. Knight stated that he "*deduced*" from what he encountered on plaintiff's side by way of protective measures that plaintiff had ascertained from defendant the nature of the protection provided by defendant on the supply. He conceded that this was an assumption on his part. If plaintiff had ascertained anything from defendant it would have been whilst he was in a junior position with plaintiff.

[50] He conceded that if a proper risk analysis had been undertaken, over voltage would have been assessed as a real risk to plaintiff's equipment. However, the equipment to ensure that the correct voltage was supplied was installed on defendant's side of the boundary. It was therefore not necessary in his view for plaintiff to have installed its own protection equipment. It was only at the point of common coupling that the plaintiff took responsibility.

[51] He explained that the UPS system referred to above was generally only installed for sensitive electronic equipment, such as computers and other IT equipment, where it was necessary to protect data. Asked what steps could have been taken to protect against the dangers of over voltage he stated that because the power consumption of the factory was so high, in excess of 12 megawatts, it would not be economical to install a UPS of that size. An affordable protection system, such as a trip switch, would trip the main breakers and switch the plant off, causing wholesale damage. Such affordable option was therefore also not viable.

[52] He stated that capacitor banks were installed where there was a high inductive load, where a lot of copper was used. Simply put, so he said, its purpose was to correct things that go wrong where large motors are involved. He stated that with an inductive load there is resistance to change in the flow of electrons and the current therefore lags behind the voltage. Where there was a lag between the current and the voltage the capacitor would bring the current back into line with the voltage. Its purpose was to make the system more efficient and cost-effective.

[53] It was put to him that when capacitors were used in an electrical system of an inductive nature, such as in plaintiff's plant, the capacitors would create an increase in voltage at the load point. He stated that this was possible although it was not his area of expertise.

[54] With regard to his evidence that a trip switch was not a viable option he explained that once the production process was running one needed to shut the plant and equipment down properly. This would require a period of time so that if an over voltage had occurred it would need a very quick response. The ten minutes referred to in clause 4.2 would not be sufficient time to shut the plant down. If the plant was merely switched off the effect would be loss of production and loss of all the components that were at that time in the system. This was confirmed by Mr Canning who stated that a trip switch would cause "extensive damage".

[55] It is not in dispute that plaintiff did in fact suffer damage to its machinery and equipment nor that such damage was to some extent caused by or resulted from an over voltage supply. This concession by the defendant was perforce made in light of the evidence of Mr Knight, Mr Canning and Mr Ansell as follows:
Mr Knight stated that he was only aware of one piece of equipment in the body shop, known as a Yaskawa drive, that was damaged by the over voltage. He stated that its components "were burnt" and that it appeared that they were covered by something "like black carbon".
Mr Canning stated that on Monday morning after the incident it was found that certain equipment could not be restarted "because the drives were burnt" in consequence of the over voltage. A number of parts had to be replaced. Mr Ansell, with reference to certain photographs which, although not handed in to Court, were admitted by defendant, stated that they depicted "some burnt out equipment" caused as a result of the over voltage. Asked what the most probable cause of the damage was Mr Duncan, as well, stated that he "currently concurred with the fact that the plaintiff has said the damage with so many drives failing would have been caused by the over voltage that was received on that Saturday afternoon, an over voltage is the cause of the failure".

[56] Mr Smuts submitted, however, that, firstly, the plaintiff had failed to discharge the onus upon it of proving that the voltage of the supply received by it from defendant during the alleged six hour period, was above the 7,5% limit referred to in the agreement. His second submission allied to this, was that plaintiff had adduced no evidence as to the period over which or the time at which the damage occurred and had thus failed to exclude the possibility that such damage was incurred within the ten minute period stipulated.

[57] In developing his argument in respect of the first issue Mr Smuts submitted that the Vectograph readings, reflecting the over voltage, could not be equated to proof that such over voltage supply was occasioned by defendant. In this regard he submitted that the issue as to whether or not the capacitor banks were in operation at the time was crucial in the light of the

fact that, according to Mr Duncan, they had the effect, when in operation, of increasing the voltage by 2%, this being the so called Ferranti-effect.

[58] Mr Smuts submitted further, with reference , *inter alia,*to *S v Essack and Another* 1974(1) SA 1(AD), concerning the necessity carefully to distinguish inference from conjecture or speculation, that plaintiff had adduced no direct evidence in this regard nor any evidence on the circumstances under which the capacitor banks might from time to time be in operation or not. There was, for example, no evidence as to whether it was the practice of the plaintiff to switch the capacitor banks off over weekends or whether they automatically switched off at certain times. He submitted that in the circumstances whatever evidence had been adduced by plaintiff amounted to no more than speculation.

[59] It is necessary therefore to have close regard to this evidence.

[60] Mr Kritzinger could not say whether the capacitors were on or off.
Mr Greyvenstein was also not aware of their state at the time. He added, however, that “the majority of the paint shop load was not on, because we only had the critical equipment and processing running so the majority of your inductive loads would be basically at a stand still, so the power factor would not be much needed at that point”.

[61] Mr Ansell testified that there was “good reason” to believe that the capacitors were “not on line” by which he meant that they were “not connected”. He stated that the reason for his belief was that the capacitors are “quite large” and “ are only connected to the system when required” His further uncontradicted evidence was that the capacitor banks “are automatic and they only switch on when required”. His evidence was further to the effect that the capacitors have a control system whereby the inductive load is measured and that it was only when they were required that “another bank was brought in automatically”.

[62] He stated that under normal work day conditions, as the plant picked up production and more motors came on, the inductive load would increase. It was in these circumstances that the power factor correction was necessary in order to cancel the effect of the inductive load. With the plant in standby mode on the weekend, however, such correction was not necessary. In Mr Ansell's opinion therefore, the overwhelming probability was that the capacitors were not in operation at the time.

[63] Mr Duncan, when confronted under cross-examination with Mr Ansell's opinion, conceded that "this is a possibility". He added, however, that in the absence of any direct evidence "we can only assume that there is a possibility that it was not the way Mr Ansell understands it" Pressed on this issue he replied that "I have done many substation and many protection things and we have come across problems on those substations and also overwhelmingly we find that mistakes are made by people that put it in and also damage is done to capacitor banks because of the incorrect application of protection, so overwhelmingly, another way is also a possibility."

[64] The reference to the "incorrect application of protection" would appear to be a reference to Mr Duncan's earlier evidence that the capacitors have built into them a protective mechanism which will cause them to switch off if the voltage is too high. With respect to Mr Duncan his reply fails entirely to address the reasons advanced by Mr Ansell as to why it was probable that the capacitors were not in operation. In any event, his evidence runs counter to that of Mr Ansell who stated unequivocally that had the capacitors malfunctioned this would have been apparent to Mr Knight because it would have given rise to "strange readings".

[65] In my view Mr Ansell was an excellent witness whose lucid evidence can be unreservedly accepted. It is clear from his evidence, corroborated to some extent by that of Mr Knight, that the capacitors switch on automatically as and when required, that they are required when the inductive load is high as production increases across the plant; and that they are not required when the plant is in "sleep" or "standby" mode. In these circumstances I agree with

the submission by Mr Ford SC who, with Mr de la Harpe, appeared for plaintiff, that far from being speculative, Mr Ansell's evidence establishes on a balance of probabilities that the capacitors were not in operation on that fateful Saturday. I agree also with the submission that it is, on the contrary, the evidence of Mr Duncan which is speculative and based on conjecture.

[66] In the light of this finding it is not necessary to deal with the further issue raised by Mr Duncan concerning the alleged increase in voltage in consequence of the Ferranti-effect.

[67] It is convenient at this juncture to deal with the further submission by Mr Smuts as set out above to the effect that plaintiff had adduced no evidence as to the period over which or the time at which the damage to plaintiff's equipment had been incurred. Mr Smuts submitted that there, although there was evidence on the Vectograph of the peak of 12274 volts having been recorded there was no evidence as to the duration of such peak. He submitted further that the damage to plaintiff's equipment could have been occasioned before the expiry of the 10 minute period provided for the agreement in which event no liability would attach to defendant.

[68] In my view these submissions cannot be upheld. It is so that there is no evidence of the extent of the duration of the peak of 12274 volts but it is clear from the Vectograph that the over voltage in supply endured for hours. When regard is had to exhibit A8 it is clear that Mr Smuts' description of the over voltage supply as having "snaked along" just above the 7,5% limit, ignores the second part of the graph which illustrates an oversupply well above such limit and well beyond 10 minutes in duration.

[69] In any event, the probabilities in my view are overwhelmingly to the effect that it was the sustained period of over voltage that caused the damage. As set out above Mr Canning stated that most of the equipment drives had internal protective devices which enabled them to withstand an increase of up to 10% for a very short period of time and the agreement itself envisaged that the equipment could withstand an increase of more than 7,5%

for 10 minutes. In these circumstances it is quite improbable that the damage occurred during the agreed period of 10 minutes.

[70] The evidence of Mr Ansell in my view, puts the matter beyond doubt. He described the mechanism which would cause the equipment to burn out in the following terms:

> *"The higher the voltage the more power is dissipated in the equipment: the more power that is dissipated in the equipment the hotter the equipment would become; and the longer it is exposed to the condition *again the hotter it would become until such a point that it would melt".*

[71] There was some debate concerning the fact that plaintiff's internal transformers were set at 420 volts instead of the nominal value of 400 volts. In this regard it became common cause, as indeed appears from the evidence of Mr Duncan, that because the transformers are transforming 11000 volts to 400 volts they do not have any effect upon the voltage in the 11000 volt network. The increase of 5% from 400 to 420 volts on the 400 volt network was therefore not recorded on the Vectograph which measures only the 11000 volt network. The volt setting did not therefore affect the voltage supply to the plaintiff by defendant.

[72] Mr Smuts submitted, however, if it I understood him correctly, that the additional 5% voltage thereby created may have damaged plaintiff's equipment. In my view, however, this submission cannot be sustained. The evidence discloses clearly that at the point of usage, because of the losses in the system, the voltage would have been no more than 400.

[73] In *Minister of Safety and Security v van Duivenboden* 2002(6) SA 431 (SCA), Nugent JA stated with regard to factual causation as follows at 449 E-F:

> *"A plaintiff is not required to establish the causal link with certainty, but only to establish that the wrongful conduct was probably a cause of loss, which call for a sensible retrospective analysis of what would probably have occurred, based upon the evidence and what can be*

expected to occur in the ordinary course of human affairs rather than an exercise in metaphysics."

[74] In *International Shipping Co (Pty) Ltd v Bentley* 1990(1) SA 680 (AD), Corbett CJ thus at 700 F-H:

"The enquiry as to factual causation is generally conducted by applying the so-called 'but-for' test, which is designed to determine whether a postulated cause can be identified as a causa sine qua non *of the loss in question. In order to apply this test one must make a hypothetical enquiry as to what probably would have happened but for the wrongful conduct of the defendant. This enquiry may involve the mental elimination of the wrongful conduct and the substitution of a hypothetical course of lawful conduct and the posing of the question as to whether upon such an hypothesis plaintiff's loss would have ensued or not. If it would in any event have ensued, then the wrongful conduct was not a cause of the plaintiff's loss; aliter, if it would not so have ensued. If the wrongful act is shown in this way not to be a* causa sine qua non *of the loss suffered, then no legal liability can arise."*

[75] With reference to the *International Shipping* case *supra,* Brand JA in *ZA v Smith* 2015(4) SA 574 (SCA) stated at para [30] that *"the application of the 'but-for test' is not based on mathematics, pure science or philosophy. It is a matter of common sense, based on the practical way in which the minds of ordinary people work, again the background of every-day experiences."*

[76] In my view therefore, having regard to what is set out above, plaintiff has established a direct and probable chain of causation between the breach of the agreement in allowing the supply of electricity to exceed the parameters provided for therein and the damage occasioned to plaintiff's equipment. But for the breach the damage to plaintiff's equipment would not have occurred.

[77] Once factual causation is established the next enquiry arises, namely, *"whether the wrongful act is linked sufficiently closely or directly to the loss for legal liability to ensue or whether, as it is said, the loss is too remote. This is basically a juridical problem in the solution of which considerations of policy may play a part. This is sometimes called, 'legal causation'."* See *International Shipping*, *supra* at 700 H-I.

[78] In this regard plaintiff has pleaded in paragraph 10 of its particulars of claim that as a consequence of the overload in supply:

> *"(10.1) Plaintiff's machinery and equipment was damaged beyond repair and required to be replaced;*
>
> *(10.2) Plaintiff's production was interrupted for a period of 3 days;*
>
> *(10.3) Plaintiff was obliged to make additional salary payments to its employees in order to make-up its loss of production."*

[79] Plaintiff has pleaded further in paragraph 11 of the particulars of claim that in consequence of defendant's breach of the agreement, it has suffered damages in the sum of R2,3 million arising out of;

> *"(11.1) Loss of production time for a period of 3 days in Plaintiff's body shop, assembly plant, paint shop and logistics department.*
>
> *(11.2) Costs of extended shifts to make-up lost production.*
>
> *(11.3) Associated costs for production on Saturday.*
>
> *(11.4) Airfreight expenses in order to obtain replacement equipment.*
>
> *(11.5) Cost of equipment for the body shop to replace damaged equipment.*
>
> *(11.6) Cost of equipment to replace damaged equipment for the paint shop.*
>
> *(11.7) Replacement of Information Technology Equipment.*

[80] Mr Ford has submitted with reference, *inter alia*, to the well-known judgment of Corbett JA in *Holmdene Brickworks (Pty) Ltd v Roberts Construction Co (Pty) Ltd* 1977(3) SA 670(A) at 687D and *Thoroughbred Breeders' Association v Price Waterhouse 2001(4) SA 551(SCA,* that the damages referred to above flowed "naturally and generally from the kind of breach of contract in question and which the law presumes the parties contemplated as a probable result of the breach".

[81] Mr Canning's unchallenged evidence is relevant in this regard. It appears therefrom that to the knowledge of defendant, plaintiff was in the process of expanding its factory from a CDK plant to a part by part plant and that to achieve this, it required a stable supply of electricity within acceptable parameters. Defendant was also well aware that the deviation allowance of 7,5% eventually agreed to by plaintiff was a compromise by plaintiff from Daimler's usual standard of 5%. As usual stated by Mr Canning, the plaintiff manufactures vehicles to order. It is part of Daimler's global distribution network which manages orders for vehicles throughout the world. If the plant for some reason stops production it cannot simply ignore the orders already placed but has to catch up on the production once it is functioning again. In order to get the plant functioning again plaintiff had to replace the damaged equipment, restart the factory and return it to production. It had to pay salaries in the meantime as well as overtime pay as lost production was made up.

[82] All of these losses were, in my view, directly consequent upon the defendant's breach of the agreement and flowed naturally from it. Mr Smuts, however, submitted that having regard to the provisions of clause 4.1 and 9.2 of the agreement in particular, those losses were not within the contemplation of the parties at the time the agreement was concluded.

[83] In the light of Mr Smuts' submissions it is necessary to have regard in particular to clauses 4.1 and 9.2 thereof . The approach to be adopted

in interpreting the agreement appears from *Natal Joint Municipal Pension Fund v Endumeni Municipality* 2012(4) SA 593 (SCA) at paragraph 18 where Wallis JA stated:

> *"Interpretation is the process of attributing meaning to the words used in a document, be it legislation, some other statutory instrument, or contract, having regard to the context provided by reading the particular provision or provisions in the light of the document as a whole and the circumstances attendant upon its coming into existence. Whatever the nature of the document, consideration must be given to the language used in light of the ordinary rules of grammar and syntax; the context in which the provision appears; the apparent purpose to which it is directed and the material known to those responsible for its production. Where more than one meaning is possible each possibility must be weighed in the light of all these factors. The process is objective, not subjective. A sensible meaning is to be preferred to one that leads to unsensible or unbusinesslike results or undermines the apparent purpose of the document."*

[84] As set out above, clause 9.2 provides that plaintiff "shall ascertain" from defendant the "nature of the protection provided on supply" and that, for its part, plaintiff "shall take adequate measures to protect its own equipment and apparatus".

[85] Mr Smuts submitted that there was no evidence to the effect that plaintiff had complied with its obligations to ascertain from defendant what protective measures the latter had put in place in order that plaintiff might for its own part, put in place effective measures of its own and that it was not foreseeable that plaintiff would have failed to do the necessary analysis.

[86] It is so that plaintiff did not adduce any direct evidence in this regard. In my view however, the criticism of plaintiff's failure to do so overlooks the fact that the agreement was entered into over 15 years ago at a time when Mr Knight was still relatively junior. Although Mr Knight was not a party to any

negotiations he stated that *"at the time that the contract was being drawn up and the equipment was discussed from both sides I believe, and in that manner the understanding was there of what would be on the BCM side and what would be on the Mercedes Benz Side".* He added that he deduced from the nature of the equipment installed on the plaintiff's side where *"the fault currents and the fault levels that are set up on that switch gear correlate with that of BCM"* and were "in alignment" with it, that plaintiff must have discussed the matter with defendant. This evidence that there was indeed some discussion concerning the matter was not disputed. It is also relevant, in my view, that defendant did not itself adduce any evidence to the effect that there never was any such discussion.

[87] In my view therefore, at the best for defendant, the evidence on this aspect is neutral in nature.

[88] Mr Smuts, submitted further that plaintiff was required, in terms of both clauses 4.1 and clause 9.2, to take "adequate measures" to protect its own equipment including measures to protect the equipment against damage that might arise "under low voltage conditions or from single-phasing" and damage caused by "an outage, voltage dip or voltage surge".

[89] It is common cause that the damage to plaintiff's equipment did not arise from "low voltage conditions, single phasing, outage or voltage dip". In his evidence however, Mr Duncan stated that the over voltage which endured for 6 hours on 26 September was in fact a "voltage surge". This evidence was in direct contradiction of Mr Ansell's evidence that a "voltage surge" was a very short event "which was defined in the N.R.S. regulations as being "something that is less than one millisecond". Mr Ansell's evidence was not challenged under cross-examination despite Mr Duncan testifying that he had informed his counsel that it was incorrect. In the circumstances I am satisfied that Mr Ansell's evidence can be accepted.

[90] It is apparent therefore that none of the events specifically referred to in clauses 4.1 and 9.2 occurred on 26 September.

[91] Mr. Ford submitted with reference to the phrase "*this shall include measures*" in clauses 4.1 and 9.2 that the clause could not be construed as meaning "measures additional to" the measures designed to protect against the named events contained in those clauses. He submitted that it would make no commercial or business sense for the defendant to have contracted with the plaintiff as a specific condition of its supply of electricity that "*the maximum percentage by which the supply voltage may differ from the declared voltage of 11000 volts for a period of longer THAN 10 consecutive minutes shall be 7,5% above or below the declared voltage*" and "*to use its best endeavours to reduce the percentage of variation to 5%*" but for defendant nevertheless to be excused from any liability for a breach of that specific condition on the basis that the plaintiff was obliged to protect itself against the defendant's breach of the condition of its supply of electricity.

[92] He submitted that if that were the intention then clause 4.2 would have been conveniently expressed not as a "*specifically agreed condition of supply*" but as an "*endeavour*", as described in clause 4.3, and that, the provisions of clause 5.3 to the effect that the defendant would not be liable for damages caused to plaintiff "*as a result of a reduction or interruption in the supply or variation of voltage frequency or any failure to supply electricity*", would have been framed differently to include all and any eventuality including an extended period of over voltage in breach of the provisions of clause 4.2 of the agreement.

[93] He submitted accordingly that the correct interpretation of the provisions of clause 4.1 and clause 9.2 was that the "*adequate measures*" which plaintiff was required to take to protect its equipment were limited to measures to protect against the events specifically mentioned in clause 4.1 and clause 9.2. Those clauses did not require plaintiff to take measures to protect its equipment against an extended period of over voltage in supply consequent upon defendant's breach of a specific condition of its supply of electricity to the plaintiff as set out in clause 4.2.

[94] Mr Smuts submitted, however, that the word “including” had to be given a meaning and could not simply be ignored. He submitted that the ordinary grammatical meaning of “including” clearly denotes that the circumstances that follow do not constitute an exhaustive list of circumstances or events.

[95] In my view, attractive as Mr Ford’s submissions may be, Mr Smuts is correct that the word “including” cannot simply be ignored as being superfluous. It conveys that the list of specified events is not exhaustive. It needs, however, to be read in the context of the agreement in conjunction with the phrase “adequate measures”. The intention, in my view, was clearly that the plaintiff would take adequate measures to protect its equipment against events of a similar nature to those specified in the particulars of claim, whatever such events might be.

[96] I am further of the view that the clauses cannot be interpreted so as to have obliged plaintiff to take measures to protect itself against an event of the nature which occurred on 26 September 2009. Plaintiff’s witnesses had never before encountered such exceptional over voltage. Mr Greyvenstein stated with reference to the fact that he had measured the voltage at 12500 that this was “the most I have seen since the commissioning of the system” and that “I have never seen it that high”. Furthermore, defendant’s own witness, Mr Duncan, stated as follows:

> “*Thus when we look at the graph we can see that BCM did exceed the 7,5% for longer than the 10 minute agreement, but it was caused by an abnormal condition which was a possibility but with a very low probability of ever occurring.*”

He added that “*it was an abnormal condition that occurred. Most of the people that have given witness in this court have agreed that it’s the only time that they have ever seen this type of deviation”.*

[97] The question arises as to what measures plaintiff could have taken to protect itself in such abnormal circumstances. In this regard Mr Ford submitted also that the entire issue of plaintiff’s alleged failure to have taken

adequate measures was irrelevant as defendant had not pleaded a defence reliant thereon. Whilst there is, in my view, merit in this submission, I would prefer to deal pertinently with the issue.

[98] The matter was taken up with Mr Knight. He stated, as set out above, that the necessary equipment to ensure that the correct voltage was supplied was installed on defendant's side of the boundary and that it was therefore not necessary for plaintiff to have installed its own protective equipment. He explained that it would be uneconomical to install a UPS system in a plant of plaintiff's size. A trip switch, on the other hand, would have caused "extreme damage". Furthermore , the issue as to whether plaintiff should have installed its own automatic tap changers on its transformers was but tentatively explored in evidence and it was never directly put to any of the plaintiff's witnesses that it should have been done.

[99] The Concise Oxford English Dictionary defines "*adequate*" as "*satisfactory or acceptable*". The Shorter Oxford English Dictionary defines it as "*sufficient, suitable*". In this regard Mr. Ford referred further to Allcock v Allcock and Another 1969 (1) SA 427 (N) where Milne J described "*adequate*" as "*meaning something less than a full measure*". He submitted accordingly that such obligation as may have been placed upon the plaintiff to protect its own equipment by the provisions of clauses 4.1 and 9.2 was not an absolute obligation to install a fail-safe protective device.

[100] I agree. In placing an obligation upon the plaintiff to protect its own equipment it could never have been intended, in my view, that such protection be a complete and absolute safeguard against the occurrence of a highly abnormal event. As was further submitted by Mr Ford, the installation by plaintiff of its own tap changers, in duplication of those of defendant, would not have been an "adequate" but instead an "extraordinary" measure which not contemplated in the agreement. In all the circumstances Mr Smuts' contention that the losses occasioned to plaintiff's equipment were not within the contemplation of the parties at the time the agreement was concluded cannot be upheld.

[101] I am satisfied therefore that plaintiff has established that defendant breached the conditions of its supply of electricity to plaintiff and that, as an overwhelming probability, the oversupply of voltage for an extended period of time caused the damage to plaintiff's equipment leading directly to the losses sustained by plaintiff.

[102] The following order will accordingly issue:

(a) It is declared that defendant is liable to plaintiff for such damages as plaintiff may in due course prove it has suffered in consequence of the over supply of voltage to it by defendant on 26 September 2009.

(b) Defendant is ordered to pay the costs of the action to date, such costs to include the qualifying expenses of Mr Ansell and the cost of two counsel.

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J D PICKERING
JUDGE OF THE HIGH COURT

Appearances:

For the Plaintiff: Adv EAS Ford SC and Adv DH de la Harpe, instructed by Drake Flemmer & Orsmond Inc, East London.

For the Defendant: Adv IJ Smuts SC and Adv SSW Louw, instructed by Niehause McMahon, East London