

**REGULATED
INDUSTRIES
COMMISSION**



**POLICY FOR COMPENSATION
FOR DAMAGE DUE TO
FLUCTUATIONS IN VOLTAGE OR
INTERRUPTIONS IN SUPPLY OF
ELECTRICAL ENERGY**

DRAFT FOR CONSULTATION

January 2008

TABLE OF CONTENTS

	Page No.
1. INTRODUCTION	1
• Damaged-Appliances' Working Group	1
• The Review Process	2
• Structure of the Document	2
2. REPORT OF THE WORKING GROUP	3
3. DISCUSSION	4
• Key Issues	4
• Provisions of the Law	5
• Practice in Other Jurisdictions	9
4. KEY ELEMENTS OF THE APPROACH TO POLICY	11
• Damaged-Appliances' Policy - RIC's Initial Proposals	12
5. NEXT STEPS	19
Appendix I - Abridged Terms of Reference and Composition of the Working Group	20
Appendix II - Practice in Other Jurisdictions	23

1. INTRODUCTION

The Regulated Industries Commission (RIC) is the economic regulator of the electricity and water sectors. The RIC is responsible for the regulation of prices, standards and conditions of supply of services.

The RIC completed a price review on June 01, 2006 for the regulation of the Electricity Transmission and Distribution Sector by releasing a Final Determination that outlined the key outcomes of the review and specified the tariffs and manner in which those tariffs are to be adjusted annually from June 01, 2006 until the end of the regulatory control period on May 31, 2011.

An important part of the RIC's price review was its initiatives for improving standards and conditions of supply of service. Based on numerous complaints received during the consultative process of the price determination, one of the concerns identified by customers was the quality of the voltage supplied by T&TEC and the resultant damage to equipment. Customers also contended that the process for seeking redress for damaged appliances was complex and lengthy. It was in this context that the RIC had identified the treatment of Damaged Appliances as a specific issue requiring further investigation, and had proposed the formation of a working group to examine the existing policies and procedures and to present proposals for a more comprehensive and customer-friendly policy.

Damaged-Appliances Working Group

In September 2006, the RIC established a Damaged-Appliances' Working Group (DAWG) encompassing members of the national community representing all stakeholders, inclusive of the service provider and its customers, with a specific goal of assisting in the development of detailed proposals for the RIC's consideration. This document is a result of that review process.

The DAWG submitted its report in April 2007. Copies of the Working Group document were made available to a large section of the stakeholders and are also available on the RIC's website at www.ric.org.tt. An abridged version of the terms of reference and the composition of the Working Group are attached as **Appendix I**.

The Review Process

This consultative document summarizes key issues of the current arrangements and the proposals of the Working Group. Having considered the DAWG's proposals, this document also presents the RIC's initial position. The RIC hopes that the paper will stimulate discussion and provide useful feedback on the most appropriate framework for a policy for compensation for damage due to fluctuations in voltage or interruptions in the supply of electrical energy (**damaged-appliances' policy**).

The RIC will consider the views of interested parties before finalizing its proposals for the damaged-appliances' policy. The RIC will also consider conducting a public workshop on the policy after receiving written submissions, from which it expects to gauge the level of stakeholder interest. Submissions should be sent to the address below, or faxed to **1(868) 624-2027 by March 14, 2008**.

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Structure of the Document

The rest of this paper discusses the RIC's proposed recommendations and rationale in more detail:

- **Section 2** lists the summary recommendations of the Working Group.
- **Section 3** discusses the main issues in respect of damaged-appliances' policy, emphasizing the provisions of the law locally and other jurisdictions.
- **Section 4** sets out the key elements of the approach to policy and the RIC's initial proposals.

2. REPORT OF THE WORKING GROUP

As indicated above, the Damaged-Appliances' Working Group was appointed in September, 2006 encompassing members of the national community representing all stakeholders and it submitted its report in April 2007. In the time available to it (6 months), the Working Group identified some of the key issues and made recommendations to the RIC for addressing the issues/concerns. The Working Group proposed that:

- T&TEC actively educate the public on issues relevant to damaged appliances;
- There be mandatory recertification of buildings every ten years by the Government Electrical Inspectorate;
- The Trinidad and Tobago Bureau of Standards should make building wiring quality standards compulsory; and
- Legal advice be sought on the "fair wear and tear" clause in the T&TEC Act to clearly define its boundaries and applicability.

The summary of recommendations of the Working Group is reproduced hereunder.

SUMMARY OF RECOMMENDATIONS OF THE WORKING GROUP

- **Consumer Education** - T&TEC to actively educate the public on issues relevant to damaged-appliances with regard to the protection of sensitive appliances, the importance of installing a proper Earthing system, the legal tolerance levels for voltage fluctuation, the importance of periodic inspection of electrical installation and Damaged-Appliance Claims Procedure.
- **Periodic Inspection of Electrical Installation** - The DAWG recommends that buildings be inspected every five (5) years but mandatory recertification required every ten (10) years by the Government Electrical Inspectorate (GEI).
- **Electrical Wires, Cables** - The DAWG recommends that the Trinidad and Tobago Bureau of Standards (TTBS) should make compulsory all relevant standards that relate to house and building wiring quality.
- **Surge Protection** - The DAWG recommends that the T&TEC explore the issue of providing whole-house voltage protection to customers who so desire.
- **Chapter 54:70, Section 49(3) - "Fair wear and tear"** - The working group is of the view that further legal advice should be sought on this clause to clearly define its boundaries and applicability, in the interests of both T&TEC and its customers.

3. DISCUSSION

Key Issues

The RIC commends the members of the Working Group for the valuable contribution in identifying some of the key issues and making proposals for addressing these issues. The RIC believes that any framework for establishing a damaged-appliances' policy must provide clear guidelines, be relatively simple to follow and be able to be applied consistently and equitably to both customers and service provider and at acceptable administrative cost. Therefore, for the purposes of discussion, the main issues in respect of a damaged-appliances' policy may be grouped into eight broad areas:

- the extent of liability of T&TEC and the conditions which make for identification of “fair wear and tear” under Section 49 of the T&TEC Act;
- the standards which govern the operations of T&TEC's supply;
- the responsibility of customers, especially as the supply of electricity is inherently fraught with uncertainties and dangers;
- public knowledge of the standards for which T&TEC is to be held responsible;
- the role of the Electrical Inspectorate;
- the timeframe within which T&TEC should investigate complaints and report;
- access to the investigative reports undertaken by T&TEC and whether the information should be made available to the claimant, his counsel or other representative; and
- other avenues open to customers to get redress, that is, if T&TEC's response is considered unsatisfactory, and determining who will investigate the matter and make a final determination.

Provisions of the Law

Before discussing the main issues, it is instructive to understand the relationship between the service provider and the customer with respect to the provisions of the law in this area. The first point which can be made is that the law is still in a state of flux in most jurisdictions. Utilities worldwide do not use a common approach to the policy. The differences in approach result from differences in law and the policy is continuing to evolve. However, many of the issues associated with damaged appliances are very similar in most countries.

Locally, Sections 48 and 49 of the T&TEC Act are instructive:

Under Section 48 of the Act, T&TEC ... “is required by law to provide anyone within 30 meters from any distributing main of the Commission, a supply of energy for the premises within the Regulations and conditions in the Act”. This section deals with the right of the customer to electricity supply. It also mentions the appropriate distance that should not be exceeded.

Section 49. (1)... The Commission (T&TEC) may reduce, as they think fit, the quantity of energy supplied to any consumer, if, by reason of any unforeseen circumstances beyond the control of the Commission, it may appear that the supply of energy generated is insufficient to enable the full quantity to be conveniently supplied.

(2) Where the quantity of energy has been reduced by the Commission no liability is incurred by the Commission for any loss or damage caused by the reduction, and in appropriate cases, an abatement in the charges for the supply of energy shall be made in proportion to the reduction made.

(3) The Commission (T&TEC) are not liable for any damage to person or property or for any cessation of the supply of energy, if the damage or cessation is due to unavoidable accident, fair wear and tear or overloading due to the

unauthorised connection of apparatus, or to the reasonable requirements of the system, or to defects in any installation not provided by the Commission; and the Commission are only liable when the damage or cessation results from negligence on the part of persons employed by the Commission, its agents or servants, or from faulty construction of the installation.”

There ought to be no difficulty in respect of subsections (1) and (2) above since reducing the supply of electricity by reason of any unforeseen circumstances beyond the control of T&TEC at the discretion of T&TEC is understandable. However, attention is directed to subsection (3) which is the root cause of complaints by customers against T&TEC in respect of alleged damage to appliances etc., due to fluctuations in voltage. In that section the most controversial provision, with respect to the extent of liability of T&TEC, is “fair wear and tear”. It is well to reproduce this in its entirety:

“In evaluating the meaning of “fair wear and tear,” T&TEC will take into consideration that the Commission has the responsibility to ensure that equipment which forms part of its system is maintained in accordance with appropriate regulations, manufacturers’ instructions and prudent utility practices. Records of such maintenance works will be maintained for all equipment on the system up to and including pole-mounted transformers.

Where the evidence indicates failure by the Commission to adhere to its maintenance programme and this is identified as the causative factor, the Commission will accept liability and indemnify the customer within the established policy for claims made.

Where the evidence indicates that the Commission has conformed to the required standards of design, construction and maintenance and that the causative factor has originated from an Act of God, the Commission will not accept liability.

An Act of God is defined as an event occasioned by the elementary forces of nature, unconnected with the agency of man or other cause, such event not being one which could have been reasonably anticipated. Some examples of events which would constitute an Act of God are; Hurricane or Storm, Torrential rain, High wind, Lightening, Earthquake, Tornado and Flood. The Commission (T&TEC) will also not be liable where the causation factor originated from an Act of a Stranger”.

Section 36 of the Electricity (Inspection) Act, Chap. 54:72 imposes conditions/standards as follows:

“36. (1) Before commencing to give a supply of energy to any consumer, the Undertakers shall declare to that consumer -

- (a) the type of current, whether direct or alternating, which they propose to supply;
- (b) in the case of alternating current, the number of phases and also the constant frequency at which they propose to deliver the energy to the supply terminals; and
- (c) the **constant voltage** at which they propose to deliver the energy to the supply terminals.

(2) The type of current, the number of phases and the frequency in the case of alternating current and the voltage declared as mentioned above shall be constantly maintained subject as respects the frequency to a **permissible variation** not exceeding one minute at any given time as measured by a synchronous clock above or below the **declared frequency** and as respect the voltage to a permissible variation not exceeding six per cent above or below the declared voltage, and shall not be altered or departed from nor shall the above-mentioned permissible variations be exceeded except with the consent of the Minister on the

advice of the Chief Electrical Inspector and subject to such terms and conditions as they may impose.”

The obligation of the consumer as regards maintenance of modes of supply to his premises may be said to be found in Section 34 of the above Act where it is stated, *inter alia*, that:

“34. (1) Where a supply of energy is being afforded to a consumer, and the Undertakers after making such examination as the circumstances permit have reasonable grounds for supposing that the installation does not conform to regulation 1103 of the Regulations of the Institute of Electrical Engineers or that the installation or any part thereof fails to fulfil any requirements of rules 29 to 33, the following provisions shall (subject as provided in sub-rule (2)) have effect:

- (a) in any case where the Undertakers are *prima facie* satisfied that immediate action is justified as a work of emergency in the interest of the public safety or in order to avoid undue interference with the efficient supply of energy to other consumers, they may as a work of emergency, forthwith discontinue the supply of energy to the consumer’s installation and shall give immediate notice in writing of the discontinuance to the consumer, specifying the matter complained of;
- (b) in any other case, the Undertakers may by notice in writing require the consumer within a reasonable time after the service of the notice to permit an officer or servant of the Undertakers duly authorised by them in writing to inspect and test the installation at any time between the hours of 7:00 a.m. and 7:00 p.m. If the consumer does not give all due facilities for inspection and testing, or if, as the result of any such inspection or testing, the officer or servant makes a report confirming that the installation does not comply with regulation 1103 of the Regulations of the Institute of Electrical Engineers or reports that the

installation or any part thereof fails to fulfil any requirements of rules 29 to 33, the Undertakers may forthwith by notice in writing specify the matter complained of; and if the consumer fails to show to the reasonable satisfaction of the Undertakers within such reasonable period as may be specified in that behalf in the notice that the matter has been remedied, the Undertakers may, on the expiration of the period but subject as provided below, discontinue the supply of energy to the consumer's installation, giving immediate notice in writing of the discontinuance to the consumer;

- (c) any difference which may arise between a consumer and the Undertakers in regard to any matter complained of or as to the period specified for remedying the same in any notice as mentioned above shall be settled in manner provided for by rule 36”.

Practice in Other Jurisdictions

It appears that the manner of dealing with compensation for damage of electrical appliances varies among the various jurisdictions. Alberta Energy & Utilities Board (**Canada**), for example, holds utilities responsible for damages if the damages are caused by negligence on the part of the utility or any employee of the utility acting on behalf of the utility. However, claims for damages are handled through the courts and each case is determined on its own merit. In the **UK**, the Office of Electricity Regulation (OFFER) sets overall standards governing voltage fluctuations but the standards of performance do not provide for compensation.

The general position in the **USA** has been summarized in a paper by Brian Faller¹ as follows:

- (a) Utility limitations on liability are a good idea and, in fact, are the fairest and most socially efficient way of allocating the cost of service interruptions.

¹ Mr. Brian Faller, “When the Lights Go Out: Update on Utility Liability”, Seattle, USA.

- (b) Limitations on liability for service interruptions put the responsibility to protect against outages on the individual customers since it is the customer, after all who is best aware of the potential losses he may incur from an outage and who is in the best position to protect against that loss.
- c) Given the fact that the number of persons who an outage may affect and the dependence of business on electricity, total liability can be enormous.
- d) As enormous dependence on electricity and use of sensitive telecommunication and computer equipment increases, so the potential liability from outages increases.
- e) In some states, claims for damage due to outages are barred and would be sustained only if “gross negligence or wilful misconduct” on the part of the service provider could be proved. In other words, gross negligence or wilful misconduct are grounds when limitations do not apply.
- f) On the other hand, there are at least two (2) states which do not enforce any limitations on liability for damages due to outages.

Faller lists the following as being benefits to be derived from liability limitations:

- Limitations keep rates down in the face of the large potential liability which an outage can create; and
- Economic efficiency is created since customers who can afford it will purchase back-up generation equipment.

Appendix II details the practice in different jurisdictions.

4. KEY ELEMENTS OF THE APPROACH TO POLICY

This section examines the recommendations of the DAWG in the context of the Terms and Reference and puts forward the RIC's proposals with respect to the damaged-appliances' policy.

It must be accepted that some degree of voltage fluctuation is an inherent feature of all electric utility power systems and given the nature of the industry itself, responsibility for protection against the adverse effects of outages/surges ought to be a shared responsibility. In this regard, it follows that the service provider has a responsibility to endeavour, at all costs, to ensure that a continuous supply of electric energy is available at the predetermined statutory levels. At the same time, given the fact that there can be no guarantee of an uninterrupted supply of energy, it is the responsibility of the customer to install such equipment or devices as may be adequate to protect his/her appliances and equipment.

It is, therefore, important that T&TEC be made to conform to certain preordained and duly established modes of supply – modes which have been tested and proven for their integrity. It is also important that the customer be made properly aware of these modes of supply, tolerance levels of the equipment/appliances which he may wish to purchase, and the need for protective devices adequate to the task.

In light of the above discussion, the main relevant issues that must be considered when establishing a compensation policy, include:

- the standards which should govern the operations of T&TEC and the public knowledge of the standards to which T&TEC is to be held responsible;
- the awareness of customer responsibility and the fact that, by its very nature, the electricity supply industry is froth with difficulties, uncertainties and dangers;

- the conditions which make for identification of “fair wear and tear” and the conditions that should be classified as being “fair”;
- the on-going role of a “third party”, specifically that of the Electrical Inspectorate in ensuring that, in addition to periodical inspections during construction and final inspection on completion, all installations should be inspected at such mandatory intervals as may be prescribed;
- the adequate arrangements for insurance coverage by T&TEC and keeping of adequate records of all outages, disturbances, surges etc., in its electricity supply system;
- the procedure for determining claims and making available the results within a specified period to the claimant, his counsel or other representative; and
- the involvement of an arbitrator in the event T&TEC’s response is considered to be unsatisfactory by the customer.

DAMAGED-APPLIANCES’ POLICY - RIC’S INITIAL PROPOSALS

The RIC’s recommended policy package has six distinct parts:

- Conditions of supply and T&TEC’s obligations;
- Customer’s obligations;
- Customer education;
- Periodic inspection of installations and standards;
- Scope of liability; and
- Evaluation of claims.

(A) Conditions of Supply and T&TEC’s Obligations

In order to meet the needs of customers’ electrical equipment, T&TEC should be able to supply electricity at a constant voltage and to a standard technical

specification. Voltage fluctuations can be caused by events such as large customer loads on the network, sudden switching on or off of heavy loads by customers, wiring faults, and lightening strikes. On the other hand, the quality of supply problems could arise where supply is not in a smooth continuous waveform, which can occur when too much of a certain type of load is connected to a particular circuit. The main parameters of voltage quality are frequency, voltage magnitude and its variation, voltage dips, transient over voltage and harmonic distortions.

Consequently, the following conditions of supply² should apply:

- **Voltage Magnitude**

T&TEC must maintain a nominal voltage level at the point of supply to the customer's electrical installation in accordance with the contractual character of service, subject to the allowable variation of $\pm 6\%$ for 100% of the year, measured as mean 10 minutes RMS³ values.

- **Three-Phase Voltage Unbalance**

Where applicable, T&TEC must maintain a balanced three-phase voltage at the point of supply to the customer's electrical installation up to 2% for 95% of the year, measured as mean 10 minutes RMS values.

- **Harmonic Voltage**

T&TEC must ensure that the harmonic levels in the voltage at the point of common coupling nearest to a customer's point of supply comply with the following levels⁴: $U_3 \leq 5\%$, $U_5 \leq 6\%$, $U_7 \leq 5\%$, $U_{11} \leq 3.5\%$, $U_{13} \leq 3\%$, and $THD^5 \leq 8\%$ for 95% of the year, measured as mean 10 minutes RMS values.

² These conditions of supply are mainly derived from European Standard EN 50160, Voltage characteristics of electricity supplied by public distribution systems, 2000.

³ RMS: root mean square.

⁴ U_n : nth harmonic component of the nominal voltage U.

⁵ THD: Total Harmonic Distortion.

T&TEC's Obligations

- (i) T&TEC shall ensure that its system is designed, constructed and maintained in accordance with requirements, internationally-accepted standards and prudent utility practice, thus ensuring that all reasonable safeguards and protective devices are installed and maintained to minimize fluctuations of voltage;
- (ii) T&TEC must accept responsibility and compensate any person whose property/appliance is damaged due to voltage variations outside the limits prescribed above;
- (iii) T&TEC must monitor and record steady state voltage and voltage variations at each zone substation in its distribution system which is outside the limitations specified above;
- (iv) Employ, if necessary, transmission line arrestors and transformer protectors to prevent against transformer explosions;
- (v) T&TEC must monitor quality of supply in accordance with the principles applicable to good **asset management** and must use best endeavours to:
 - assess and record the nature, location, condition and performance of its system assets;
 - develop and implement plans for the acquisition, creation, maintenance, operation, repair and refurbishment of its system assets;
 - and
- (vi) As different types of quality of supply problems can affect electrical equipment differently, T&TEC must institute measures to record its performance. Until such time as network system reporting methods capture actual voltage quality breaches more accurately, T&TEC will be required to record complaints. These are likely to provide a rough proxy

for the number of voltage breaches. The complaints are to be reported quarterly for the following categories:

- Low supply voltage
- Voltage dips (minor or nuisance)
- Voltage dips (severe)
- Voltage swell and/or spike
- Waveform distortion or unbalance
- Noises from appliances or lights
- All other.

(B) Customer Education

Customers have the right to be routinely informed (at least once per year) and be reminded by T&TEC of their rights and responsibilities related to the supply and safe use of electricity. Some specific areas that consumers should be educated on include:

- the need for protective devices to be installed on sensitive appliances;
- the need for consumers to have their electrical installations inspected and recertified after the expiration of the initial five year period;
- unsafe electrical practices that may lead to appliance damage e.g. the overloading of electrical circuits;
- the need for consumers to read the owner's manual for appliances;
- damaged-appliance compensation policy and claims' policy and procedures; and
- the need for customers to review their insurance coverage to ensure that they are adequately covered for property damage or other losses caused by electrical disturbances or interruptions.

(C) Customer's Responsibilities

A customer must use best efforts to:

- (1) ensure that customer's internal installation conforms to standards defined by the Chief Electrical Inspector and the Supply Contract;

- (2) ensure that the reliability and quality of supply of the distribution system are not adversely affected by the customer's actions or equipment;
- (3) prevent electricity supplied from bypassing the meter;
- (4) prevent electricity supplied under a domestic tariff from being used for non-domestic purposes;
- (5) inform T&TEC as soon as practicable if there is any:
 - proposed change to wiring or plant or equipment in the customer's electrical installation which may affect the quality of supply of electricity to any other person;
 - major change to the amount of electricity likely to be used by the customer;
- (6) ensure that periodic reviews and inspections of installations are carried out and any necessary corrective action taken;
- (7) consider installing appropriate surge protection devices to protect sensitive electrical equipment (such as personal computers) from damage caused by electrical disturbances and interruptions; and
- (8) ensure proper grounding of an electrical installation.

(D) Periodic Inspection of Installations and Standards

As recommended by the DAWG, the buildings should be inspected every five years but there should be mandatory recertification every ten years by the Government Electrical Inspectorate and that the Trinidad and Tobago Bureau of Standards should make compulsory all relevant standards that relate to house and building wiring quality.

(E) Scope of Liability

What is perhaps the most important issue is the extent of liability of T&TEC under its Act, i.e. Chapter 54:70 Section 49(3). Here the most controversial provision of the section is the clause dealing with "Fair wear and tear". As recommended by the DAWG, legal advice should be sought by the RIC on this

clause to clearly define its boundaries and applicability in the interest of both T&TEC and customers.

(F) Evaluation of Claims and Payment of Compensation

The following steps are proposed for making a claim and for the payment of compensation by T&TEC:

- **Claims**

Customers may contact T&TEC with a claim or complaint that damage to the customer's installation and/or appliance is or may be due to electrical disturbance.

- **Information and Claim Form**

By the end of the **second working day** after such contact is made by customer, T&TEC must investigate and send/make available to the customer a claim form which requests the customer to provide T&TEC with details of:

- the supply address affected by the electrical incident;
- the time and date of the electrical incident;
- the property/appliance damaged;
- the amount of compensation claimed, the amount claimed should be on the basis that customer is no worse off, being either:
 - the cost of replacing of substantially the same age, functionality and appearance; or
 - the cost of repairing to substantially the same functionality and appearance.

- **Verification of Claim**

If T&TEC is unable to confirm the incident then, either together with or subsequent to sending the claim form, T&TEC may request that the customer provide a statement by a **qualified person** that the damage is consistent with a voltage variation.

- **Investigation and Determination of Liability**
T&TEC must investigate and determine liability, if any, **within one month** of receipt of a claim.
- **Payment of Compensation**
If T&TEC agrees with the claim, T&TEC must pay the customer the amount claimed **within 15 days** of the acceptance of claim.
- **Dispute Resolution**
In the event that the customer happens to be dissatisfied with the decision of T&TEC, the matter would be referred to the RIC in the first instance.

Other steps that can be taken to arrive at a resolution include, mediation followed by arbitration and finally recourse to the courts.

5. NEXT STEPS

The RIC encourages all interested stakeholders to respond in writing, to the issues raised or any other aspect of the document. Following the receipt of the submissions, the RIC will consider all comments/proposals before finalization of the policy. The RIC will also consider, if necessary, conducting a public workshop on the policy before the finalization of the policy

The due date for submission of comments is **March 14, 2008**. The RIC anticipates to finalize the damaged-appliances' policy by **April 2008**.

ABRIDGED TERMS OF REFERENCE

Scope of Work/Output

The main objective of the Working Group is to develop a damaged-appliances' policy for the RIC's consideration. In undertaking the review, consideration should be given to the following specific matters:

- the standards which govern the operations of T&TEC's supply.
- public knowledge of the standards for which T&TEC is to be held responsible.
- the responsibility of customers, especially as the supply of electricity is inherently fraught with uncertainties and dangers.
- the conditions which make for identification of "wear and tear" under Section 49 of the T&TEC Act and which of these conditions should be classified as being "fair".
- the role of the Electrical Inspectorate.
- who should be privy to the investigation reports. Should the information be made available to the claimant, his counsel or other representative?
- the timeframe within which T&TEC should investigate and report.
- other avenues open to customers. Should T&TEC's response be considered unsatisfactory, will the RIC, with the assistance of the Electrical Inspectorate, investigate the matter and make a determination, such determination if in the customer's favour, to be limited to restoring him to a condition similar to that which obtained prior to the damage having occurred?

The approach to developing damaged-appliances' policy proposals is to:

- review the current arrangements and consider the extent to which these arrangements are appropriate;
- examine damaged-appliances' policy arrangements in other utility sectors and in other jurisdictions for relevance and applicability to T&TEC; and
- seek input from customers and customer representative organizations and other key bodies.

The development of damaged-appliances' policy proposals to apply to electricity transmission and distribution sector owe to:

- reflect customer's key concerns;
- account for and seek consistency with damaged appliance policy arrangements which apply in other utilities and other jurisdictions;
- ensure that the cost of implementing such arrangements do not outweigh any potential benefit to customers; and
- be transparent.

COMPOSITION OF THE WORKING GROUP

NAME OF ORGANISATION	REPRESENTATIVE
Trinidad and Tobago Manufacturers' Association	Barry Story
Trinidad and Tobago Bureau of Standards	Ryan Biran
Trinidad and Tobago Chamber of Industry and Commerce	Jonathan Walker
Trinidad and Tobago Chamber of Industry and Commerce	Anthony Baylis
Government Electrical Inspectorate	Gabriel Solomon
Ministry of Legal Affairs, Consumer Affairs Division	Rhonda Cummins
Ministry of Legal Affairs, Consumer Affairs Division	Bernadine Rawlins
Network of Non-Governmental Organisation	Jacquie Burgess
Trinidad and Tobago Electricity Commission	Ronald De Silva
Regulated Industries Commission (RIC)	Garvin Alexander
Regulated Industries Commission (RIC)	Mohan Chadee
Regulated Industries Commission (RIC)	Camille Rolingson
Regulated Industries Commission (RIC)	Karleen Mangru
Regulated Industries Commission (RIC)	Gerard Emmanuel-Rodriguez

PRACTICE IN OTHER JURISDICTIONS

A Case of Practice in Canada

In Alberta (Canada), the Energy and Utilities Board holds that “Utilities are responsible for damages if the damages are caused by negligence on the part of the utility or any employee of the utility acting on behalf of the utility.”

However, claims for damages are handled through the courts of the Province and each case is determined on its own merits. Also, in Alberta the service provider may recommend that customers review their insurance coverage to insure that they are adequately covered for property damage or other losses caused by electrical disturbances or interruptions. Also recommended is that customers consider installing surge protection devices to protect sensitive electrical equipment (such as personal computers) from damage caused by electrical disturbances and interruptions.

The Electric Service Regulations of the Public Utilities Board of Alberta imposes on the service provider a responsibility to make all reasonable efforts to maintain a continuous supply of energy to its customers, however, it is recognized that there could be no guarantee of an uninterrupted supply of energy.

It should be noted that “the company (the service provider) shall not be liable for any loss, damage, expense, charge, cost or liability of any kind (excepting only direct physical loss, injury or damage to a customer or a customer’s property, **resulting from the negligent acts or omissions of the company, its employees or agents**) arising out of or any way connected with any failure, defect,

fluctuation, reduction or interruption in the provision of service by the company to its customer.”

The Board imposes on the customer responsibility for the installation and condition of all facilities on the customer’s side of the point of delivery, except metering or other equipment owned by the service provider. The customer is also responsible for determining whether he needs any devices to protect his equipment from damage that may result from the provision of service and to install any such devices.

The Situation in the United Kingdom

In the United Kingdom, the Office of Electricity Regulation (OFFER) reports that there is an overall standard governing voltage fluctuations. However, the Standards of Performance do not provide the kind of compensation being contemplated:

“The standard Public Electricity Supply (PES) licence in Great Britain requires, inter alia, that the licensee maintains a Distribution Code, which governs the conditions under which a Distribution System shall be designed, installed, operated and maintained, and stipulates the conditions under which connections to that system shall be maintained. The Distribution Code requires the PESs to operate their system in accordance with a number of standards issued by the Electricity Association. Included in this are Engineering Recommendation P28 “Planning limits for voltage fluctuation caused by Industrial, Commercial and Domestic equipment in the United Kingdom,” and Engineering Recommendation P29 “Planning Limits for Voltage Unbalance in the United Kingdom.”

Practices in the USA

First, it is helpful to describe what may be termed the general position in the United States of America.

The reputable Public Utilities Report Digest, 3rd Series, dealing with cases for the period 1953-1982, under the caption “Liability for damage” to electrical appliances, the PUR reports that, in one instance, “the court held that electrical current delivered to the consumer was **not in the form required for normal usage** and was dangerous to appliances, and where there was agreement by both parties that the single phase current delivered in this instance was responsible for the destruction of the plaintiff’s air conditioner motors, the necessary elements for the imposition of strict liability had been established.”

On the other hand, the PUR Digest reports that “a public utility which knows that the wiring in a customer’s house is dangerous and continues to supply electricity to such house is liable for the consequences”, nevertheless “a power company is not required to inspect a customer’s electric wires which it does not own or control to see if they are in safe condition and cannot be held liable for damage sustained as a result of defective wiring.”

The Wisconsin Public Service Commission stipulates the conditions of supply of the distribution system including voltage variations. The statutes provide that “interruptions, or voltage sags, swells and transients in excess of those specified in the statute caused by the action of the elements, temporary separation of parts of the system from the main system, infrequent or unavoidable fluctuations of short duration, equipment failure, normal operation of the system, necessary operations to safeguard employees of the general public or causes beyond the control of the utility shall **not** be considered a violation of these rules.”

The statutes note that “voltage fluctuations, transients, sags and swells may affect the performance of certain types of equipment or operations and should be

considered by the customer. It therefore advises that customers having equipment or operations that are sensitive to such voltage fluctuations, or that require service **other than** specified by the rules, may find it necessary to install, at their own expense, power conditioning equipment **or other modifications** to protect, mitigate or otherwise provide the type of service needed.

The rules also advise that utilities may establish criteria for sizing and operating customer loads in order to limit the impact of voltage variations.

The following are the procedures which are adopted in the State of Wisconsin in respect of a deficiency in the power system:-

- 1) “Upon notification, inquiry or complaint from a customer about a known or suspected power quality problem, the utility shall make an investigation and survey of its system and the customer’s system to determine the magnitude, significance and cause of the problem and locate its source.
- 2) Where the problem is significant and the source or cause is determined to be the distribution utility’s system, the distribution utility shall be responsible to correct the problem or mitigate its contribution to the problem so as to comply with applicable commission rules or other accepted industry standards or practice **for reasonably adequate utility service**. If the source or cause of the problem is upstream of the distribution system, the distribution utility shall notify and work with the generation and/or transmission system owner/ operator to identify, correct or mitigate the problem. In general, the entity whose system is determined to be the cause or source of the problem shall be responsible for its correction of acceptable mitigation.
- 3) Where the source or cause is determined to be the electrical system or equipment owned by a specific customer, the customer shall be responsible to correct the problem or mitigate its contribution to the

problem so as to comply with applicable rules of the commission and the utility or accepted industry standards of practice.

- 4) The utility and the affected and/or offending customer should cooperate as necessary to promptly investigate, diagnose and resolve power quality complaints and problems. The utility shall share the results of its investigation with the affected and/or offending customer and provide advice and assistance on potential cost-effective mitigation options.