

**VERBATIM NOTES OF THE 22<sup>nd</sup> MEETING OF THE JOINT SELECT COMMITTEE APPOINTED TO INQUIRE INTO AND REPORT ON LOCAL AUTHORITIES, SERVICE COMMISSIONS AND STATUTORY AUTHORITIES (INCLUDING THE THA), HELD IN THE J. HAMILTON MAURICE MEETING ROOM, MEZZANINE FLOOR, TOWER D, INTERNATIONAL WATERFRONT CENTRE, #1A WRIGHTSON ROAD, PORT OF SPAIN, ON WEDNESDAY, MARCH 28, 2018**

**OFFICIALS - MINISTRY OF PUBLIC UTILITIES**

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Miss Anika Sarah Farmer	Director, Legal Services, Ministry of Public Utilities
Ms. Gale Dulal	Electrification Sector Specialist, Ministry of Public Utilities

**REGULATED INDUSTRIES COMMISSION**

Dr. Hyacinth Guy	Chairman, RIC
Dr. James Lee Young	Executive Director, RIC
Ms. Carol Balkaran	Deputy Executive Director, RIC
Ms. Nadia J.A. John	Legal/Corporate Secretary, RIC

**TRINIDAD AND TOBAGO ELECTRICITY COMMISSION (T&TEC)**

Mr. Keith Sirju	Chairman, T&TEC
Mr. Kelvin Ramsook	General Manager, T&TEC

**UNREVISED**

Mr. Courtenay Mark	Asst. General Manager- Engineering, T&TEC
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Mr. Gerard E. Rodriguez	Head, Corporate Support, T&TEC Corporate Communications
Ms. Annabelle Bransnell	Manager, T&TEC

**Mr. Chairman:** Good morning ladies and gentlemen. I would like to welcome the viewing and listening audience to the 22<sup>nd</sup> meeting of the Joint Select Committee on Local Authorities, Service Commissions and Statutory Authorities, including the Tobago House of Assembly (THA). This morning the Committee will be meeting officials from the Regulated Industries Commission (RIC), the Trinidad and Tobago Electricity Commission (T&TEC), and the Ministry of Public Utilities in the first instance, after which the Water and Sewerage Authority (WASA) would be questioned thereafter.

Members of the listening and viewing audience are invited to post or send their comments, via the Parliament's various social media platforms: Facebook, YouTube and Twitter. My name is H. R Ian Roach. I am the Chairman of this Committee. I would invite members, starting on my right, to introduce themselves.

*[Introductions made]*

**Mr. Chairman:** Thank you very much. The objectives of this enquiry, just to remind those who are listening, are to assess the efficiency of the operations of the Regulated Industries Commission at this time; to assess the effectiveness of RIC in promoting greater efficiencies of services in public utilities; and three, to determine the adequacy of the current legislative framework governing the operations of RIC.

I will now invite members to introduce themselves, starting with the RIC, Dr. Guy.

*[Introductions made]*

**Mr. Chairman:** Thank you very much. The Deputy PS of the Ministry of Public Utilities and your team.

*[Introductions made]*

**Mr. Chairman:** T&TEC.

*[Introductions made]*

**Mr. Chairman:** Thank you very much. I invite the Deputy Permanent Secretary to make a brief statement. I am reminding myself but let me remind you all. When you are going to speak just please put on your microphone and take it off when you are finished, thanks.

**Ms. Khan:** Good morning Mr. Chairman and members of the Committee. Thank you for the opportunity to give brief opening remarks. Almost two months ago, in February, we appeared before you to respond to your questions and concerns about the efficiency and effectiveness of the RIC in carrying out its statutory mandate as the economic regulator for the electricity, water and wastewater sectors. It is once again our pleasure to be here for the second part of the enquiry to share the perspectives of WASA and T&TEC, relative to the efficiency and effectiveness of the RIC.

Over the past six months in particular, the Ministry of Public Utilities has been engaged in an extensive exercise of critical thinking, strategic analysis and planning and operational reengineering in a drive to create more efficient, more effective, financially viable and sustainable pathways for our public utilities, particularly T&TEC and WASA.

We have taken our queue from the aspirations of Vision 2030, and the UN SDGs, the current realities of our economic circumstances and the expectations of the population to have, at the very least, its basic need for water and electricity

met.

Eleven strategic priorities now define the Ministry's agenda for the next three years, three of which are particularly relevant to the consideration of this meeting. And these three strategic priorities are: improving customer outreach and service; strengthening governance; and streamlining the operations of our utilities to increase efficiency, productivity and financial viability. In advancing these priorities, we value the synergies formed with the RIC, which is an important part of our country's institutional set up to promote accountability and standards of performance that serve the interest of the wider population. In forging these synergies, we are very mindful that the importance and value of the RIC resides in the fact that it is essentially the independent economic regulator for key infrastructure sectors.

As prescribed in its governing legislation, the RIC Act, the RIC primary responsibilities include regulating prices and rates and establishing standards and conditions of service for service providers operating within these sectors. Public Utilities such as those identified under the RIC Act, are basically identified as natural monopolies, and in the absence of economic regulation can charge exorbitant rates and provide poor service to the detriment of their customers. Hence, at the very core, economic regulation is meant to curb market power and protect customers, both in terms of prices and quality of service, thus, ensuring that the cost of inefficiency is not passed on to customers in the form of higher prices.

The fact that the RIC is an independent regulator does not negate the administrative oversight responsibility of the Ministry of Public Utilities, especially at it pertains to the RIC meeting its statutory obligations. The MPU's oversight role ensures adherence to the reporting and monitoring framework and

compliance, in terms of the submission of annual budgets, audited financial statements and administrative reports.

For fiscal 2018, the Commission has identified five strategic priorities, all of which progressively aim to change the status quo of the utilities, improve the delivery of services to citizens and businesses alike, and transform the service providers. The RIC, therefore, is at the forefront of the development agenda in facilitating essential utility services, which is at the core of economic and social activity.

The Ministry acknowledges that the rate review is a priority for the utilities sector and a very sensitive issue for citizens and businesses alike. The RIC recently completed the process of reviewing the quality of service standards for both T&TEC and WASA. These standards provide for a guaranteed level of service and the imposition of penalties on service providers for non-compliance.

In terms of the rate review, the position of the Ministry at this stage is to allow the RIC to conduct its clearly defined process in a transparent manner, and any discussion on what would be the outcome and how the Ministry and/or the Government will respond, detracts from the integrity of the process and the independence of the RIC in carrying out its statutory mandate.

Mr. Chairman, I wish to end by saying that business as usual can no longer be the working scenario for the utilities sector. Beyond working individually with the agencies under our remit to refine their strategic focus, improve their operations and build strong customer care and service delivery systems, the Ministry will continue to collaborate with the RIC to strengthen its institutional capacity, to fulfil its statutory mandate, attain operational excellence and enhance its efficiency and effectiveness as the independent economic regulator. Mr. Chairman, I thank you.

**Mr. Chairman:** Ms. Khan, thank you very much. But that was a very comprehensive brief statement. I mean, when you were finished there I was almost asking myself: Is there anything to ask you or the utilities? I mean, it is very comprehensive. So I would like the others to follow. Please just keep it kind of brief because there is a lot of information that came out there, you know, which we would also like to get in a different kind of way, but thank you very much Ms. Khan, and I would invite Dr. Guy to give us a brief statement. I know you have been here before. So I know you would do it succinctly. Thanks.

**Dr. Guy:** Good morning again, Chairman and members of the Committee. Yes, we have been here before and we did answer the questions. We gave a statement on the operations of the RIC. The RIC, in keeping with its mandate, has continued the rate review process for both T&TEC and WASA.

That process started in 2017, and for the most part we are on target with the schedule that we had set. This process, we would have indicated, involves— it is a very detailed process. We first indicate to the service providers the framework, the methodology, the approach that we would be using and we seek consultation with them. And that would have been done.

The providers would have submitted the requirements that we need, in order to begin the rate review process and that starts with a draft business plan. And we have gotten business plans from the providers and we are in the process of putting together the information in a model, so that we can get a draft price determination. And we are at that stage now where we are assessing the information in order to get that draft price determination.

When we do get that, the next step will be to publish it and to have consultation on the draft price determination. We expect that that is going to be within the next two months. We still continue to get information from the

providers. They continue to fine-tune the business plan, and as we get that information we put it into the model.

When we do consultation, then we will take into consideration the comments received and it is only at that stage that a final price is published, and that is a little way off. Perhaps, the last quarter of this year. But just to state that we are on target with the schedule that we have put in place, and we continue to work with the service providers to get the information and to make this process as transparent as we possibly can. Thank you very much.

**Mr. Chairman:** Thank you very much, Dr. Guy. I would like to invite Mr. Keith Sirju, Chairman of the Trinidad and Tobago Electricity Commission, to make a brief statement.

**Mr. Sirju:** Good morning Chairman and members. I have with me this morning, a team from T&TEC selected on the basis of the areas of questions raised in your correspondence of March 18<sup>th</sup>. They have all introduced themselves before.

Just for clarity, and record, the last full examination of T&TEC's operations by the RIC was for the period 2006 to 2011. Since then, our interaction has in the main been related to customer complaints, some of which are made to the RIC before due consultation with T&TEC and others, when the customers' expectations differ with the findings of T&TEC. Our dealings with the RIC have always been professional and in general, T&TEC has complied with the determinations of the RIC.

Responses to the specific queries raised in your letter were provided by the stipulated deadline and we are here as requested to further elaborate as may be necessary. Thank you.

**10.30 a.m.**

**Mr. Chairman:** Thank you very much. Thank you very much for your

comments. As you know, the proceedings that will apply here is that you will be asked questions by other members of this Committee through the Chair. Okay, thank you very much.

So, let us start off from where you ended. How would you in a nutshell just describe the relationship between T&TEC and the Regulated Industries Commission, in your own view? How would you describe that?

**Mr. Sirju:** The relationship relates to largely the determination of the tariffs or the rates that we sell electricity. And usually what would happen is that T&TEC prepares its business plan to determine what the cost of the service is, and it would be submitted to the RIC for its examination, and that would be scrutinized by the RIC, and queries would be raised and T&TEC would respond accordingly. So, in the main that is a key component of the relationship.

The other one is that in the practice of what has been agreed to at any given time, that T&TEC is complying with what was agreed to. That is to say, sometimes customers have a different interpretation of what T&TEC's understanding of the rulings might be and there are—I would not call it disputes but there are queries and these queries are then resolved with the RIC.

**Mr. Chairman:** So where there is non-agreement in an issue that arises, how is that resolved finally? Who has the final say on an issue?

**Mr. Sirju:** Typically, it would be negotiated, there are rules. I think there are very, very few gray areas. It is normally documented what T&TEC can charge for, and what it cannot charge for and the rules that follow.

If something is in dispute then the RIC will call T&TEC in, and T&TEC will make its presentations as to what its interpretation about that particular issue is and the RIC will determine whether that is a reasonable interpretation or not.

**Mr. Chairman:** So, the RIC will have the final say? Is that right Dr. Guy?



**Dr. Guy:** The RIC would investigate also and give its views and opinions and, you know, you might say “a ruling” on the issue, and it will let T&TEC know that, but T&TEC is not obligated to follow those guidelines.

**Mr. Chairman:** So, in that instance the RIC is without teeth?

**Dr. Guy:** In that instance, yes. And that has been addressed in other areas, in terms of the review of the legislation and so on.

**Mr. Chairman:** To be implemented there.

**Dr. Francis:** Through you, Chair. Not so much a question, but a comment, because we understand the relationship also has to do with standards. I would like to put it on the public record that I would like to commend T&TEC generally for its performance, but particularly last year post Bret. In my constituency, crews worked tirelessly day and night to bring current back in a very short time. Whereas a generation ago that would have taken a week and for that T&TEC should be commended, and I seldom ever get to say anything like that.

**Ms. Ameen:** Thank you, Mr. Chairman. This question is for T&TEC. In your submissions to the Committee, you indicated that you had made a lot of new technological advancements, such as e-tendering, and RFID, prepaid metering, and remote disconnection of meters to be utilized. I want to ask you, what is the cost of implementing these practices and how far advanced are you, in terms of—well, you can give for each one if it is possible?

**Mr. Sirju:** Thank you, member. Chair, may I seek the assistance of the General Manager to answer that question?

**Mr. Chairman:** Sure.

**Mr. Ramsook:** Right, so what we have is, we have started to look at, first of all, the RFID in terms of the ability to be able to get more, you know, in terms of our stock checks and so on, to clearly identify our plants and to clearly make sure that

we keep a record of all our items without having to spend as much manpower resources.

So you have—remember we have a lot of stock items and depending on how you store your items, for example, your poles and so on. Depending on how you store your items, sometimes it is not as easy to check your stocks.

So we are deploying the RFIDs, that is in progress. We have looked at an EOI and that will allow us to keep a correct record of our stocks clearly to make sure that as best as possible we can identify on a daily basis, on a monthly basis when we do stock checks, in terms of our quantum.

Right, it will help us in efficiency there because it means that when we are making our checks we will know what items we have quickly, because sometimes in storing items it is not as easy especially poles. We will also be able to identify our streetlights, where all our streetlights are to keep a record of it and so on; very important, very important.

**Ms. Ameen:** What percentage would you say, you are along, in terms of implementing that?

**Mr. Ramsook:** We are, I would say we are about 30 per cent. So we have started the process, we are looking at the expression of interest and so on and we are heading in that decision basically. And it is all to improve efficiency in terms of making sure that we clearly identify all and keep our records of all our plants, all our stock items in a more efficient way. So it is moving away from the manual process basically.

**Ms. Ameen:** And in terms of the prepaid metering and remote disconnection?

**Mr. Ramsook:** So in the remote disconnection—let us start there. So we are fairly advanced in that we have deployed some new meters called nighthawk meters. What we have done, we have started the process because, you know, to go

and disconnect it means sending out a crew to go and disconnect customers and so on. So basically, we have started to identify, probably in locations, key customers that we tend to have issues at time with. We started that process where we have deployed the remote disconnect meters at those locations. What it allows us to do, staying from the office and remotely disconnect it. It allows us that ability to disconnect remotely.

So it also has been deployed and we have started the process on our recreation grounds. So we are looking at, you know, if nobody is on the ground, we can disconnect the supply remotely instead of having to deploy crews to that particular site to do any kind of disconnection. So, I would say in there, we are roughly about 20 per cent in there, in terms of—all of our meters are remote-read meters and you would say about 10 per cent of our meters at this point in time are remote disconnect via the office.

**Ms. Ameen:** And for the information of the public, in terms of prepaid metering, has this been introduced to your customers as yet and how does it work?

**Mr. Ramsook:** Right, we have started to talk about prepaid, we have not introduced prepaid to our customers as yet. But what it would mean is that we are looking at the various possibilities of the prepaid, where you could, you know, similar to other prepaid items—you can use your credit card, you can swipe your card, you know, you can identify how much; you know, in terms of your bills, you say look I want a \$100, right. When it is coming closer to the time you swipe your card again and you renew that; that process basically.

So it allows customers to keep a better check of how they utilize the electricity basically, but we have started the process, it has not been deployed but we are looking at that at this point in time.

**Mr. Forde:** Morning, again. I would like to also extend commendation also to the

Trinidad and Tobago Electricity Commission as the Member of Parliament for Tunapuna, for the yeoman service that you all have been providing in my constituency of Tunapuna, in terms of all the necessary services that are provided. So, Mr. Chairman, and also especially to Mr. Kelvin Ramsook, I would like to ensure that you pass back that information on to your staff.

I would also like to make mention, Mr. Chairman, also for the commendation of Chairman Hyacinth Guy and the RIC, because we did discuss it at our last meeting when we had you all, that we were pleased with, in terms of the information, you know your communication and the processes and so on.

But my question is to T&TEC. You listed in the document provided for us on page 1: What is the potential impact of rate increase on T&TEC's revenue expansion strategy, operational deficiency and requirement to enhance customer service? You identified ten items basically. But what I would like to find out, in terms of the improvements that a rate increase will provide, could it be prioritized? Because you will not be able to do all ten immediately. Have you a priority list in like how it will be implemented once we look at what improvement that you will be providing for the country of Trinidad and Tobago?

**Mr. Sirju:** Yes, there is a comprehensive business plan drawn up indicating what T&TEC's plans are for the next five years, for the period 2018 to 2023. General Manager, would you like to give some of the highlights of the—

**Mr. Ramsook:** Right, morning again. So, first of all I mean, I want to say straight, in terms of what a rate review will do for us. At this point in time T&TEC has not been paying the National Gas Company and that bill on a yearly basis is \$900 million—

**Dr. Guy:** Yearly?

**Mr. Ramsook:** Yeah, on a yearly basis. It is \$900 million, so we start off in that

process. In addition to that, we have been doing capital works and we have been using—remember, in terms of any income you get, it is both for your recurrent and your capital jobs.

But we have curtailed—without affecting reliability as best as possible as you have said—some of our capital works that we would like to see ourselves doing. Key in there are some of the underground installations that we want to go a little further in for improvement of reliability. Then we have the whole issue of our disaster preparedness, more spares for disaster preparedness and to be a little more prepared and so on.

Recently, you would have seen us purchase—well, the Ministry through the PSIP, we were able to get funding for that for the mobile substations that we have now. So that in itself will be of equal importance to us and, of course, in terms of our—what we have is a lot of aged infrastructure, as I said we have continued to maintain the system and we have continued to do the work on the plan. But, of course as time goes by you have what you call the aged infrastructure; our tower structures, our poles, our columns, our conductors and so on. And you need to have injection of capital for replacement of those spares so those will be priority items, once we move forward with an increase, in terms of any increases should the regulator grant that final say.

**Mr. Forde:** Could I just have one follow-up question?

**Mr. Chairman:** Yes. Mr. Ramsook just to clarify a question that was asked here. You said you all owe \$900 million?

**Mr. Ramsook:** That is correct, Sir.

**Mr. Chairman:** To NGC?

**Mr. Ramsook:** No, we do not owe them, sorry, \$900 million is the yearly cost to NGC, so we are not paying that bill. So really, if you were to add where we are

behind, in terms of our operations we are roughly \$1.5 billion behind on a yearly basis.

**Mr. Chairman:** In meeting your financial commitments—

**Mr. Ramsook:** In meeting our financial commitments. That is correct, Sir.

**Mr. Chairman:** Mr. Forde, hold a second. So is it that T&TEC provides a service—is T&TEC supposed to be a company that is efficiently run, that makes a profit or is it just to provide service as a public utility entity?

**Mr. Ramsook:** Right. So, the Act allows us to operate—first of all, we have to operate efficiently and make enough money to do our capital jobs. It is really not intended to be profitable but to be able to operate the business, the recurrent expenditure and, of course, to get enough revenue to do your capital expansions.

**Mr. Chairman:** And that is not happening?

**Mr. Ramsook:** Sir, at this point in time, no. It is not happening in full.

**Mr. Chairman:** Has it ever happened?

**Mr. Ramsook:** Yes, when we had our last review between the year 2006 to 2011, we did recover and we were making all our commitments. In fact, we met all our commitments including the National Gas Company, and the records will show that beyond 2011 we stated to run into problems and as the years go by, as we approach today's date it got more and more difficult to meet our commitments.

**Mr. Chairman:** Mr. Forde, you want to finish, just now?

**Mr. Forde:** Actually, it was the same trend of thought that I want to find out. But, the NGC payment entails what?

**Mr. Ramsook:** The NGC payment is the cost for gas. Remember that is one of the components for gas. We purchase the gas, right. That is how the utility operates, we are responsible for purchasing the gas that is deployed to the generating plants, to the IPVs.

**Mr. Forde:** So, the generating plant runs on natural gas?

**Mr. Sirju:** Yes, there are three power producers in the country: Trinity Power, PowerGen and Trinidad Generation Unlimited. There are power purchase agreements between those power producers and T&TEC. In those agreements T&TEC delivers the gas or pays for the gas that go to each of our power producing facility. So NGC sends the gas to the power plants and T&TEC is responsible for paying NGC.

**Mr. Forde:** So as a result of that, is there any part of law that can desist T&TEC from providing that service on to customers via natural gas?

**Mr. Sirju:** Sorry.

**Mr. Forde:** Which will be cheaper?

**Mr. Chairman:** I do not understand that.

**Mr. Sirju:** Can you repeat, I am sorry.

**Mr. Forde:** You are saying that the NGC supplies the gas to the three power plants.

**Mr. Sirju:** Yes.

**Mr. Forde:** But that is in order to run the plant. Now, in order for the service that you provide of electricity, can you enter into any arrangement in order to retail that gas to customers to provide electricity?

**Mr. Sirju:** No. The apparatus that transforms the gas into electricity is housed in the power station. So the power producer is the man that buys a whole host of equipment and the gas goes in there and is converted into electricity. From there, T&TEC takes the electricity and brings it to the households. So T&TEC sells the final product, but the ingredient that goes into making the product comes from NGC.

**Mr. Forde:** Right. No, sorry Mr. Chairman. But, what I am saying is this.

Remember natural gas can be used as a form of electricity also, like for instance they can use it to generate air-conditioning and also to supply electricity supply. So what I am asking you is if T&TEC as an entity can utilize the natural gas that comes to the three plants in order to use it for retail purposes to customers for electrical purchases.

**Mr. Chairman:** Mr. Forde, I feel I can answer that for you, you know. I do not think they could do that because it is not what they are geared towards—

**Mr. Forde:** Remember natural gas is the cheapest form of supply in terms of cost.

**Mr. Chairman:** Yeah.

**Mr. Forde:** But no problem.

**Mr. Sirju:** There is a mechanism that transforms the heat into electricity.

**Mr. Chairman:** Let me ask you something, just to clarify something here. Could you tell us what is the unit cost of producing electricity? You can answer that question? Or is that to be answered by the—

**Mr. Mark:** I am the AGM, Engineering. The unit cost, the production cost is just over TT 25 cents.

**Mr. Chairman:** TT 25 cents?

**Mr. Mark:** Yes, and that cost, Chairman, only includes the cost of fuel which is approximately half of that, which is the natural gas cost and the other half is the conversion cost, which is the production process itself. That conversion of the natural gas to energy is called the energy conversion cost so that 25 cents, I would imagine has to be juxtapose against what we sell electricity at.

**Mr. Chairman:** This is the next question. So what do you sell it at?

**Mr. Mark:** Well, on an average of about just over 36 cents. So that margin between 36 cents and say 25 cents, you now have to deal with all your administrative expenses; these are salaries, wages, materials, insurances. That is



why all that debt—that shortfall that the General Manager explained is almost consolidated in one place, which is NGC.

**Mr. Chairman:** Which is just what you just said, I think the public will be very much enlightened by what you just said. So it costs 25 cents to produce a unit of electricity and you sell it for 36 cents, yeah?

**Mr. Mark:** Yes.

**Mr. Chairman:** But between 25 and 36 the difference, the arithmetic between that, the lost comes about because of the administrative costs that add up onto that.

**Mr. Mark:** All of those other costs. Yes, I have wrapped up the whole business into that sentence.

**Mr. Chairman:** Now Dr. Guy, when you all are calculating—fixing your rates, certainly that comes into mind? Does it?

**Dr. Guy:** Yes, that information would be detailed in the business plan and we take that into consideration when we are building our models.

**Mr. Chairman:** So at this point in time, the difference between the 25 and the 36 and the unaccounted additional expenses that create the lost, so to speak, how do you all cater for that? Is that being catered for right now in the present costs or that is something that has developed since the last rate was fixed?

**Dr. Guy:** Okay, so there would be, you know, models which would take that into consideration and I will ask the ED to get into some more details on that.

**Mr. Chairman:** Yes, please do.

**Mr. Lee Young:** Yes, Chair. We look at prudent and efficient operations, so we look at all of the costs that are involved or incurred by T&TEC in generating electricity and transmission and distribution. Those then go into the model and as the Chair mentioned, out of that comes a revenue requirement. That revenue requirement is what T&TEC needs on an annual basis to support its operations;

the current expenditure, its capital expenditure, et cetera.

The fact that several years have passed since the last rate review which basically is 2006 to 2011, since then what T&TEC has faced is an increasing cost base, and hence the reason why they are running a deficit between the cost of what they sell, or the revenue from what they sell and the actual cost of operation. Yeah, and that is why a rate review is something that needs to be done on a regular basis.

**Mr. Chairman:** How regular is regular for you?

**Mr. Lee Young:** The Act says that we need to do them no later than every five years.

**Mr. De Freitas:** Thank you, Mr. Chairman. I am a little bit concerned because I am not sure as to whether T&TEC is taking advantage of the opportunities and the advancements in technology, globally that it has today. And I say this in the context that, I am hearing the justification for rate increases, and when I break it down to its very basic understanding, I am hearing that we need to increase rates in order to provide better service to the people of Trinidad and Tobago. But I am not hearing a concern as to the ability of the people of Trinidad and Tobago to bear these rate increases.

So, what do I really mean by that? Let me just ask two questions to begin with and then I will finish my comment. What is the status of the feed-in tariff policy, right now, with T&TEC?

**Ms. Dulal:** Presently, the feed-in tariff, a policy was approved in 2015 at the Ministry of Energy and it was not in a place for implementation because it required some legislative changes. So we are presently reviewing that policy at the moment with the Ministry of Energy and Energy Industries and a final document shall be progressed very shortly.

**Mr. De Freitas:** Okay. Second question. Has there ever been a cost-benefit analysis done on T&TEC's operations, in relation to the incorporation of technologies such as solar technology? So we just heard the cost of converting natural gas into electricity, and when you add the administrative costs on to that, you know what price that you get. But, in terms of a cost-benefit analysis, if you all were to implement, for example solar farms, which I have seen a lot of the other Caribbean islands doing now, how would that affect your operations? Would it make it better, would it make it more profitable even though that is not the objective? But have you all done a cost-benefit analysis in relation to new technology that could grossly help the operations of T&TEC?

**Mr. Ramsook:** I will let Mr. Mark take it, but I want to say this very clearly. T&TEC has constantly been looking at technology on the market outside there, any and everything to improve efficiency and "renewables" is one of the items that we have been looking at very closely. But I will let Mr. Mark deal with that, because it will tell you really, at the rates of four cents per kilowatt hour, the lowest in the world practically, right, when you look at other options which we have looked at very, very closely, you will get a different outcome basically, so Mr. Mark will deal with that response.

**Mr. Mark:** Thank you very much, GM. Permit me to address the two issues, one is efficiency and the other is technology. In terms of efficiency, T&TEC has taken steps over the years to maximize on the available generation and utilization of gas.

Not long ago, with the Port of Spain power station two years ago, the Port of Spain power station was decommissioned. It was the most inefficient power plant, it was aged, it was not very reliable and it was consuming large amounts of natural gas for the production of electricity.

That energy is now coming from TGU, which is a more modern plant using

state-of-the-art combined-cycle generation. This is to say, the waste heat that would have otherwise been exhaust into the atmosphere is now collected through heat recovery steam generators, which generate electricity through steam turbines, literally for free.

Permit me to share with you some figures to give support for the increase in efficiency. Back in 2005, to produce one megawatt hour of electricity, would have used 13.28 MMBtu which, is the energy content in the gas, and an equivalent gas volume of 11.73 million standard cubic feet of gas. By comparison, up to the end of 2017, that same one megawatt of energy is now produced using 10.22 MMBtu and an equivalent gas volume of 9.89 million standard cubic feet of gas. And that improvement in efficiency is by the incorporation of more modern state-of-the-art plant, together with some policies T&TEC has taken, in terms of its reserves margins and spinning reserve policies, all in combination to minimize the very sensitive issue of the limited natural gas resource that is available to the country and we continue to move in that direction.

With respect to the economic comparison that you are alluding to—permit me to just refer to my document—we would have had consideration to solar farms and the Government stated policy, which T&TEC is pursuing together with other stakeholders, would see T&TEC having to install something in the order of 150 megawatts of solar pv, because it is approximately 10 per cent of the demand.

When we looked at the economic payback period, based on the present tariffs, it would take approximately 20 years, and the amount of acreage required would be like over 1,500 acres of land; significant land space to realize this.

So that—and then the other thing with renewable energy, with solar power, it would save gas, but it does not provide the capacity to meet peak demand because at the time when you need electricity most, during the night, you will still

have to have the fossil fuel generators to meet that peak demand. So the savings you would realize is in gas. I had said earlier on, based on our tariff, the per unit saving on gas would be something like about 12 cents. The rate at which solar is now becoming commercially available, the very, very, best feed-in price you will get for solar power may be somewhere in the order of about US 6 cents. So, you are looking at the economics of possibly feeding in at 36 cents, to save 12 cents. So the economics are very strenuous.

**Mr. Chairman:** Mr. Mark, if I may just interrupt you here. I appreciate what it is you are explaining to us in terms of the efficiency of the cost, based on the question member De Freitas asked you. But to me, it seems to suggest at this point in time that T&TEC is operating efficiently, right?

**Mr. Mark:** Yes we are—

**Mr. Chairman:** In terms of fuel.

**Mr. Mark:** Yes.

**Mr. Chairman:** The issue with T&TEC has to do with the overall costs, which lies in the administrative aspect of it as opposed to the cost of producing electricity. So really the problem seems to be in the administrative aspect. The difference between the 25 and the 36, 11 cents that goes overboard, has to do with the non-activities in the production of electricity and more with the administration and the running of the company. Am I right or wrong?

**Mr. Ramsook:** Let me take that. I will take that, Sir. Let me clarify. I will clarify the two issues to get back to the point with the solar. I want to make sure I clear that up. Okay, so just to clear something, 67 per cent, between 65 to 67 per cent of our cost, is conversion and gas, totally related to generation. I want to start by making that clear. Twenty-three per cent of that cost—so if you have the pie, 23 per cent of that is salaries and wages. Right. So in the pie, and then the

difference is where you buy your materials and so on. So you have to look and see where you have control over in that pie. So 67 per cent you have no control over, because that is your generation cost. Right, generation and that is conversion, and gas.

**Mr. Chairman:** So does that fit in the 25 cents?

**Mr. Ramsook:** Well yeah, remember when Mr. Mark spoke about the cost, and he used the analysis, he said okay, this is the cost to generate and then he said the difference really to make your commitments really lie with the other items, and that is buying materials and all the other things that you need to operate your business. Right? So 23 per cent and the difference is materials and any other items that you have.

**11.00 a.m.**

**Mr. Chairman:** Well then that is false information. What I mean, that is not accurate information as opposed to false, because if I am to ask you what is the cost to produce something, it must entail, fundamentally, your material cost whatever it is.

**Mr. Ramsook:** No, no. When he focused there, he focused only on generation.

**Mr. Chairman:** No, no. I want to know what is the cost per unit.

**Mr. Ramsook:** Right. So that is why I gave you the example—

**Mr. Chairman:** So what is the cost? It is not 25 cents, then?

**Mr. Ramsook:** No, no.

**Mr. Chairman:** So what is it?

**Mr. Ramsook:** It will take you in the region of about 45 cents.

**Mr. Chairman:** Forty-five cents. We are now speaking. And you are selling at 36 cents and you—

**Mr. Ramsook:** Well, 36 is a running average. You start off with your domestic

customers at 26, 32 and 37 cents, and it varies because you have residential, you have commercial and you have industrial customers. So it varies across—

**Mr. Chairman:** 26, 32 and what?

**Mr. Ramsook:** Right. In the case of the domestic 26 cents, 32 cents—that is the three tiers that we have—and 37 cents.

**Mr. Chairman:** So none of the charges surpasses the cost, which is 45 cents?

**Mr. Ramsook:** That is correct. That is correct, Sir. That is very correct. I want to just come back to that point. So we have some renewable projects running. We have the Islamic Centre, we have a wind turbine there and photovoltaics there. We have in our building photovoltaics, and Mr. Mark was heading towards that direction. We are looking at one of the major projects right now at the Piarco Airport, which we have started to look at very closely at 10 megawatts—between 5 to 10 megawatts. The problem with that is, there are two issues I want to make clear with renewables. The problem with renewables, as Mr. Mark was saying, it will help. So, let us say you have photovoltaics. So you have the sunshine, you run the renewables, you provide service. When the sun goes down you have to have the equivalent generation to provide the service, unless you have the battery power and that is not always available.

**Mr. De Freitas:** Not to cut you off, but that is exactly what I was talking about.

**Mr. Ramsook:** Right.

**Mr. De Freitas:** I understand what you are saying, and in the answer what I am getting is one or the other in terms of generation. What I was thinking about was a hybridization to deal with that very specific issue that you are talking about. So you are talking about at the point of generation, and just follow me for a second.

**Mr. Ramsook:** Sure.

**Mr. De Freitas:** In T&TEC you have residential and commercial, so you are

supplying power for those two. And what I thought might have happened is that you are running an efficient system now with the natural gas and that is fine, but an education programme can go into play where you have households in Trinidad and Tobago installing their own solar panels, and during the day when you have sunshine, they are on that system and at night when the peak might drop or you have the peak going up, they then turn over in their households—by different plugs or whatever—to the natural gas system that T&TEC provides, and what that would do is decrease the demand on T&TEC for one, usage of natural gas and so forth, therefore, reducing your cost; one way.

Here is another thing. There are other opportunities available, again, with renewables. For example, we have seen in budgets past that incentives have been put forward for electric vehicles. Why is it that T&TEC cannot set up charging stations across the country, metered, and charge people for charging their vehicles, however long that may take? What that will do is create a secondary source of income for T&TEC with minimal capital input, whilst at the same time reducing the disposable income on the pockets of the citizens of Trinidad and Tobago. Because one, they would have bought the vehicles with incentives, so that they are not as costly; two, it is not going to be as costly to fill up these vehicles when they are driving to and from work, and because T&TEC is putting in the infrastructure for the charging stations across the country, you are receiving the money. So there is a benefit to both T&TEC and the citizens as opposed to just increasing rates to cover the cost of providing electricity, as it is now. So you understand how you can come up with a hybridized system to benefit both the people of Trinidad and Tobago and T&TEC. What are your thoughts on that?

**Mr. Ramsook:** Right. So I just want to clear up one issue. Forgive me, Sir, but rates are not being increased only to cover administration, it is the total picture of



the organization, but I will come back to the point. And therein lies the feed-in tariff, and Mr. Mark will deal with that issue basically also. What I want to point out though, in everything—and you are right. So we are looking at that also, but there is a capital injection cost for the customer to provide the photovoltaics. We have done the analysis. In fact, we have a project going on right now in Blanchisseuse, but when you look at the capital cost Sir, against the cost of the electricity at this point in time—I want you to take one other item into consideration.

I have 400 megawatts of available capacity sitting down, surplus. I want to make sure I say it right. As I said, when you look at the capital cost to do a project—let us say the customer has to buy photovoltaics, by all means, the feed-in tariff policy will cater for that—economically, there is still a major difference between US 4 cents per kilowatt at what we sell at for any customer to go into that direction to look at that. But, certainly, it will help and it is coming.

Where the issue is really, at this point in time, is that if you could save on the natural gas, because in all fairness there is an issue, but we pay at \$1.18 per MMBtu and it is marketed at \$3-plus per MMBtu. So we pay at a very low price. So you could save that natural gas and the country could monetize that—that is really where the issue is coming—in terms of making additional revenue, of course and foreign exchange and whatever is necessary for the benefit of the country, and that is engaging the entire discussion. But what will happen is that the moment you start to talk in that direction, the values that the customer will have to pay will go up.

As I say, if you are going renewables, to even generate capital cost to inject for any plant or capital cost to inject for any renewables—I will give you a typical example. We were talking about recreation ground recently. To do a recreation

ground in the country is about \$1 million, and the Ministry is looking very closely at solar-powered recreation grounds. When they did the analysis and they did the cost it came up to \$8 million, and then every, I think it was seven years—forgive me in terms of the time—you have to change the battery. So I am just saying, I am hearing, but we have analyzed it. We have looked at it and you have to look and see what is the final cost. Where are we gravitating towards? So I just give you that typical example. I would come back to Mr. Mark and let him focus straight on the issue of the cost for photovoltaics.

But certainly, Sir, I want to make it clear to you, we at T&TEC, we want to go in that direction. The country has to benefit too by the savings in the gas. The regulator has been pushing us there and for good reasons and we appreciate their role also. So it is not as if the regulator has not been pushing us there. They have been and we have been fighting to get there also but, again, it means that the country has to understand what they will be getting into the moment you do that transition—savings in natural gas, you get more money; the country benefits, things get better. But, of course, there will be a cost, an increased cost and you save on the natural gas so that in the future it will be available, because it is not infinite. So, I just wanted to make that point.

**Mr. Chairman:** Mr. Ramsook, clearly, we need to bring you back alone to be able to deal with this. I mean, there is a lot to be done. So, unfortunately, we will have to just move on from this issue as interesting and enlightening as it is, we have some other grounds to cover and we are running out of time.

So, in your submissions you all suggested that 2 per cent of the households are without electricity which seems quite high. It seems quite an attractive achievement, but what accounts to get the other 2 per cent on the grid? What is the obstacle?

**Mr. Sirju:** I think the remaining 2 per cent has to do with location, remoteness and the economic viability. In fact, Chairman, it is one of the areas that ties into the conversation that you had before, that we are really looking at the feasibility. Mr. Ramsook mentioned the question of our project in Blanchisseuse of looking at solar power for those areas. These would be very remote areas in which maintenance cost will be very high, where you have reliability issues associated with vegetation growth, and the maintenance of the lines, and both are very remote areas. We are talking about the extremes of Blanchisseuse and some other parts of the island that are similar. So that remaining 2 per cent might be a good captive market for the solar energy that the member spoke about. I am saying, as we are speaking now, the project is being considered to see the feasibility of that and whether electricity cannot be provided in that manner for the remaining 2 per cent.

**Mr. Chairman:** In the written submission, I think we had asked—which I must thank you for supplying to us. On the 21<sup>st</sup> of March you all sent it in. Thank you very much. It was quite helpful and informative. You were saying that—we were asking in your submission—just now. You said that there is a majority of 3,000 households without electricity. So the 2 per cent is about 3,000 households. This is what you were saying here in the information to be exact, and it is because of the remoteness where they are located, basically is the problem as opposed to any other reason.

**Mr. Ramsook:** Yes.

**Mr. Chairman:** Okay. In terms of customers' complaints with T&TEC, has that improved? The number has varied between 2015 that you supplied and 2016 and 2017. There was a drop in 2016 I think. In terms of your complaints, is there a high volume of complaints coming from T&TEC in terms of customers complaining about damaged appliances and so?

**Mr. Sirju:** Yes, Chairman. That continues to exist. I would like to ask my colleague, Ms. Bransnell, to further elaborate.

**Mr. Chairman:** Yes.

**Ms. Bransnell:** Regarding customer complaints, I am going to further seek the assistance of another colleague to speak specifically to customer complaints, but I just want to talk about customer feedback. We seek feedback from customers on the quality of our service on an annual basis. We use, essentially, what is a three-year cycle to do customer satisfaction surveys. For the first two years of a three-year cycle, we would conduct surveys in our service centres where we get responses from walk-in customers on the quality of service, both on the field and in the office, and every three years we do a national field survey where we actually go out to homes and seek responses to a longer form survey that expands on what we would have asked about in the previous two years. The information that we get from those surveys is analyzed and is submitted to all our distribution areas where each area manager would then examine whatever the shortfalls are in their area as outlined by customers, and then we act on those issues.

Customer complaints that come in to the commission come in via various methods. They come by phone, they come by email and they come by letter and those complaints are dealt with in terms of the investigation of those complaints done by the areas and also through the regulatory and compliance department which is under the Chief Financial Officer. So, Mr. Balgobin would be able to give you some more information on that.

**Mr. Chairman:** Let me ask you. Would it not be more efficient and more contemporaneous if on a bill—your billing cycle to customers is every two months, not so?

**Ms. Bransnell:** Correct.

**Mr. Chairman:** Every two months. So if when you bill, on the bill could have printed, you know, a tick off box—were you satisfied, very satisfied or agree or something like that. Would that not provide current information for you on a more regular basis and even more accurate?

**Ms. Bransnell:** We also collect current information in the service centres. In every service centre we have feedback boxes that give you a form and ask specifically what was your experience today? What service did you access?

**Mr. Chairman:** Sorry, that is when you come into the entity?

**Ms. Bransnell:** Correct.

**Mr. Chairman:** No, what I am saying, I mean, everybody would not come into the entity and society is moving towards discouraging people from coming into entities now and doing things more electronically. Yes? I think somebody was speaking about paying your electricity bill by credit cards and different things like that. So if on your bill, the generation of your bill, can you not include that type of—you see it sometimes you are flying on an aircraft and they ask you to tick a box whether or not you were satisfied or dissatisfied. Would that not be more efficient and cheaper too?

**Mr. Bransnell:** I am certain that that is something that could be looked at in terms of doing it on the bill, Sir.

**Mr. Chairman:** And I think so too.

**Mr. Forde:** Through you, Mr. Chairman, that is the same concern that I wanted to raise with regard to page 2 of the report, Mr. Chairman, in terms of the customer complaints. And as your communications officer mentioned, we use 800 BULB, we use the hotline. Again, the complaints can go through the local government councillors' offices, likewise the Members of Parliament offices, and this is why I am able to be in a position in order to offer commendation to T&TEC because the

800 BULB and the hotline—again, correct me—do not seem to be working efficiently, hence the reason why a number of my constituents would come to the office in order to complain—LP 12, Balthazar Street; LP 15, Fairley Street are not working as the case may be—and then I would generate an email—most times an email—and yes, within two to three days the action is taken care by T&TEC.

With regard to 800 BULB and the hotlines, some improvement I think is needed along those lines, because I can tell you for a fact most of the persons that call my office or make a complaint to the councillors keep saying that they have been calling the numbers on numerous occasions and they are not getting through. Could you make a comment on that?

**Ms. Bransnell:** Regarding the 800 BULB service, I must admit that we previously used to get quite a number of responses about the efficiency of 800 BULB. However, in November last year we changed up the service regarding 800 BULB, and we have established a call centre; the calls now go into there. We have dispatchers on service 24/7 responding to 800 BULB. The feedback that we have gotten since the call centre has been launched has been tremendous in terms of the call answer rate and in terms of our ability to respond to issues that customers have been raising through the BULB hotline. So we are seeing some great improvements there and we are going to continue to monitor it and see how the numbers improve for BULB.

**Mr. Forde:** Is it possible you can share those numbers?

**Ms. Bransnell:** We should be able to share them in writing, Sir. If I could also add, in addition to the call centre, at that same time, we would have launched our mobile app service and that also has seen some tremendous improvement in terms of customers being able to submit reports on outages or any other technical issues related to our service, and through that app they can dialogue with us on the

resolution of the problem. We have also been seeing some great response from customers using the app as well.

**Mr. Chairman:** Thank you very much. Dr. Lovell, you have a question?

**Dr. Lovell:** Is there any longer-term plan to move away from high-tension wires?

**Mr. Sirju:** I will start by saying it is a very desirable thing, but as you will well imagine, with an infrastructure that is already in place it is going to be very disruptive. Where it was possible, I think for new developments that it is encouraged. But, as you know, it is a more costly installation. In its current state, I would say T&TEC would like to do it, but it does not have the wherewithal right now to consider it even on a phased basis.

**Dr. Lovell:** Fair enough.

**Ms. Ameen:** Mr. Chairman, I wanted to move away a little bit from that to ask a question about T&TEC's policy with regard to connections for people who are considered squatters, whether they are regularized squatters or not yet regularized. The LSA has stopped their regularization exercise, and I am aware that the regularization exercise included the engagement of T&TEC and other service providers. So I want to ask now, with the halt by LSA in their regularization, what is the policy for T&TEC with regard to connecting new customers who are squatters as well as existing customers who may have challenges. How do you treat with them?

**Mr. Sirju:** Member, can I ask my colleague, Mr. Rodriguez, to take this one?

**Mr. Rodriguez:** Where squatters are concerned, provided that these squatters, as you call them, have been regularized or so and they can provide such evidence, T&TEC would move forward with the supply. Of course, we always maintain that if at any point in time the Government wants to retain its land then there is cost to removal of the infrastructure. But, generally, that is approach that we will take.

**Ms. Ameen:** So they require approval from LSA? If they are not regularized—a squatter who is not regularized, what would you require from them if they make an application for a T&TEC connection?

**Mr. Rodriguez:** At this point, I would perhaps want to pass this question to the General Manager.

**Mr. Ramsook:** Right. If they are not regularized—first of all, let me identify this point. Once you are within connecting, the 50 yards, the Act clearly identifies once you are within 50 yards of our low-voltage lines we should be connecting you. Right? That is clear in the Act. However, if you do not have any Certificate of Comfort and you do not have permission from the LSA, we will not be connecting at this point in time.

**Mr. Chairman:** Dr. Guy, as we come to a closure this morning, you can see it is quite obvious that there is a lot more to be asked. There is a lot of valuable information that has been coming out, but I would just like to ask in terms of you going about dealing with the rates—preparing of the rates, the new rates, the increase that is being proposed I think or being discussed—is there a downside to the fact that under the RIC there is no more public hearing as such? Does this put you at a disadvantage as the regulator as opposed to going out there? I know you are going to have some, what is it? You have what? Some consultations. Does it take away from actually having a hearing where you can get probably more input?

**Dr. Guy:** I do not think so, because it achieves pretty much the same. When we come up with the draft price determination, we publish it and we send that information out to, you know, various stakeholders and we arrange consultations across the country, and we take the feedback and we will consider, you know, those that we think should be rolled into the entire consideration, and we use that to do the rate determination. And I think that the consultation process is engaging.



It is an environment where people can speak freely, and it is open and transparent. I have not experienced the previous system with a hearing, but it just seems to me as if a consultative process is one that is more engaging and an environment that makes for more information coming forward that the RIC can use.

**Mr. Chairman:** Why I am asking this is, based on the information that was adduced this morning, the input, the cost which is—he said 67 per cent in purchasing a unit of electricity, and what it is being sold at—and there is a big disparity in order for you all to break even. So in your deliberations as technocrats, looking at the figures, obviously, if there is—when you do your quantification and you take the cost and the production and so forth, you may come up with a figure certainly to cover. To break even might be very high. So, in your consultations, would you have a figure like that to be able to discuss with the public to let them know exactly what it is?

So, I mean, if you say right now it is 25 per cent—it is more than 25, let us say it is 40 per cent, but really and truly, to make T&TEC break even is 75 cents. How are you going to deal with that? Is it that you all are going to give the public a figure and say, look, this is the real cost to produce electricity and this is what it is necessary to sell at, to continue with T&TEC to be an efficient utility provider to you all, to continue with promptness and efficiency and so forth, this is what it costs? How do you deal with that?

**Dr. Guy:** Okay, I understand what you are asking. The ED will give some more information on that.

**Dr. Lee Young:** Yes, Chair. In the course of doing a rate review, take T&TEC, for example, we have published a total of 19 technical papers to deal with every aspect of a rate review, including issues such as ability to pay. So all of those are addressed. Those are out in the public domain as we speak. When we do the rate

review, if prices, if the models—the economic models that we run—show an increase, a possible increase way beyond the ability, or what we consider the ability to pay, then we cap it.

**Mr. Chairman:** You cap it?

**Dr. Lee Young:** We cap it.

**Mr. Chairman:** And who absorbs that difference? The Government?

**Dr. Lee Young:** Well, it goes back to the Act that says we need to ensure prudent and efficient operations. The fact that the rate is considered in excess—maybe in excess of what we think they need to do a prudent and efficient operation, we cannot pass those inefficiencies on to the public. We would not. In that case, it is entirely up to the utility then, at that point in time, to fund or figure out how they are going to fund that difference between what we set for prudent and efficient operation of their utility as opposed to what they are actually spending.

**Mr. Chairman:** Mr. Sirju, is that an issue you have to deal with at this point in time?

**Mr. Sirju:** Certainly, there are some aspects, Chairman. Mr. Ramsook mentioned the surplus power, for example, that is being bought. There are power purchase agreements that T&TEC has with the power producers where it is called a “take or pay”. It is the output of the plant that you have to take. So that if you are paying for say 1,800 megawatts of electricity, you are only able to sell 1,200. Your normal requirement would require you to be, say at 1,400, then you have 400 megawatts that you are paying for. I think that would be an example of the cost that Dr. Lee Young is speaking about.

**Mr. Chairman:** Gentlemen and ladies, this has been quite an informative morning. I thought it was going to be a short one, but I think nothing with T&TEC can be capsulated in a very short space of time because, I mean, it touches and

concerns all of us living in this Trinidad and Tobago. And certainly what we hope to do is to assist the regulator in helping you as a utility provider to be more efficient in your services and this is the reason for these hearings.

I suspect in the future we may have to revisit this, again, probably when the rates are out. Who knows? But, for now, we will have to bring it to a close. I would ask you to offer any closing remarks, Mr. Sirju, at this point from this morning's hearing. Thank you.

**Mr. Sirju:** Well, I think, Chairman and members, I like to first thank the two members who gave us some words of encouragement. I think, members that these words go a long way to the general staff of the organization and to the morale and their intention to give this country a good service. I think we should summarize, to some extent, by saying that despite its difficulties, T&TEC continues to place a high emphasis on its reliability, and I hope that the population has observed that despite its difficulties, the electricity service is still a very good one. Other than that, I think we will take on board the comments that your members have made and see how we go from here.

**Mr. Chairman:** Thank you very much for your comments. Thank you very much members for attending this morning's hearing. I would ask the listening and viewing public to stay tuned. We will have a suspension of five minutes and then we will have WASA next. Thank you very much, and good day gentlemen and ladies.

**11.27 a.m.:** *Meeting suspended.*

**11.35 a.m.:** *Meeting resumed.*

### **WATER & SEWERAGE AUTHORITY (WASA)**

Mr. Romney Thomas

Chairman, Board of Commissioners

Dr. Ellis Borris

Chief Executive Officer

Mr. Dion Abdool	General Counsel & Corporate Secretary
Mrs. Denise Lee-Sing Pereira	Director, Programmers & Change Management
Mr. Sherland Sheppard	Director, Operations
Mr. Alan Poon-King	Director, Customer Care
Ms. Rachelle Wilkie	Director, Finance

**Mr. Chairman:** Good morning, again, to the viewing and listening public. Welcome, WASA. Mr. Thomas, Chairman of the board of WASA, I will invite you to introduce yourself and your members, and then to make a very brief opening statement, two minutes preferably. I am putting you on the clock. Okay? Thank you.

*[Introductions made]*

**Mr. Thomas:** Good morning once again, Chairman and members of the Joint Select Committee. On behalf of the board and management of the Water and Sewerage Authority, let me thank you for the opportunity to appear before the Committee as it deliberates on matters pertaining to the Regulated Industries Commission. The Water and Sewerage Authority is a statutory body solely responsible for the provision of potable water supply and sewerage services in Trinidad and Tobago. A key component of our mandate is the delivery of safe, reliable and efficient water supply to satisfy the demands of all sectors of society. Despite its monopoly status, WASA's operational performance and financial results over the years have been below internationally accepted benchmarks for a well-performing water utility. In fact, the Authority's revenues are substantially below its operating costs resulting in excessive dependence from subventions from the Government of the republic of Trinidad and Tobago. The main reason for this situation is the unusually low tariff, WASA has significant room for efficiency,

improvements across its operations. WASA's tariffs have not been adjusted since 1993, and are among the lowest in the region.

I believe tariffs should cover the cost of service, including operation costs, and costs associated with capital investments. The low tariffs leads to consumers using water excessively. The wastage and high usage increases operational costs. Higher costs and low tariffs means there are less funds available for investment and maintenance, which are then postponed. Without investments in new infrastructure and timely maintenance of existing infrastructure, the services deteriorate, and the level of efficiency decreases even further. As such, customers were not willing to pay for substandard services and the utility becomes highly dependent on subsidies from the Government. Eventually the Government is unable to increase subsidies and the utility is challenged to pay salaries, wages, recurrent costs, and improve its service delivery to its customers. The utility's declining performance due to the low tariff structures is further demonstrated by the age, infrastructure, the high consumption levels of consumers, limited funding to cover the cost of operations, the high levels of inefficiency in key areas, including high non-revenue water, excessive dependence on subventions from the Government.

WASA recognizes the challenges and has developed short, medium and long-term plans to improve the Authority's performance in the areas of service, quality, reliability, coverage, compliance, efficiency, safety and sustainability. The intention is to transform WASA to improve its ability to satisfy the demand for high quality potable water supply and sewerage services operating independently of Government subventions. In order to accomplish this the Authority must secure a tariff increase or otherwise it will continue to rely heavily on Government for subventions. Accordingly, we have prepared a business plan in accordance with

the Regulated Industries Commission's framework, an approach for price review. In closing, once again, let me thank you, thank this Committee once again for the opportunity to appear before it to participate in these proceedings.

**Mr. Chairman:** Thank you very much, Mr. Thomas. Time is of the essence so we would try to keep things very tight and succinct as possible, the questions, as well as the answers. So this takes me to the every first question, you said that you all need to require—one of the problems that WASA is facing is the lack of an increase in rates for a very long time, but in dealing with the increases how does leakage in terms of wastage of water affect, impact upon your operation in cost?

**Mr. Thomas:** Well, it definitely impacts on our operational costs, and the RIC is mandated not to take into account our inefficiencies. But what we are facing is that we have a lot of aged infrastructure, and, as a result, consequently, there are going to be a lot of breakages in the lines and disruption in service. So it is a sort of catch-22 sort of situation.

**Mr. Chairman:** But, Mr. Thomas, something I am eager to raise with you here. I have experience, I mean, so you have ageing infrastructure, you must have a sort of a specialized unit to deal with leakages as reported and as quickly as possible, do you agree?

**Mr. Thomas:** Yes.

**Mr. Chairman:** Do you have such a unit in operations?

**Mr. Thomas:** We do.

**Mr. Chairman:** And what is your response time when a complaint is made or a report is made that there is a leakage, x, y and x in the public arena? How fast do you all respond to that?

**Mr. Thomas:** Mr. Chairman, let me refer that question to the Director of Customer Care.

**Mr. Poon-King:** Okay, on an average roughly about 10 days would be the average, but the minimum would be same day, depending on the nature of the leak.

**Mr. Chairman:** All right. Let me give you a piece of information and tell me how you would respond to that. I have noticed from going to the Hasely Crawford Stadium on a very regular basis, on a weekly basis, and I noticed sometime in 2017 around September, and it could be before that because it was in existence before, there was a leakage as you entered there that was running significantly. It was not a drop. It was not a drip. It was a serious constant flow of water. It went on for over six months. Much so, I know the manager at that time of the stadium had made overtures to get it fixed, to get WASA, to get whoever it is fixed, and it was continuous. It was 24/7 water running without ceasing. It took me to raise it with be Minister of Public Utilities some month ago and he reacted by going down there—I think he said it himself—the afternoon to look and he saw what I was speaking about. Being the Minister with WASA on his portfolio, I went back there sometime a month after, there was some difficulty he had explained in terms of Ministries, whose property it is, and different things like that. In the meantime, water flowing, as I say, water flowing like—I mean, just flowing like a flood, constant eh, 24/7. When I came back to the Minister about two weeks ago and I told him, you know, Minister, the problem I brought to your notice is still there. He was somewhat shocked. Fortunately, and kudos to him, if you want to say, apparently they went midnight that night and fixed the water, fixed the problem that was going on for six months. So I want to know what the bill for the stadium would have been, who is paying that bill. And if WASA has any metering, basis of checking this, they must have seen there was a gush of water, a significant leakage, not for 10 days, as you said they would respond, for over six months. That is my calculation, and it could be longer than that. That is a significant waste. So when

you talk about wanting an increase in rates and you have this kind of leakages taking place here, people will not want to take those rate increases easy. So how do you deal with that? Are you shocked by what I am saying?

**Mr. Poon-King:** What I had given was the average, and I think we need to acknowledge that we do have inefficiency that the Chairman referred to. The issue of the leak beyond the meter, that is part of the problem that we experience as well. WASA has an issue with leaks within our domain and we are fully extended with trying to address those. The issue within the stadium, such a leak would normally, if it is beyond the meter, be the responsibility of the—

**Mr. Chairman:** Sorry?

**Mr. Poon-King:** I said normally if the leak is beyond the meter it would be the responsibility of the stadium manager, but if it was significant enough we would normally get involved and work with—well, in this case, the Hasely Crawford Stadium.

**Mr. Chairman:** What I do not understand, Sir, with the greatest of respect, is that if you are managing water, you are the water authority, and there is a leakage going on anywhere, that water is coming from somewhere, it is coming from a reservoir that needs to—if that water is wasting, that water could be going somewhere else. So forget the politics of who is supposed to do this, to me there is somebody injured, there is an injury in the water supply, there is a rupture, it needs to be attended to. So, some level of efficiency need to reorganize how those things are attended to, to make sense.

**Mr. Thomas:** Chairman, what you are describing is inexcusable, let us be frank about it, and the system as designed—we should have our technical officers should have picked up on that leak and should have done something about it. Even if it was to come back and try to muddle through the jurisdictional—you know, who is



responsible for what, they should have at least tried to do something. Six months, that is an extreme situation and it should not be tolerated, and that is something that we will definitely look into and investigate, because from where I sit I am extremely concerned, as I am sure you are, and the Minister of Public Utilities was when you described that to me.

**Mr. Chairman:** Yeah. And the fact that when he was spoken to on the second occasion, to his surprise, it was really in a bid to be corrected within the same evening, by midnight they were there fixing it. Mr. De Freitas.

**Mr. De Freitas:** I just want to ask, what is the procedure when someone calls in and indicates that there is a leak somewhere, because it seems that is where the breakdown was? Once WASA realized that this leak was occurring, as the Chairman was indicating, was fixed the same night, but he also indicated in his question that there were attempts before to notify WASA that this leak was occurring. So can you do a check to find out what is happening when citizens call in and say there is a leak and it is left for six months? I think that is where the problem lies.

**Mr. Thomas:** We will certainly investigate it, but just to answer the first part of your question, I think we will ask the CEO to deal with the process when a complaint comes in.

**Mr. Chairman:** Okay. Dr. Francis.

**Dr. Francis:** Mr. Chairman, since we seem to be on leaks—sorry.

**Dr. Borris:** When a complaint comes in a job or card is being made and the job is being sent out to the operations department for them to programme its fixture. When that is done they will send the crews. According to the extent of the leak, if the leak is very aggressive we will put somebody on it or send a team on it immediately. If it is one that is very mild then we will programme it into the

schedule. Those that have heavy gush, like the one that probably was mentioned earlier, that should have been dealt with immediately if it had probably go on in the right direction. So, as least, probably the information did not come and go in the right direction so we could have dealt with it immediately, but generally there is a process in programming the leak arrangement, and daily we send people out the fix leaks.

**Mr. De Freitas:** Okay, you separated leaks into major and mild, could, just for my clarification, what institutes a mild leak?

**Dr. Borris:** Well, there are some pipes that are just oozing and they are not gushing. Those that are gushing or releasing heavy significant volumes of water, we have to deal with those immediately.

**Mr. De Freitas:** What is the average time it takes to fix a mild leak, because you said it goes into the system?

**Dr. Borris:** Well, it is programmed, and according to what my colleague said earlier, it is around seven days we usually take, 10/7 days.

**Mr. Chairman:** Dr. Francis.

**Dr. Francis:** Mr. Chairman, fundamentally from years of observation it seems to be that WASA pipes tend to rupture at the point at which they are welded. That is my observation. Is there a workmanship issue here? Is it the case that these pipes are inspected in terms of the welding before they are covered?

**Mr. Thomas:** I will let the Director of Operations elaborate on that, but essentially, the main problem here is the age of the infrastructure. So the weakest point on any pipeline is actually going to be at that point where it is joined, but in terms of the quality of work, we are supposed to have a quality assurance officer, you know, inspect these jobs to ensure that it is done properly. But I will have the Director of Operations elaborate on that.

**Mr. Sheppard:** Good morning. Firstly, I would say no, there is not a workmanship issue. Mostly what we find is at the pressure points when the pipelines are pressured you will get a rupture at the point if there is any problem, meaning there is any restrictions along the line. Okay, for instance, night-time when people are not using water and the high pressure is on the line, you may get a rupture at the point of the joining—I would not say welding, I would say joining—because of that, right, but it is not really a problem of the workmanship. All right?

**Mr. Chairman:** How efficient is your 1-800 number leakage—leaks, I think?

**Ms. Ameen:** 800-LEAK.

**Mr. Chairman:** The 800-LEAK, how efficient is—

**Mr. Poon-King:** The 800-LEAK is a mechanism that we have to facilitate customers calling in. Again, it is an area that we have to improve upon. Given the number of calls that we get when we have issues arising, we are looking to have other mechanisms for customers to report in. So we monitor the types of calls that we get, and the majority of the calls are associated with pipe-borne water supply. And in the event that the customer does not have a pipe-borne water supply, a request for truck-borne water and leaks. We recently launched an app where we are giving customers and members of the public other facilities to get information into WASA without necessarily having to have a personal interface where we can the data and follow up on. At this point in time the app provides the facility where you can report a leak, request truck-borne water or pay your bill. So we are looking to expand on that to include some of the other issues that customers would normally call in to give the customer and members of the public an alternative to actually having to call in. We are looking to streamline as well where currently people communicate via WhatsApp, email, and so on, so all those are being streamlined to come into the system as well into our job management system. So

whether it is a call, an email, a WhatsApp, we are seeking to capture all those calls and communication that would come in, again, working towards compliance with the guidelines that the RIC had set up.

**Mr. Chairman:** Thank you. Ms. Ameen.

**Ms. Ameen:** Mr. Chairman, I am listening in a bit of amazement, and I am sure members of the public as well with regard to your indication that your response time for 10 days and some of your other policies with regard to response to your customers, and I think it might be a bit admirable how well you are trying to—if the phrase “make excuses” sounds bad I apologize, but to me that is what will come across to the public and to your customers, because that is not the reality in terms of what the customers receive from WASA. The public—two points I want to make—the customer care and the response, the treatment of the customer leaves a lot to be desired, and I am sure Mr. Poon-King will acknowledge that, the way the customers are treated on the phones. Every day I hear people calling in to I95’s programme complaining about WASA leaks for months, and the treatment when they call the phone and how people answer them, that in itself as well adds to the issue, and I want to get back to what you have identified as part of the root cause for the numerous leaks across the country. You indicated the age of your infrastructure, I recall that there was a comprehensive programme—

**Mr. Chairman:** What question are you asking him?

**Ms. Ameen:** Well, the two points I want to raise, the first was with the customer care and the second is with regard to the age of the infrastructure, and there was a comprehensive programme, because if we have to be solution-driven I do not think we should be talking about repairs. There was a comprehensive programme to replace the major pipelines throughout the country. I know that the north/south—there was a lot of work on the north/south, replacing the north/south, the 24-inch

main, I believe, and there was a programme as well to do one along the Churchill Roosevelt Highway. And I was involved in that because as Chairman of the Regional Corporation there were places we had to intervene where there were encroachments, and so on. So can you tell us, what is the status of those major projects to replace those aged lines to begin with, because you have identified aged infrastructure as one of the causes for leaks?

**Mr. Thomas:** Let me address your first comment in terms of customer care. We have identified that this is an area that definitely needs improvement on WASA's end, and we have embarked upon some exercises in WASA to train and to sensitize our staff members to, you know, proper methods of dealing with the public, and what have you. That is currently ongoing, and it is something that we are constantly monitoring and trying to improve upon. So it is something I have observed myself, you know, in terms of how we relate to the public, and it is something that we definitely need to work on, but we are making some strides in that area. In terms of the aged infrastructure, it all comes back to the finances as well. Okay? We spoke about the low tariff, this is part of the cost that is going to be required. It is a catch-22 situation. We have not gotten a rate increase since 1993. So we are heavily dependent on Government. We are heavily dependent on, you know, borrowings from IDB for one, and to try and, you know, replace some of these aged pipelines. So some of these projects—we have a lot of projects ongoing, and there are some projects that have been stalled because of the lack of funding. Probably Mr. Sheppard could probably give us some idea of some of the other projects that we are working on. I think the project that you mentioned the funding had actually run out in terms of the—I think it was the dualling of the Caroni line. That is one of the projects I could recall offhand, but the funding had run out and we are waiting on some additional funding to complete that project.

**Mr. Chairman:** Dr. Guy, could you come in here please and tell us what is your reaction to what you are hearing from WASA in terms of the quality of service, where do you all come in here, because that is within your remit eh?

**Dr. Guy:** Yes, Chairman, it is, and that is why when we do the rate review, we do that in conjunction with the establishment of service standards, and we are for the first time establishing a quality of service standard regime for WASA that has been developed, and WASA has given its input into that, and that would be published at the same time that we do the rate determination. And just for information, what a quality of service standards regime says is that the service provider is expected to respond within certain times to certain issues that the customer may raise if it is a situation that we are talking about, like a leak, we have established a standard for WASA to respond within 48 hours.

**Mr. Chairman:** 48 hours?

**Dr. Guy:** Yes.

**Mr. Chairman:** He said seven days and I said six months.

**Dr. Guy:** We know it is a stretch, but it is important to set those standards so that they come together with the rate determination.

**Mr. Chairman:** Yeah, definitely so. And in terms of WASA providing the type of information you will need to assist you in that, how readily available is that information forthcoming?

**Dr. Guy:** It is a bit of a challenge, and we have been working with the service provider, with WASA, and they have been providing it progressively. We would wish it could be a little, you know, more expeditious, but we understand the constraints, and we are working with WASA to get the information that we need do get into our model. A document was submitted, we indicated that there was more information that we would have liked to get, and they are working on that,

and as we get the information we populate our models.

**Mr. Chairman:** Mr. Thomas, you realize what Dr. Guy has just said is that you are asking in one instance for our assistance in terms of your tariff to be able to do what you need to do; for them to be able to do their job efficiently, accurately and to the best interest of all, you need to provide the information that is required. So what will be the cause for you not to be able—when I say, you, do not take it personally—to assist the RIC with the information that is ready in a very prompt way?

**Mr. Thomas:** I am not aware that there is information outstanding for the RIC, so perhaps maybe the Chairman at some point, maybe off camera we could probably have a discussion, but I do not know if the CEO is aware that there is any information outstanding.

**Dr. Borris:** Chairman, according to my knowledge, I do not think there is anything outstanding. If the Executive Director needs anything he would at least communicate with me and then we will respond immediately. So if there is anything that is outstanding he could at least speak to us or write us and let us know exactly what is outstanding.

**Ms. Ameen:** Mr. Chairman, I just want to ask for clarification. I know that the RIC would determine what your rates, and so on would be, and those rates are based on a number of things, including what it requires, what the agency requires, the Authority requires to provide the service, and I am having a difficulty, Mr. Chairman, knowing what the salaries of some of the senior people in WASA are, what some of their engagements are, the cost of some of their engagements are, and then still indicating that funding is a problem. I know that there have been instances of workers to being terminated—workers at the lower ranks of course being terminated, and still you have poor service being provided to the customer.

So my question, Mr. Chairman, is to the RIC, do you play a role in advising when you determine what the rate should be, because the rate is a major part of their income? If there is inefficiency in the company do you play a role in terms of advising WASA or the Ministry of Public Utilities where improvements can be made, not just in providing the service but in the running of the organization and the spending of the public's money?

**Dr. Lee Young:** Yes, thank you for that question. Back to one of my original comments. When we do a rate review we look at efficient and prudent operation. So in the course of looking at the utility we benchmark them against regional utilities, et cetera, to get a sense of where they are. The rate that we set is based on prudent and efficient operations. If that utility is inefficient, over-staffed, whatever it may be, we do not pass those inefficiencies on to the public. It is capped at that level, and, as I said, it is up to the utility to bridge that gap. So when we set the rates, what we do is we would recognize, look, the utility is in this position, or the status quo, these are the inefficiencies, we understand those, and what we do is we set annual targets to try and move them towards improved efficiency. So those may be satisfaction of certain metrics, number of employees per thousand connections, that sort of stuff. And it is not a process that is going to happen overnight, but within a five-year rate review period we set annual targets, that, you know, we will question, and ensure that the utility is at least moving in that direction. And if they do not, then the problem is compounded in that the inefficiencies remain, and when we come to do the next rate review, that gap is still there. So we do not get involved operationally, but we set high level metrics to try and move the utility towards the good—

**12.05 p.m.**

**Ms. Ameen:** How do you rate the efficiency of WASA?



**Dr. Lee Young:** I would indicate that the one metric that we would use is a well-known metric; is number of employees per thousand connections. If memory serves me, I think WASA's current metric is around 12 to 13/14 employees per thousand connections. If we benchmark that against other regional water companies, for example, Barbados, if memory serves me, it is around seven to eight. Top end, world class utilities in North America, Europe, would be as low as three to four.

**Mr. Chairman:** So what you are saying, this is highly inefficient, basically, from the numbers?

**Dr. Lee Young:** From those numbers, based on those metrics.

**Mr. Chairman:** Mr. Thomas, we just got an input from a member of the public, a residential area, asking in terms of where there are water shortages for residents. Is there a rebate system where people can be given a rebate on their bills when they suffer that type of prolonged shortages for two days or more?

**Mr. Thomas:** We actually have a system in place where you could actually get a rebate. Mr. Poon-King, am I correct?

**Mr. Poon-King:** In instances if the pipe-borne water supply is not as it should be, normally the customer has the option to communicate that to WASA. If the pipe-borne water supply is not as regular as the customer would like it to be, they can communicate with WASA. The claim is assessed. We do not look—what you just described for a day or two, that will be an acute situation. We look for the more chronic or deep-rooted problems, if we have an extended period where people have been affected and we adjust the rates accordingly. Normally as well, if that is to be done, we would encourage, rather than people communicating singularly, if they do it as a community so we could deal with the situation.

**Mr. Chairman:** I do not think I am clear. Probably other Members may be

clearer than I, but just for the sake of clarity, you are saying that two days—if somebody has not received water for two days, that is not dealt with seriously? What is it?

**Mr. Poon-King:** You had asked about a rebate—

**Mr. Chairman:** Yes, when you have a water shortage for two days or longer. What is the amount of time that would trigger a rebate in your bill?

**Mr. Poon-King:** There is no limit to say how long or short that should be. Two days, we do have instances where customers do not, based on their schedule, because we schedule water to different communities. You can have a situation for two days, that that is what WASA is targeting to give you.

**Mr. Chairman:** So that would not trigger a rebate?

**Mr. Poon-King:** Correct.

**Ms. Ameen:** How many days?

**Mr. Chairman:** Yes, this is what I am trying to get. So how many days will trigger a rebate as such?

**Mr. Thomas:** Just to be clear, remember we operate on schedules as well. So there might be instances where you are getting water for three days a week, or whatever the case may be, so you might actually not have water for two days in that period or something like that. What I think Mr. Poon-King is trying to express is that rather than look at it from a weekly basis like that; you miss two days or you miss three days, he would look at it from a more lengthy period. So like if you say, two weeks you are not in receipt of water or something to that effect, it would trigger a rebate. The quality service standards that the RIC is talking about would actually address that as well and they are actually putting guaranteed water standards in place in which we are going to—there will be—the terms is penalties, but we look at it as some sort of incentive on us to actually

ensure that our service meets with the minimum schedules that we have—

**Mr. Chairman:** Well, let me ask you something before you go there. If you are saying that the residential premises in Trinidad and Tobago are not metered, is that true? They are not metered? You all have a scheme to meter the residential premises to come on stream?

**Mr. Thomas:** A very low percentage of residential customers are metered. I think it is about 4 per cent.

**Mr. Chairman:** Four per cent.

**Mr. Thomas:** Yes.

**Mr. Chairman:** So out of, what, a 90-something per cent—93 per cent connectivity?

**Mr. Thomas:** Correct, yes.

**Mr. Chairman:** So how do you assess a rebate if people are not metered? How is that calculated?

**Mr. Thomas:** Well, you pay based on a—we have a residential rate. So like, for instance, at the top end I think it is \$304 every quarter that customers pay right now. So that if you are not getting water for a prolonged period, there would be a rebate of that portion of your bill—of a portion of your bill.

**Mr. Chairman:** How frequently is that done?

**Mr. Thomas:** The Director of Customer Care should probably answer that, but it depends on the person making an application for it.

**Mr. Poon-King:** It is not very frequent. I have not seen many of those.

**Mr. Chairman:** Because people are not aware, probably. Is that probably because of ignorance?

**Mr. Poon-King:** Well, as I say, I have not seen representation on a regular basis.

**Ms. Ameen:** Mr. Chairman, I think there also—what I am not hearing is that there

is a loophole. When you do not have water— where I live we do not have water for weeks on end at a time, and when you call the numbers you are advised that you can make a request for truck-borne water, and it would be free, and it is considered a supply. So if you are getting a truck-borne supply, the impression that you get is that you are not entitled to any rebate. But I think what the Chairman is—so I want to ask about that. If you call and you are told that you will get a truck-borne supply, are you still entitled to a rebate? That is one. And can you clearly outline for the public what the procedure is to apply for a rebate?

**Mr. Poon-King:** First, with respect to the truck-borne, yes, we do acknowledge that if we deliver truck-borne, that is taken that we have delivered a supply to you, in lieu of us being able to provide you with the pipe-borne. And with respect to communicating with WASA, we do not have a formal procedure. Normally, how it has been done is, the customer would write to WASA and it is dealt with on that basis.

**Mr. Chairman:** Mr. Forde?

**Mr. Forde:** I know in the interest of time, eh, Mr. Chair, but probably we may need to look at WASA separate, T&TEC separate rather than they come in on the same day. Even though I have some questions on what has gone so far, especially with regard to Sen. Ameen's point with regard to during that period, 2010/2015 where we had this widespread pipeline laying—yes, it happened on the East-West corridor too also—quickly, what were the benefits of that project?

**Mr. Thomas:** Director of Operations, can you answer that?

**Mr. Forde:** Come on, guys. Gentlemen, officers, we—

**Mrs. Lee-Singh Pereira:** You would have seen in terms of a more reliable supply. Actually, when we had done the pipeline for Hollis and Navet and we have also done along the Caroni, where we laid a parallel line, the benefits mainly

would have been in terms of reliability, sustainability. Those lines were fairly old, very aged and we had very high leakage. So every few weeks, sometimes shorter periods of times, we had a lot of failures along that particular pipeline. So major benefits were in those areas.

**Mr. Forde:** So some of those new lines that were laid, those are not the lines where we are seeing the leakages now.

**Mrs. Lee-Singh Pereira:** No.

**Mr. Forde:** Right. Secondly, what was the cost of that project?

**Mrs. Lee-Singh Pereira:** I cannot say offhand. I would have to—

**Mr. Forde:** You cannot say?

**Mrs. Lee-Singh Pereira:** We have the information but I do not know it offhand. I will have to provide that information.

**Mr. Forde:** So, Mr. Chairman, that could be provided in writing, the cost of the project, that pipe-laying exercise that would have transpired—the massive pipe-laying exercise.

**Mr. Chairman:** Could you do that for us?

**Mr. Thomas:** Yes.

**Mr. Forde:** Now, we are making the point that 93.6 per cent of the population have pipe-borne water. That is documented. That has been stated by you all. But then we are also understanding that we have a truck-borne water supply. But the question to be answered is that out of the 93.6 per cent of, when you look at scheduling; you look at 24/7; you look at the water-truck delivery, what is the true percentage of individuals that could have water on a regular basis? And when I say, regular, seven days a week, 24/7. You all have those statistics for us?

**Mr. Thomas:** We have the statistic. Very few—a small percentage actually gets seven days a week. I think it was somewhere in the vicinity of about 19 or 20 per

cent, if I remember correctly. Am I correct, Mr. Poon-King?

**Mr. Poon-King:** Yes.

**Mr. Forde:** Okay. Well, you will provide it in writing for us. Mr. Chairman, through you, they will provide it in writing.

**Mr. Chairman:** Sure.

**Mr. Forde:** Because, you see, we are seeing 93.6 per cent, which is a very high percentage out of 100, which means it leaves us with just 6.4. But, again, it is not a really true representation. And I want to come home now to my particular constituency which is Tunapuna. We have the Maracas Valley area which is a watershed area that has been clearly identified, but yet still, residents of Maracas Valley complain for water on a regular basis: La Seiva Village; Mountain View, Poolside 1; Poolside 2. You know, we could go—Acono, and different areas as the case may be. So therefore, the water is coming out of Maracas but it is not going back into Maracas.

Now, you mentioned certain elevation—what page that was, boy? Question 12. And the question I would like to ask, you mentioned certain elevation. What is the certain elevation of these individuals who do not get water? Residents who live—I would like a figure, in terms of metering, in terms of feet. What is the elevation that WASA is unable to provide pipe-borne water to individuals? Because we have residents in La Seiva and Maracas with the WASA pipelines but no water is coming to them on a daily basis. And, again, we can even go closer to say, Mr. Chairman, that they are saying that prior to the laying of all these pipelines, they used to get water on a regular basis, but, somehow, between 2010 to 2015, after these massive pipeline infrastructure were put in place, the residents stopped receiving water. I would like to know what is this certain elevation. Because I have been enquiring at WASA on numerous basis, and as the Member of

Parliament for Tunapuna I am unable to give the residents any definite information.

**Mr. Chairman:** Okay. Thank you, Mr. Forde.

**Mr. Thomas:** I am not aware there is an elevation that we cannot reach, because what we do, we normally put in booster stations, and these booster stations will elevate the pressure up to that level.

**Mr. Forde:** Mr. Chairman, I can tell you for a fact that there are booster stations and the people still are not getting water, not even on a one-day basis. Truck-borne water supply has to go up to these areas. Sometimes the trucks that come are too big. There are instances where trucks—

**Mr. Chairman:** I think we are running out of time.

**Mr. Forde:**—fell over at the side. You know, we have no details and there are individuals at WASA that have this information.

**Mr. Thomas:** We will look into that, but perhaps the Director of Operations, I do not know if he is aware of this situation. Perhaps he could shed some light.

**Mr. Chairman:** Succinctly, eh, because we are running out of time at this moment.

**Mr. Sheppard:** There is legislation that WASA provides water supply is supposed to be at 300 feet in the air. We provide—

**Mr. Poon-King:** Three hundred?

**Mr. Sheppard:** Supposed to be at 300 feet.

Okay? There are instances we could provide water supplies higher than that but it depends on the feasibility, which is the availability of water, and it comes at a cost of installing boosters to boost the pressures to those elevations. That also impacts on our schedules a lot. So it depends on the areas you are talking about and the elevations you are talking about which we can do that. We have people

building houses that we have—well, we have no idea of where they are building houses and who approved it, and they all require water. Right? And these are the people you get the complaints from the most, because we did not do any feasibility or we were not prepared to supply them with the supply.

**Mr. Chairman:** Dr. Francis?

**Dr. Francis:** A very simple question. Are there any plans in this fiscal to do any upgrade works at the Trinity Plant?

**Mr. Sheppard:** Yes, there are. We are planning to improve the Trinity Water Treatment Plant from .5 million to .75 million to increase that water supply to your area, but it includes some infrastructure work.

**Dr. Francis:** Are you going to install an additional pump?

**Mr. Sheppard:** We already have the pumps installed. We have to upgrade one or two. Our problem is our clarifier area in that plant.

**Dr. Francis:** No, no. There is one proper pump, two small pumps that cannot push that water. When the pump breaks down, it means an entire community gets no water for the week, because most of the communities in Moruga, their schedule is once a week. So when the pump breaks down—and I have been at that plant regularly—for one hour—because there is no redundancy. There is literally one pump. When it breaks down, it means Marac, or La Lune or Basse Terre, or whatever village, misses the supply for the week. What is required is another pump for redundancy, so when the one breaks down, the other one functions, and then the villages can have their water once a week—once a week—on schedule.

**Mr. Chairman:** Is he going to respond?

**Dr. Francis:** Yes, I am waiting for a response.

**Mr. Sheppard:** Okay. As I indicated before, there is some infrastructural work to be done in order to facilitate a standby unit at that site. That is why I said we have



the pump installed—upgraded and installed. But to install the second one, we need to do the infrastructural work to get that done.

**Dr. Francis:** And that will be done?

**Mr. Sheppard:** It will be done.

**Dr. Francis:** In this fiscal?

**Mr. Sheppard:** Yes, we have plans to do it in this fiscal year.

**Dr. Francis:** So when it is not done, I will come and find you.

**Mr. Sheppard:** And also the filters are the problem, as I said. We are trying to get those filters from La Lune across the Exchange—

**Dr. Francis:** I know.

**Mr. Chairman:** Okay. Thank you very much. Mr. Thomas, if you look at your submission on page 4 of page 18, Item 7, you said that:

During the public hearing held with the RIC—Regulated Industries Commission—and your line Ministry on February the 2<sup>nd</sup>, 2018, it was stated that the proposed rate adjustment which emanated from the last rate review documented by RIC in 2012 were not approved and implemented by WASA.

You were asked to please comment. And in your submission you said there was no record seen, which indicated that rate adjustments were approved by RIC for implementation by WASA in 2012. Could you explain that to us? What is the confusion there? Is it that you all never received something? What exactly is the issue with that?

**Mr. Thomas:** As far as I am aware, the last rate review that WASA got was in 1993. I am not aware of any rate increase in 2012, and that was communicated to WASA. And that is what our response, basically, sought to give. I do not know if the RIC could probably—if they are aware of something different they could

probably put some clarification on that.

**Mr. Chairman:** Dr. Guy, can you throw any light on that?

**Dr. Guy:** I will ask the ED to give some more information, but what we are aware of from our records is that the determination—the price determination process was begun and the RIC got to the point of doing a draft determination, but it never went forward to the next step of publishing it and having consultations. I do not know if the ED can add anything else.

**Dr. Lee Young:** No, Chair. That is the status as far as we know.

**Mr. Chairman:** Okay, thank you. Khadijah, you wanted to ask one more question?

**Ms. Ameen:** Yes. Mr. Chairman, I want to ask—you have provided a list of the areas where truck-borne water is supplied, on page 12 of your submission to the Committee, and on page 13, areas supplied in Tobago. My question has to do with the cost. What is the cost of supplying truck-borne water to customers?

**Mr. Thomas:** The provision of truck-borne water is an exceptionally expensive proposition. It is highly inefficient and it is not the way we would want to actually, you know, supply water. The price, perhaps, the finance department could probably give us some clarity there.

**Ms. Wilkes:** It varies between three to 500 a truck-borne supply, per trip.

**Mr. Chairman:** Between \$300 to \$500?

**Ms. Wilkes:** Yes.

**Mr. Chairman:** And what we are seeing here as a breakdown—if we see this breakdown from one to 20 with Diego Martin, going down to Morvant, I am seeing something like 9,315 for Maraval; Diego Martin, 12,000, nine—

**Ms. Wilkes:** That is requests being made.

**Mr. Chairman:** That is requests being made? Out of the requests, are all those

requests satisfied like that? What percentage of the requests is satisfied, 12,000?

**Mr. Thomas:** Those requests are over a period of time for the fiscal years 2015—

**Mr. Chairman:** What period of time, a year?

**Mr. Thomas:** 2015 to 2017. If you look at the top of 22, that is a period of time. And actually if you look at the response to question 23, it could actually tell you exactly how much of those truck-borne requests were actually made for that same period of time.

**Mr. Chairman:** So the answer will be found in Item 23.

**Mr. Poon-King:** Items 23 and 24.

**Ms. Ameen:** Mr. Chairman, I wanted to get an idea. I appreciate the answer with regard to the cost per truck-load, which is about \$300. What I wanted to get, how much does it cost WASA on an annual basis to supply truck-borne water?

**Mr. Thomas:** I do not actually have that figure but we could calculate. If you want, we could actually do a quick calculation and probably tell you—

**Mr. Chairman:** And get it to us as well.

**Mr. Thomas:** Or we could provide it to the Committee.

**Mr. Forde:** No, but Mr. Chairman, it is in the document. On page 13 it says: A total of 47,967 requests for truck-borne water delivery were met. So if you multiply that by \$400, you will get the figure.

**Ms. Ameen:** There may be other costs involved, which is why I asked—the administrative costs and so on, which is why I asked, and I prefer WASA to send us the information than us trying to calculate it ourselves.

**Mr. Thomas:** We will supply the information.

**Mr. Chairman:** Finally, we are coming to the close here, but I must ask this question here. With reference to the individual consultant WASA would have hired to fulfil the requirements of the rate review by RIC, what was the name of

that consultant? What was the consultant's fee and what was the period of his contractual obligation, or her contractual obligation, or their contractual obligation?

**Mr. Thomas:** His name escapes me right now. I know—

**Mr. Chairman:** It is an individual as opposed to a—it is an individual?

**Mr. Thomas:** It is an individual. Albert Gordon is the name of the individual. I think we have actually got funding from the IDB to actually assist us in this exercise. The actual cost, I do not know. Mr. Abdool, are you aware?

**Mrs. Lee-Singh Pereira:** The cost is US \$70,000.

**Mr. Chairman:** How much?

**Mrs. Lee-Singh Pereira:** US \$70,000.

**Mr. Chairman:** And the contractual period?

**Mrs. Lee-Singh Pereira:** One year.

**Mr. Chairman:** And is it still current?

**Mrs. Lee-Singh Pereira:** Yes, it is still current.

**Mr. Chairman:** When does it end?

**Mrs. Lee-Singh Pereira:** It ends in December 2018.

**Mr. Chairman:** And this consultant provides—is the linkage between WASA and RIC?

**Mrs. Lee-Singh Pereira:** Yes. He has provided—and he has been the liaison, together with ourselves, in terms of the whole liaison between RIC and the Authority. The process is still ongoing so we still have the consultant also working on our behalf also.

**Ms. Ameen:** And can you just clearly outline for us what is the role of this consultant? I know it is to provide information to the RIC with regard to the rate review, but can you outline what he is required to do?

**Mr. Chairman:** The answer is on page 1 of their submission. But you also have a consulting firm.

**Mrs. Lee-Singh Pereira:** Yes.

**Mr. Chairman:** What is the name of the consulting firm?

**Mrs. Lee-Singh Pereira:** Castalia. We are looking to still engage the firm, Castalia.

**Mr. Chairman:** What she said?

**Mrs. Lee-Singh Pereira:** Castalia.

**Mr. Chairman:** Castalo?

**Mrs. Lee-Singh Pereira:** Castalia.

**Mr. Chairman:** Is that a local firm?

**Mrs. Lee-Singh Pereira:** No, it is a foreign firm.

**Mr. Chairman:** From where?

**Mrs. Lee-Singh Pereira:** The USA.

**Mr. Chairman:** And they are specialists in—what?—regulated matters, or—

**Mrs. Lee-Singh Pereira:** And utility benchmarking, financial management. That is their general portfolio.

**Mr. Chairman:** And what is your consultant fee?

**Mrs. Lee-Singh Pereira:** US \$70,000.

**Mr. Chairman:** Also paid by—

**Mrs. Lee-Singh Pereira:** Paid by the IDB.

**Mr. Chairman:**—IDB as well. And what is the period of their contractual obligations?

**Mrs. Lee-Singh Pereira:** You mean with regard to the consulting firm?

**Mr. Chairman:** Yes.

**Mrs. Lee-Singh Pereira:** Sorry. It is still in a procurement area right now. I

would share with you all in writing in terms of the fee, and the contracting period is approximately four months.

**Mr. Chairman:** I see. So this is still, you said, in the procurement stage?

**Mrs. Lee-Singh Pereira:** That is correct.

**Mr. Forde:** Mr. Chairman, I think a critical question, seeing that we have the chairman from RIC here, is insofar as the consultancy services and being the link between, it would be good to get some opinion, a comment, or something on how things have been going with regards the consultant, as the case may be.

**Mr. Chairman:** Dr. Guy, can you assist?

**Dr. Guy:** I would ask the ED who interacts on a day-to-day basis with the persons—

**Mr. Forde:** Okay.

**Dr. Guy:**—so he would answer that, yes.

**Dr. Lee Young:** Our chief liaison is actually with WASA and not with the consultant. We have met with the consultant once, together with WASA right at the start of the business plan process.

**Mr. Chairman:** So is that efficient, or—

**Dr. Lee Young:** We deal with WASA. This consultant works for WASA. We require responses from WASA. We do not deal directly with the consultant.

**Mr. Forde:** Mr. Chairman, somewhere I heard—

**Mr. Chairman:** Sorry, just a second.

**Mr. Forde:** Okay, I will give way to the Senator.

**Ms. Ameen:** Chairman, forgive me, eh.

**Mr. Chairman:** A short question because we are coming to the end of the day.

**Ms. Ameen:** Yes, a very short question. Is it that this individual consultant—let us not go with the company. This individual is hired at US \$70,000 per year to do

something that WASA is just unable to find the expertise amongst all its senior employees to do, to develop a business plan and to provide technical support to the Authority for the rate review—the rate structure? Is it that WASA is unable to find that expertise amongst its residents within the Authority, so it has to spend US 70,000 a year, on one individual?

**Mr. Thomas:** Perhaps the CEO could probably go into a little bit more detail of what the consultant does.

**Dr. Borris:** I want to confirm that WASA does not have the expertise to prepare the business plan as required to do the assessment.

**Ms. Ameen:** I am finding that difficult to believe because there are well paid and well qualified directors and executive officers in WASA and I thought they would be well qualified enough to do something like this. So forgive me. Well, another member has a question.

**Mr. Forde:** The officer to the back of the—it was that member—

**Mr. Chairman:** Mr. Forde, sorry, let me just interrupt you here. The Ministry of Public Utilities, Ms. Khan? Does the Ministry have within its competence such an individual or unit to deal with supporting that requirement of WASA?

**Ms. Khan:** Indeed, Chair, we have been supporting WASA in several aspects of its strategic and business planning. Whether we have all the expertise that will bring that to a final conclusion, no, we do not. But we have been assisting them to the extent that we can in those particular areas.

**Mr. Chairman:** So nowhere within the competence of Trinidad and Tobago's public service such an expertise resides? Is this what I am hearing?

**Ms. Khan:** No. I am sure it resides in Trinidad and Tobago, yes.

**Mr. Chairman:** Where do you think it will reside? Where within the public service you will find such an individual or individuals?

**Ms. Khan:** I think, Chair, we would have to draw expertise from several Ministries to do that: the Ministry of Planning and Development, the Ministry of Finance, of course, and with the skills of the Ministry of Public Utilities.

**Mr. Chairman:** But would that be—given our constraints of resources, would that not be an attractive proposition at this point in time to explore, WASA?

**Ms. Khan:** Certainly. I think there is value.

**Mr. Chairman:** Do you not think so, Mr. Thomas?

**Mr. Thomas:** There is value in that, Chairman.

**Mr. Chairman:** Sorry?

**Mr. Thomas:** There is some value in what the Chairman—coming from the Chairman, but bear in mind we have certain time constraints as well in terms of having to get this exercise done, and we wanted to get the most robust responses into the RIC. And even though I would differ and say I do think we have some of the competencies in WASA to get this job done, I do not think all of the competencies reside in WASA to get the job done.

**Mr. Chairman:** Well, can you identify what are the competencies that are missing so as to have the complement completed?

**Mr. Thomas:** Again, the CEO could probably elaborate on this, but I do not think it is any one—

**Dr. Borris:** To develop the plan for the business plan, the person has to be very competent with respect to business management at the Water and Sewerage Authority. They have to have a model. The area that has, or the organization that has the competence is the RIC. At least they have that competence. But at least WASA has to submit to them. So, therefore, they can only probably lend a hand now and again. But we have to submit the business model that is in accordance with the RIC's regulation. So the competence—you have to have that competence



with respect to preparing a model, a numerical model, to do an analysis of the nature, with all the information and data that we have from the organization. Within the organization, we could not have found that resource.

**Mr. Chairman:** Dr. Borris, I mean, with the greatest of respect, eh, that sounds a little bit convoluted, eh. And I will say furthermore, if what you just heard here from the Deputy PS, that within the Ministry such competencies can be found, you are dealing with a public entity as WASA, what is the difficulty in coming together and formulating a strategy? If you have to second—you have secondment that goes on from Ministry to Ministry as opposed to getting somebody who is a consultant coming into your organization to be familiarized with the information, when you have it right in the Ministry here. Something can be worked out like that. We are dealing with leakages. This is leakages of finances that can be better used elsewhere than if you could find it resident within the public service already.

**12.35 p.m.**

**Dr. Borris:** At least, Chairman, I hear your statement, but I wanted to explain to you the fact that the competence did not exist, and as according to the Chairman the matter was rushed. We wanted to get this business plan as rapidly as possible to the area that we could have gotten the tariff increased and, therefore we had to at least bring competence—

**Mr. Chairman:** Is it finished?

**Dr. Borris:** It is finished to a certain degree and submitted.

**Mr. Chairman:** Dr. Guy, what do you have to say about this?

**Dr. Guy:** Chairman, we do have a business plan document from WASA. The first version of it did not provide all the information, and we have been working with WASA to get the information that we need to build the model. Up to this time, we do not have a final document. What we have we are working with, but there is still

some information that is outstanding.

**Mr. Chairman:** Dr. Guy, also, not to put you on the spot, but as the midway between the Ministry and the utility as the Regulator, what you heard coming from the Ministry's management, the Deputy PS, can something like that not be facilitated and be more attractive and suitable to our given financial constraints as a country right now? Would that not be something that could be quickly done? It is not something that seems to take a very long undue time to put together.

**Dr. Guy:** Chairman, you mean the business plan? The model?

**Mr. Chairman:** Well, I am seeing producing business plan. Dr. Borris was saying it does not reside within WASA, the PS is saying that within the Ministry there is that competency, Dr. Borris is also saying within the Regulator you all that competency, what I am saying, he is saying given the time constraint it was necessary to get this consultant to put things together fast so as to give you the information. But I am saying, if this is going to be a bligh on this occasion moving forward, can that competency not be put together so as to avoid that in the future? Is that something that should be done to make us more prudent? If we are looking at leakages across, I mean, not to be pondering on the word "leakage", but that is a leakage.

**Dr. Lee Young:** If I can address that question, yes, you are absolutely right. Going forward we would expect that those competencies would be developed and reside within WASA because they reside and exist within T&TEC. T&TEC was able to generate the business plan as requested. Okay, fine, there is back and forth with respect to questions, clarifications, et cetera, but T&TEC, if I point out, has had the benefit of a recent rate review within the last 10 years, 2006—2011. On the back of that, they developed a Regulatory Department whose function is to provide us with the information that we will need, et cetera. WASA does not have

that department or system set up. But yes, I would envisage going forward, coming out of this rate review exercise and the implementation of the quality of service standards, that we would expect to see that resource reside within WASA.

**Mr. Chairman:** Thank you very much. Mr. Thomas, you heard where this is coming from, from RIC, and I am certain that that would be part of your immediate plans moving forward.

**Mr. Thomas:** Yes, Chairman.

**Mr. Chairman:** Ladies and gentleman, at this time I want to thank you for your participation this morning, and it has been quite a lively exchange, discourse as well, in terms of information. Water as once said by a Minister I heard in an international forum talking about water, that without water there is no life. So it is a critical element in human existence, it is a critical function that WASA is performing on behalf of the citizens of Trinidad and Tobago, and certainly given all the difficulties that you all have been lamenting now in terms of making yourself more efficient, we hope that hearing these ideas would assist in shaping focus and energizing all the necessary stakeholders to get things together so that we could have a more efficient entity.

I want to thank again, Dr. Guy, for her continued stewardship at RIC in helping to bring forward the two utilities that we have examined this morning, T&TEC and WASA, to be more efficient in their delivery and service of the people of Trinidad and Tobago. So in closing, I would ask you to just give a brief commentary on your take this morning, and Dr. Guy thereafter, and PS. Please, short. Thanks very much.

**Mr. Thomas:** Once again, Chairman, thank you for inviting us here this morning to share some of the experiences that the public endures in terms of our service delivery. It is something that we take very seriously. We are mindful that there

are certain challenges. We have challenges that we face and we are trying at all stages of our operation to try and improve and increase the efficiency of the organization. We are thankful to our partners, the Regulated Industries Commission as well as the Ministry for their assistance in the past, and we would certainly take on board some of the suggestions that have been made by this Committee in terms of trying to improve our service standards and our delivery to our customers.

**Mr. Chairman:** Thank you very much. Dr. Guy.

**Dr. Guy:** Chairman, members, members of the public, we are happy to be here to give information. The RIC is well poised and we have prepared for these rate reviews, and we are working with the service providers so that we can deliver on the mandate that is in the Act. We have a schedule for T&TEC that is well on target, and we continue to work with them to get the information to complete the review. WASA, we anticipate is a little bit coming after T&TEC, but we continue to work with WASA to get the information to populate our model so that we can move forward.

We would like to see both rate reviews be completed before the end of this year, and I think if we put our minds to it and work towards the schedule that we have it will be done. We also are mindful of the fact that the rate review must come with the quality of service standards, and that is something that would be very valuable for customers in Trinidad and Tobago. So they must go hand in hand, a review with the quality of service standards, and again we are working with the providers to ensure that that is in place. Thank you very much.

**Mr. Chairman:** Thank you very much as well.

**Ms. Khan:** Mr. Chairman, I want to say that the Ministry of Public Utilities fully identifies with the concerns expressed by the Committee, particularly as it relates

to operational inefficiencies and poor customer service. Beyond the issue of the quality of service standards which falls under the RIC, we too are strengthening our performance management system with our respective utilities. In addition, we are in discussions on several projects that will take, in particular, WASA forward to address the issue of leakage, demand management through bulk metering and universal metering, looking at changing out some of the infrastructure and really looking at the organization as a whole and the efficiency with which it operates, and trying to institute some changes as far as we can from our position as the Ministry of Public Utilities. So we fully recognize what we have to do, and we have been working with WASA and we will continue to do so until such time as we are able to effect some meaningful change. Thank you.

**Mr. Chairman:** Thank you very much, and in closing I would just like to make some announcements for public announcements. The public is advised that the Committee's Ninth Report on the Operations of the Chaguaramas Development Authority was presented in the Senate yesterday on March 27, 2018, and will be presented in the House of Representatives later today. This report will also be made available for review on the Parliament's website [www.ttparliament.org](http://www.ttparliament.org). Some of the issues addressed in the report are as follows:

- (a) The line Ministry of Planning and Development should assume a leading role in revising the master Development Plan 2015 with input of the CDA;
- (b) The CDA should collaborate with its line Ministry to produce a recovery plan to guide its reformation; and
- (c) The compliance user of the CDA should undertake a thorough examination of the tenants/leaseholders records in order to determine whether they are compliant with statutory obligations. Further to this,

the CDA must take appropriate legal and administrative action against those who are non-compliant.

There being no further business, I would like to thank all the viewing public, the listening public. I would like to thank all those of you who have participated here this morning. I would like to thank my other members of the Committee who have helped to make this a success this morning, and that the public would have been enlightened to what is to be expected from WASA and T&TEC moving forward.

I thank you. This Committee now stands adjourned.

**12.45 p.m.:** *Meeting adjourned.*