

In the matter of an Application by Songas Limited

**MEMORANDUM ON  
SONGAS (NATURAL GAS PROCESSING AND TRANSPORTATION  
MULTI-YEAR TARIFF ADJUSTMENT THE MECHANISM)**

**ORDER № 09-004**

**Executive Summary**

1. On October 23, 2008 Songas Limited (“Songas”) (“the Applicant”) submitted an application to EWURA (№ TR-G-08-025) (“the Application”) to review a proposed formula (“the Multi-Year Tariff Adjustment Mechanism (“Mechanism”)” pursuant to which the prices payable by all customers of Additional Gas in respect of natural gas processing and transportation services provided by Songas will be set for the next 14 years. EWURA’s review of the existing processing and transportation tariff methodology is driven by the growth in gas demand over the current installed gas processing plant capacity which is 70 million cubic feet per day (MMcfd). This increased demand is also the driving force behind a proposed project to double the existing natural gas processing capacity.

2. The capacity of the first and second units of natural gas de-hydration and dew point control (“the first and second trains”) on Songo Songo Island have reached their maximum design capacity of 70 million standard cubic feet per day (MMcfd). The third train, having a capacity of 35 MMcfd, is urgently required. A fourth train of similar capacity to the third train would, in the near to intermediate term, offer spinning capacity. The plant expansion activities (“the Expansion Project”) are intended to be commissioned by mid-2010.

3. EWURA finds that Songas has fulfilled all of conditions due under EWURA Orders № 08-009 and 08-013, and that it is qualified to seek EWURA’s approval of the Mechanism. The Applicant’s lenders will decide whether or not to fund the Expansion Project based upon EWURA’s decision on the Application. The Applicant has designed the Mechanism:

- (a) to guarantee the key commercial terms agreed in the Expansion Project Agreements;
- (b) to guarantee that the Applicant recovers its targeted annual revenue;
- (c) to provide Songas with annual informational return requirements; and
- (d) to provide Songas with a procedure pursuant to which it may seek periodic review of the Mechanism by EWURA.

4. EWURA has evaluated the Application taking into account the legal requirement under Section 17(2) of the Energy and Water Utilities Regulatory

Authority Act (Cap 414 of the Laws of Tanzania). EWURA conducted a public inquiry during the period 5 December 2008 to 18 February 2009 and held a public hearing at Karimjee Hall, in Dar es Salaam on 29 December 2008 for the purpose of receiving views of all stakeholders on the reasonableness of the Application. On 3 February 2009 EWURA circulated a draft Order in respect of the Application to the key stakeholders and on 6 February 2009, EWURA held an exit conference followed by two working sessions on 9-10 February 2009. The purpose of the working sessions was two-fold first it allowed EWURA to clarify for the benefit of all interested parties the rationale for the draft Order. Secondly it allowed all stakeholders to respond to the comments of EWURA and the other stakeholders related to the elements of the draft Order. EWURA received valuable information during the process, and during its analysis, it has taken into account the stakeholders' observations and comments.

### **Temporary Solution**

5. Technically, there are three alternatives to implementing the Expansion Project:

- (a) re-nameplating the capacity of the existing plant to 90 MMcfd;
- (b) de-bottlenecking the key sections such as Joule-Thompson valves; and
- (c) relaxing temperate operating parameters by mixing raw gas with processed natural gas.

6. Because each of the three alternatives identified in paragraph 5 above are temporary in nature, they do not provide a long-term solution to the constraints on the existing system. During the inquiry period/TANESCO confirmed that Songas and TANESCO have reached an agreement to re-nameplate or overstrain the existing natural gas processing plant in order to temporarily increase the plant operating limit up to 90 MMcfd.

### **Memorandum Objective**

7. The purpose of this Memorandum is to present for the benefit of stakeholders and the general public (i) Songas' request for approval of the Mechanism, (ii) EWURA's analysis of the Application, and (iii) EWURA's decision based on information that has been made available to it. This Memorandum is intended to be read together with EWURA Order № 09-004.

### **Inputs to the Analyses**

The Ministry of Energy and Minerals ("MEM"), Songas, PanAfrican Energy Tanzania Limited ("PAT"), Tanzania Electric Supply Company Limited ("TANESCO"), and Tanzania Petroleum Development Corporation ("TPDC") (together referred to as "the Working Group") have expended great efforts to

implement the Expansion Project. On 20 June 2008, the Working Group initialled the Expansion Project Agreements, which were structured to:

- (a) provide Songas with the Expansion Project capital cost recovery mechanism;
- (b) provide Songas, TANESCO, TPDC and PAT with extra protection against action on the part of the regulator that might limit revenue flow; or
- (c) protect Songas, PAT and TPDC from being subjected to more rigorous performance monitoring.

8. During the inquiry period and the post-exit conference working sessions, EWURA took the opportunity to make the Working Group aware of EWURA's concerns on these and other matters. The issues raised in these various discussions formed the basis for EWURA's decision that Songas must seek EWURA's written consent prior to amending or modifying any of the Project Agreements, or in the event that Songas seeks to conclude any new agreements related to the Expansion Project.

9. EWURA recognises the indirect investment made by the Government of Tanzania ("GoT") by way of a loan to Songas for the purpose of over-sizing the pipeline. EWURA further recognises that this investment has not yet been recovered and is not covered by TANESCO's capacity charge payments. In addition to the Expansion Project, Songas also sought EWURA's consideration of an allowance necessary to repay the GoT pipeline over-sizing loan. At the time that EWURA was concluding its analysis, MEM confirmed that there was no IDA loan on-lending agreement between GoT and Songas. For this reason, and consistent with the EWURA Order № 08-009, the condition compelling MEM to negotiate and furnish EWURA with the IDA loan on-lending agreement has been withdrawn.

### **Stakeholder Involvement**

10. Consistent with Section 19(2)(h) of Cap 414, EWURA conducted an inquiry which comprised, *inter alia*, (i) posting the Application on the EWURA website, (ii) issuing a 30 days public notice of the Application in newspapers of general circulation including The Daily News, The Citizen, Mwananchi, Tanzania Daima of 5 December 2008, (iii) announcing through TV and Radio that the Application had been filed, and (iv) conducting the public hearing on the Application in Dar es Salaam.

11. The Consumer Consultative Council ("CCC") and the Government Consultative Council ("GCC") received copies of the Application. At the public hearing conducted at Karimjee Hall in Dar es Salaam on 29 December 2008, the stakeholders were invited to present their views, opinions, and concerns. Only the

CCC, GCC and PAT submitted written comments. Specifically, their comments addressed the following issues:

- (a) the proposed rate of return of sixteen percent (16%) was too high and as a result, consumers will suffer;
- (b) the proposed cost reflective tariff setting formula tends to increase the tariffs as volumes decrease in order to compensate the investors;
- (c) the proposed revenue requirement formula guarantees the annual revenue requirement regardless of the level of processed throughput;
- (d) the external pressures on EWURA in support of a particular service providers before its application is concluded is unacceptable;
- (e) the proposed O&M Costs of US\$ 2.9 million is high, as compared to the Applicant's previous submission; and
- (f) the working capital allowance should not be included in Operation and Maintenance and as a result filter into the Revenue Requirement formula.

12. On February 3, 2009 EWURA circulated a draft Order to the key stakeholders (MEM, Songas, TPDC, PAT, TANESCO, CCC, and GCC) and invited each of them to attend an exit conference to be held at Karimjee Hall on February 6, 2009. At the exit conference, EWURA identified those areas where the draft EWURA Order varied from the terms of the Application, together with the reasons for such variances. In order to test the reaction of the applicants and the interveners, all stakeholders were invited to comment on the draft Order as presented.

13. At the end of exit conference, the stakeholders proposed that EWURA hold one or more post-exit conference working sessions for the purpose of carefully scrutinising every comment received. On the basis of that request EWURA conducted two working sessions, held on 9-10 February 2009 to exchange expert views on the stakeholders' comments and the responses by EWURA.

### **The Analysis**

14. EWURA has scrutinized the Application to ensure that contractual aspects, legal issues, technical aspects, public interests, as well as financial and commercial matters have all been taken into account. The regulatory tools applicable to EWURA's review include (i) EWURA Act (Cap 414 of the Laws of Tanzania), (ii) those Project Agreements that were made available to EWURA, (iii) the National Energy Policy, 2003, and (iv) literature and other materials made available from the international community. EWURA's review tested the reasonableness of the current prices as well as the Mechanism set out in the Application.

## **Financing Structure**

15. According to the Application, the loan from the lenders is intended to be treated as a one hundred percent (100%) loan to Songas. In addition, for the purpose of calculating the weighted average cost of capital (“WACC”), the applicants have asked EWURA to approve a gearing ratio of fifty percent (50%). Songas believes that arrangement for a syndicate debt financing would be time consuming, costly and possibly fruitless. Furthermore, Songas has also asserted that a syndicated debt financing arrangement would increase the capital costs of the Expansion Project by as much as US\$ 4 million. Due to the current global financial crisis, EWURA has found that (i) one hundred percent (100%) of blended loan financing is acceptable, but (ii) for the purpose of determining the WACC, the gearing ratio should be set at sixty percent (60%). The approved gearing ratio compares well with that used by gas regulators in similar circumstances in other parts of the world.

## **Rate of Return**

16. Using the Capital Asset Pricing Model (“CAPM”), Songas assessed the risks associated with the Expansion Project and concluded that the WACC calculated on an assumed 50:50 debt-equity ratio should be eighteen percent (18%). Songas, nevertheless, has proposed a sixteen percent (16%) WACC, being at the lowest end of the range asserted to be acceptable to the lenders. EWURA has studied the various parameters of the WACC filed by Songas in order to confirm that the numbers arrived at are reasonable or not. EWURA, in its analysis, found whether most of the parameters employed by Songas (i.e. the risk free rate, the market risk premium, the country risk premium, and the asset beta) to be based on subjective rather than objective standards, since they are drawn from various types of market conditions. The perceived risk may be exaggerated in some cases. EWURA has also concluded that the purported eighteen percent (18%) WACC is in fact merely a Return on Equity (“ROE”), as the project is one hundred percent (100%) financed by equity and Songas calculation for WACC did not take into consideration a debt component. In its analysis, EWURA identified the following parameters as being relevant: (i) the cost of equity at twenty-two percent (22%), (ii) the cost of debt at ten percent (10%), and (iii) a gearing ratio of sixty percent (60%). When these parameters are applied, EWURA calculates the WACC as being fourteen point eight percent (14.8%). The figure is rounded-up to fifteen percent (15%). EWURA’s decision on the WACC therefore lowers the first year’s total annual revenue requirement by US\$667,678 and the first year processing and transportation tariff by US\$0.04 per Mcf.

## **Interest During Construction**

17. Traditionally, Interest During Construction (“IDC”) commences accruing from the date loan is drawn-down and ceases to accrue upon the expected commercial operations date. Typically, (i) the debt financing portfolio is drawn-down first and the equity financing portfolio is drawn down last, and (ii) the project development phase prior to financial closing date does not exceed one year. Were it to be otherwise, the validity of costs would expire prior to the commencement of project implementation, thereby compounding interest during construction and as a result, imposing a significant burden to the total budgeted project costs. Songas has requested the IDC to commence 21 months prior to the pre-financial closing date, and continue to accrue for 19 months during construction. EWURA has observed this request to be contrary to prudent and best practices and as such, unreasonable. EWURA has determined that the IDC should commence accruing as from May 1, 2007 and that it should cease to accrue at the end of 67 weeks.

## **Total Budgeted Project Costs**

18. On 14 December 2006, Songas estimated that the Total Budgeted Project Costs would be US\$29.8 million. By late April 2007, Songas had contended that such costs had increased to US\$60 million, inclusive of IDC. By 28 February 2008 the estimates had again been revised to US\$57.8 million, IDC inclusive. On 23 October 2008 Songas’ estimates increased again, this time to US\$65.835 million, IDC inclusive. During the inquiry period, Songas again revised the Total Budgeted Project Costs to US\$65,734,582, IDC inclusive. Songas indicated that the above catalogued changes were driven by (i) the increased petroleum prices worldwide, (ii) the passage of time, and (iii) the inclusion of new cost items such as environmental impact mitigation measures. The major component of the Total Budgeted Project Costs is the sum of the two principal contracts, the Engineering, Procurement and Construction Contract, and Equipment Supply Contract (US\$50,893,907 million).

19. EWURA has made the following adjustments to the drawdown schedules submitted by Songas:

- (a) it has disallowed an amount of US\$1,510,980, being the cost incurred by Songas as a result of the terms of the Indemnification Agreement concluded by TANESCO, Songas and the Globeleq Advisors, prior to May 1, 2007;
- (b) it has disallowed the amount of US\$1,126,912 being the project costs incurred by Songas during the period the that EPC Contract was void; and
- (c) it has disallowed the IDC allowance of US\$8,587,477 on the grounds that the IDC is not a fungible cost item.

20. EWURA has established the Expansion Project cost build up of US\$54,509,213 million, as indicated in Table 1, which is deemed to be the reasonable Total Budgeted Project Capital Costs.

**Table 1: Total Budgeted Project Cost as filed by Songas**

Cost Component	Costs (in US\$)	
	As filed by Songas	Adjustment by EWURA
Pre-Closing Costs	6,253,198	3,615,306
Construction and Commissioning Costs	50,893,907	50,893,907
Interest During Construction (at 16%)	8,587,477	-
<b>TOTAL</b>	<b>65,734,582</b>	<b>54,509,213</b>

### **Depreciation Method**

21. The depreciation component provides an opportunity to recover investment made in assets. Songas requested that a Straight-Line Depreciation Method be applied and the adherence to a half-year rule. The half-year rule allows Songas to recover principle and interest on a semi-annual basis. The Straight-line Depreciation Method is generally preferred for projects where throughput and annual revenue requirements diminish with time. EWURA has accepted Songas' proposed depreciation method, principally because it provides an opportunity to accommodate further investment in the gas sector after customers have experienced some tariff relief.

### **Redemption Period**

22. According to the Application, the useful economic life of the assets is estimated to be in excess of 20 years. However, at the time EWURA was concluding its analysis, the proven gas reserves for the Expansion Project were estimated to be limited 500 billion cubic feet. If the daily gas demand were to be 90 MMcfd, it is estimated that the reserve would last for only 14 years. For this reason, EWURA approved 14 years as the useful economic life for the third and fourth trains.

### **Operation and Maintenance Costs**

23. The Application introduced unusual cost items not related to classic operations and maintenance ("O&M") costs, including (i) Incremental Business Costs (a number of insurances, banking costs, and auditors fees), (ii) the Regulated Business Costs (including EWURA Levy, consultancy fees, and legal fees), (iii) the Working Capital Allowance, and (iv) a VAT carrying cost allowance. In total, Songas requested the approval of US\$4.132 million, of which US\$745,000 was considered to have been incurred in a year prior to the third train commercial operations date. If approved as the Base O&M Cost (to be indexed in subsequent years using US CPI), the O&M component would be well out of the range. According to Attachment J to the

Application, the O&M Costs are expected to increase to US\$352,000 in year 2010. EWURA has disallowed all costs (US\$3.896 million) unrelated to classic O&M Costs.

**Table 2: Operational and Maintenance Costs**

Nature of the Costs	Costs (in US\$)		Remarks
	Proposed by Songas	Adjustment by EWURA	
Operations Staff	30,000	30,000	All these costs are relevant to form part of O&M Costs
2 x Instrument Technicians	30,000	30,000	
Additional Welfare Costs	24,000	24,000	
Glycol	54,000	54,000	
Methanol	6,000	6,000	
Chemicals,	55,000	55,000	
Plant and Lab Expenses	24,000	24,000	
Spares	13,000	13,000	
<b>Total O&amp;M Costs</b>	<b>238,000</b>	<b>238,000</b>	
Business Interruption Insurance	185,000	-	All these costs are irrelevant to O&M
Property damage Insurance	488,000	-	
Banking and debt management	30,000	-	
Accountants for Tariff filings	100,000	-	
<b>Total Incremental Business Costs</b>	<b>803,000</b>	-	
EWURA Levy	140,000	-	All these costs are irrelevant to form part of O&M Costs
Customer Service Charter	-	-	
Reservoir Evaluation & Monitoring	75,000	-	
Planning Activities	280,000	-	
Regulatory and Legal Expenses	280,000	-	
<b>Total Regulated Business Costs</b>	<b>775,000</b>	-	
Working Capital Allowance	120,000	-	All these costs are irrelevant to form part of O&M Costs
Carry-forward from Year Zero	745,000	-	
VAT Carried Costs Allowance	1,014,000	-	
Costs Escalation at 3% to mid-2010	437,000	-	
<b>Total Allowances</b>	<b>2,316,000</b>	-	
<b>Total O&amp;M Costs on Jan. 1,2009</b>	<b>4,132,000</b>	<b>238,000</b>	

24. The Incremental Business Costs are not related to the O&M Costs. The formula for Annual Revenue Requirement provides insurance as a separate major component. Eligible insurance costs (excluding business interruption insurance) have been included in the computation of annual revenue requirement. The banking and debt management costs and auditors' fees are part of the General Administration Costs, embedded in O&M Costs.

25. The Regulated Business Costs are not related to O&M Costs. The EWURA Levy is a pass through item, computed at the billing point and treated in the same manner as other taxes. Neither are the consultancy services directly related to the Expansion Project. Whether or not the Expansion Project is implemented, those activities will continue to be required. Including these costs as part of O&M Costs inflates the project costs unnecessarily.

26. The Working Capital Allowance is part of the rate base. It is unusual to charge that amount if the business is a going concern especially because Year zero occurs before the Expansion Project is commissioned. VAT carrying Cost Allowance was thus, unnecessarily included. The laws of Tanzania provide the avenues to be employed by Songas to recovering the paid VAT. If the existing avenues are inefficient, the matter should be addressed by raising the issue with appropriate authorities, but not overburdening the rate payers unnecessarily.

### **Effectiveness of the Mechanism**

27. At present, the non-power sector Additional Gas consumers pay almost US\$1.65/mcf for services, while the power sector Additional Gas consumers (up to about 30MMcfd of the remaining capacity) pay almost US\$0.45/mcf for identical services. Both industrial and power sector throughput gas consumers will pay a flat rate based on annual revenue requirement divided by the sum of the projected annual throughput gas. The approved Mechanism conforms to Section 4.1 of the Gas Agreement and Section 2.4(b) of the Gas Processing and Transportation Agreement, which prohibit regulated service providers from unreasonably discriminating against similarly situated customers. According to EWURA Order № 08-013, all throughput gas customers (excluding the Protected Gas customers) shall pay a flat rate tariff approved at US\$0.58/Mcf with effect from 1 January 2010.

### **Initial Infrastructure Revenue Requirement**

28. TANESCO and Songas share tariff revenues generated by natural gas processing and transportation services to Additional Gas customers at 85:15 ratio. Under the approved Mechanism, TANESCO and Songas will each continue to share revenue produced from services to Additional Gas customers up to the first 70 MMcfd. EWURA has calculated this figure on the basis of the book value of the costs associated with the excess capacity of the initial infrastructure. This change in processing and transportation tariff setting methodology has drawn the attention of key stakeholders. EWURA first introduced this principle to Songas and other stakeholders in August 2008. EWURA has tested the data generated by Songas, TANESCO and PAT and arrived at a hybrid version that it has used to determine the flat rate.

### **Tariff Adjustment Mechanism**

29. The approved Mechanism shall be valid for 14 years. However, in order to accommodate the ever changing parameters that many impact on the mechanism. EWURA shall, at any point in time from three years after the third train COD periodically review the Mechanism. The assessment by EWURA with regard to reasonableness of Songas Application when all parameters are put together is as summarised in Table 3.

**Table 3: Summary of Recommended Adjustments to the Mechanism**

<b>Key parameter of the Application</b>	<b>Repealed EWURA Order GNN 70</b>	<b>Songas Application № TR-08-025</b>	<b>Approved by EWURA Order No. 09-004</b>
Rate of Return	16%	16%	15%
Budgeted Project Costs	US\$29.8 mill	US\$65.735 mill	US\$54.509mill
Disallowed Project Costs	Nil	Nil	US\$ 11.226 mill
First Year O&M Costs	US\$623,000	US\$4.132 mill	US\$236,000
Gearing	50%	0%	60%
Depreciation Method	Mortgage	Straight-Line Depreciation	Straight-line Depreciation
Term	17 years	14 year	14 years
Redemption Period	17 years	14 years	14 years
1 <sup>st</sup> Year Revenue Requirement	US\$5.98 mill	US\$24.72 mill	US\$22.03 mill
Sharing of IIRR	In case of surplus	85:15	85:15
Target Groups of Customers	Industries + Power	Power Only	Industries + Power
Proposed Tariff	17.5%+Xt of SOP	Mixture	<u>Revenue</u> <u>Volume</u>
Cessation of Interest During Construction	6 months aft/COD	6 months aft/COD	on the earlier of the Actual or the Expected COD
Periodic Reviews	Every 3 years	Every 3 years	Every 3 years
Fixed Commercial Terms	Term, Rate of Return, the Mechanism, IIRR Sharing	All commercial terms to be fixed for 14 years	Term, Rate of Return, The Mechanism, IIRR Sharing
Annual Information Returns	90 days prior to the end of the Regulatory Year	60 days prior to the end of the Regulatory Year	120 days prior to the end of the Regulatory Year
Direct Beneficiaries	Songas, TANESCO, GoT, Additional Gas Shippers	Songas, TANESCO, GoT, Additional Gas Shippers	Songas, TANESCO, GoT, Additional Gas Shippers
Date of Effectiveness	Third Train COD	Third Train COD	1 <sup>st</sup> March 2009

**Revenue Requirements during the First Five Years**

30. Based on the information presented in the third column of Table 4, EWURA has, in order to test workability of the Mechanism, determined the estimated Annual Revenue Requirement for the first five years (2010 to 2014). According to the Schedule to the EWURA Order № 09-004, the numbers shall be confirmed on the Capital Cost Determination Date, which shall occur six months after the Third Train commercial operations date (estimated to occur on or about December 2010). The computation, mirroring the formulae in the Schedule to the EWURA Order № 09-004,

was carried out carefully using simple Excel spreadsheet, and the results are as provided in Table 5 below.

**Table 5: Movement of Revenue Requirements over the first Five Years**

Regulatory Year	2010	2011	2012	2013	2014
Protected Gas demand (MMcfd)	40.14	40.14	40.14	40.14	40.14
Additional Gas demand (MMcfd)					
(a) Industrial Sector Customers	6.17	6.48	6.81	7.15	7.50
(b) Power Sector Customers	39.78	40.56	40.56	40.56	40.56
<b>SUB-TOTAL</b>	<b>45.95</b>	<b>47.04</b>	<b>47.37</b>	<b>47.71</b>	<b>48.06</b>
Revenue Requirements (US\$ Million)					
Expansion Project	15,706	14,974	14,242	13,519	12,788
Pipeline Oversizing	-	-	-	1	1
Initial Infrastructure	6,547	6,266	5,985	5,705	5,424
<b>TOTAL</b>	<b>22,253</b>	<b>21,240</b>	<b>20,227</b>	<b>19,225</b>	<b>18,213</b>
Processing and Transportation Tariff (US\$/mcf)	1.33	1.24	1.17	1.10	1.04
Tariff Sharing Revenue ( US\$)					
Retention by Songas (15% of Sharing Revenue)	981,995	939,903	897,811	855,719	813,627
Rebate to TANESCO (85% of Sharing Revenue)	5,564,638	5,326,118	5,087,597	4,849,076	4,610,556

31. Taking into account the Total Budgeted Project Costs of US\$55.224 million proposed by Songas, the first year revenue requirement of US\$24.7 million, and estimated throughput gas of 16.773 billion cubic feet, the flat rate tariff proposed by Songas would have been US\$1.47/Mcf. With the adjusted Total Budgeted Project Costs of US\$54.509 million, the adjusted annual revenue requirement of 22.032 million, and the same throughput, the first year tariff is calculated at US\$1.31/Mcf decreasing annually to US\$0.50/Mcf in year 14, provided that no more investment (e.g., compression or looping) is made on the marine and land sections of the transmission pipeline.

### Decision by EWURA

32. In view of the above, the EWURA Board of Directors has taken the following decisions in respect of the Application:

- (a) The nominal rate of return applicable to the Expansion Project is approved at fifteen percent (15%), based on a deemed gearing of sixty percent (60%).
- (b) The Total Budgeted Costs is approved at US Dollars fifty four million five hundred nine thousand two hundred thirteen only (US\$ 54,509,213), which includes US\$1.2 million for the purpose of mitigating adverse environmental impacts.
- (c) The Base O&M costs for the first Regulatory Year is approved at US Dollars two hundred thirty six thousand only (US\$236,000) as of January 1, 2009, each year escalated using US CPI-U and in accordance with the methodology being provided in the Schedule to the EWURA Order № 09-004.

- (d) The capital redemption period is approved to cover fourteen (14) years and shall utilize straight line depreciation method, based on the useful economic life of the Expansion Project. In case of any commercial discovery, the redemption period may be extended further to lower the then annual revenue requirements.
- (e) The IDC related to the Expansion Project costs shall continue to accrue until the actual or the expected third train commercial operations date is achieved, whichever occurs earlier. Of the two trains, the accounts shall be kept separately, so that in case one train is not implemented, in addition to reducing associated costs, a corresponding portion of the EPC Contract sum will be disallowed.
- (f) Until such time as Songas provides the on-lending agreement between GoT and the recipients of the pipeline over-sizing loan of US Dollars four million three eighty six hundred thousand only (US\$4,386,000) with details satisfactory to EWURA, the associated annual revenue requirement is approved at zero value. Even if evidence is provided, revenue to GoT shall flow in year four after the third train commercial operations date.
- (g) Songas and TANESCO shall continue to share proceeds derived from the provision of natural gas processing and transportation services to Shippers, up to the maximum initial capacity of natural gas processing and transportation set at 70 million standard cubic feet per day and shall do so on the basis of, (i) the tariff, as set in the Gas Processing and Transportation Agreement, until 31 December 2009, (ii) the IIRR, as detailed in item 4.15 of the Schedule to the EWURA Order № 09-004, from Third Train COD, and (iii) at a rate of fifteen percent (15%) to Songas and eighty-five percent (85%) to TANESCO pursuant to item 3 of the Schedule and in accordance with the Power Purchase Agreement.
- (h) Pre-closing costs (about US\$1,510,980) (i) shall be audited by TANESCO covering the period prior to 1 May 1 2007, (ii) shall not form part of the Total Budgeted Costs, and (iii) shall be paid by TANESCO under separate arrangement including the Indemnification Agreement.
- (i) The US Dollar value of the Canadian Dollar-based Equipment Supply Contract, as determined at the Capital Cost Determination Date, shall be based on the actual Canadian Dollar to US Dollar exchange rate(s) on the date(s) of payment pursuant to the Equipment Supply Contract.
- (j) The natural gas Processing and Transportation Tariff shall be determined using mathematical expressions detailed in the Schedule to the EWURA Order № 09-004.

- (k) With effect from 1 January 2010, all Shippers shall be charged a flat rate tariff (based on book value and cost reflective basis) of US\$0.59 per thousand standard cubic feet for natural gas processing and transportation service between any inlet point and any outlet point on Songas' gas processing and transportation facilities.
33. The EWURA Board of Directors have imposed the following conditions on Songas, whether or not the Expansion Project is implemented:
- (a) Any amendment or modification to the Implementation Agreement, the Gas Processing and Transportation Agreement, and the Gas Agreement of material and adverse impact on regulatory and, or competition matters shall be permitted, only if the consent of EWURA is sought within a reasonable time and obtained in writing.
  - (b) Any contract entered into by Songas for goods or services related to natural gas processing and transportation facilities, under which Songas' obligations in any one calendar year exceed US\$5 million shall be procured competitively, unless justifications acceptable to EWURA are made, and within 30 days following execution of such contracts, Songas shall provide EWURA with a copy for information; and amendments thereof, if they constitute a material change.
  - (c) Within twelve (12) months from the effective date of the EWURA Order № 09-004, Songas shall furnish EWURA with a development plan with respect to potential methods for expanding the pipeline capacity between Songo Songo Island and Dar es Salaam.
  - (d) Within twelve (12) months from the effective date of the EWURA Order № 09-004, Songas shall (i) develop Guaranteed and Overall Performance Standards with regard to targets of the rendered services, (ii) negotiate such draft with its customers and (iii) issue such standards upon the receipt of EWURA's approval.
34. The EWURA Order № 09-004 repeals EWURA Order No. 08-009 dated 5 August 2008, and EWURA Order No. 08-013 dated 5 December 2008.

### **Impact Assessment**

35. TANESCO supports the Expansion Project because it will benefit most from guaranteed service availability and high reliability. In principle, TANESCO is in agreement with the EWURA Order. EWURA has run a sensitivity analysis to test the impact of (i) the Total Project Capital Costs on first year annual revenue requirement, and the flat rate of the processing and transportation tariff; and (ii) the annual volumes of gas consumed on the flat rate of the processing and transportation tariff. The results thereof are as shown in Table 6 below:

**Table 6: Sensitivity Analysis**

Total Capital Cost=US\$50 mill						
WACC	ARR (US\$mill)	TANESCO (US\$ mill)	Processing &Transportation Tariff (US\$/Mcf)			
			50%Vol	75%Vol	100%Vol	120%Vol
10%	16.656	14.419	1.75	1.53	0.99	0.85
12%	17.745	15.362	1.87	1.63	1.06	0.90
14%	18.834	16.305	1.98	1.73	1.12	0.96
15%	19.379	16.777	2.04	1.78	1.16	0.98
16%	19.923	17.248	2.09	1.83	1.19	1.01
Total Capital Cost=US\$60 mill						
WACC	ARR (US\$mill)	TANESCO (US\$ mill)	Processing &Transportation Tariff (US\$/Mcf)			
			50%Vol	75%Vol	100%Vol	120%Vol
10%	18.459	15.980	1.94	1.70	1.10	0.94
12%	19.766	17.112	2.08	1.82	1.18	1.00
14%	21.073	18.243	2.22	1.94	1.26	1.07
15%	21.727	18.810	2.28	2.00	1.30	1.10
16%	22.380	19.375	2.35	2.06	1.33	1.14
Total Capital Cost=US\$70 mill						
WACC	ARR (US\$mill)	TANESCO (US\$ mill)	Processing &Transportation Tariff (US\$/Mcf)			
			50%Vol	75%Vol	100%Vol	120%Vol
10%	20.262	17.541	2.13	1.86	1.21	1.03
12%	21.787	18.862	2.29	2.00	1.30	1.11
14%	23.312	20.182	2.45	2.14	1.39	1.18
15%	24.074	20.841	2.53	2.21	1.44	1.22
16%	24.837	21.502	2.61	2.28	1.48	1.26

36. The results in Table 6 show that TANESCO shall be contributing 86.6% of annual revenue requirement. The higher the rate of return, the greater the burden will be on TANESCO. The higher the Total Project Costs, the higher will be the annual revenue requirement. At a rate of return of fifteen percent (15%), the processing and transportation tariff will range from US\$1.10/Mcf (at 120% target consumption) to US\$2.28/Mcf (at 50% target consumption), the average being US\$1.31/Mcf. If the average delivery gas price is the summation of the cost of gas of US\$3.32/MMBtu (that is the wellhead gas price of US\$1.98/MMBtu and the average processing and transportation tariff of US\$1.34/MMBtu) and the power plant capacity charge of US\$0.051/kWh, then the cost of generation will be about US\$0.62/kWh, which is reasonable. To the economy, the cost of un-served electric energy in Tanzania is assumed to be US\$2.25/kWh. For this reason, the country will be comfortable if the Expansion Project is implemented.

### Decisions on Other Matters

37. In paragraph 99 of its Application, Songas requested EWURA to rule on certain matters not covered in the EWURA Order № 09-004, which shall be addressed separately. These items are the following:

- (a) Principle behind the Regulated Business: As stated in Paragraphs 24 through 27 above, the concept of Operations and Maintenance Costs before the plant is commissioned is unacceptable. Secondly, O&M

Costs are strictly those related to the operations and maintenance. Expenses related to insurance, levies, surcharges and taxes are treated separately outside Operations and Maintenance Cost line item. The same is confirmed when Attachment J is read with the decision by EWURA.

- (b) Principle of “Used and Useful” Asset: When the third and fourth trains are implemented concurrently, the economies of scale make both of them satisfy the test of Used and Useful. If one train is not implemented at all or contemporaneously, half of the Engineering, Procurement and Construction Contract Sums and half of the Equipment Supply Contract Sum, and half of the Project Management Costs are attributed to a missing train, and for the purpose of determining the Total Budgeted Project Capital Costs, such costs are disallowed. The result will be uneconomical if all these costs are borne for the implementation of a single train.
- (c) Periodic Approval of Drawdown Schedules: The burden of keeping the record right from the time the expenses are made to the time those records are submitted as evidence for tariff setting lies with Songas. It is out of EWURA’s mandate to approve work-in-progress costs, and EWURA has no intention of prematurely tampering with them.
- (d) Approval of the Procurement Process: It is not in EWURA’s mandate to approve procurement process. Section 2.4(b) of the Implementation Agreement provides that GoT shall be informed of the process, and if it does not object, it shall be deemed accepted. EWURA has received a letter by MEM (CDB.88/267/09/XIII/50 dated 26 January 2009) confirming that GoT has no objection with the contractors that have been selected by Songas. However, such a statement does not relieve Songas from any responsibilities it may have in connection with the selection or performance of the contractor.

38. Notwithstanding the aforesaid, this memorandum is given for the information only (to enhance transparency in the regulatory process), but the legally binding decisions relating to this matter are as contained in EWURA Order № 09-004 as shall be gazetted.

Haruna Masebu  
**Director General**  
Energy and Water Utilities Regulatory Authority  
27 February 2009