
Office of Utilities Regulation

National Irrigation Commission

Review of Irrigation Rates for Beacon/Little Park,
St Elizabeth

Determination Notice



OFFICE OF UTILITIES REGULATION

September 10, 2007

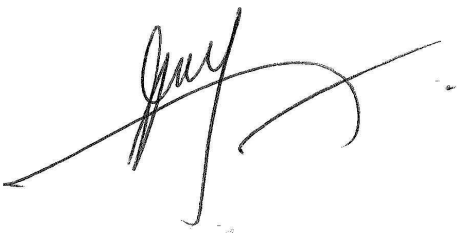
DOCUMENT TITLE AND APPROVAL PAGE														
DOCUMENT NUMBER: WAT 2007/02														
DOCUMENT TITLE: National Irrigation Commission Review of Irrigation Rates for Beacon/Little Park, Determination Notice														
<p>1. PURPOSE OF DOCUMENT</p> <p>Sets out the Office's Decision on National Irrigation Commission's application for irrigation rates for Beacon/Little Park.</p>														
<p>RECORD OF REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Revision Number</th> <th style="width: 50%;">Description</th> <th style="width: 25%;">Date</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Revision Number	Description	Date	-	-	-						
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<p>APPROVAL</p> <p>This document is approved by the Office of Utilities Regulation and becomes effective on October 1st, 2007.</p> <p>On behalf of the Office:</p> <div style="text-align: center; margin-top: 20px;">  </div> <p>J Paul Morgan Director General</p> <p><u>September 10, 2007</u> Date</p>														

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Chapter 1: Executive Summary

- 1.1 The NIC has undertaken several programmes, as part of the National Irrigation and Development Plan (NIDP) project, geared towards rehabilitating existing irrigation infrastructure and building new irrigation networks. The Pedro Plains project is one of the new networks that will be built and is expected to serve the farmers of Beacon and Little Park. The NIC projects that 467 hectares of farmlands will benefit from the irrigation services, and expects an annual water production of 3,807,600 cubic metres. The irrigation system will comprise of new wells, pumping stations and conveyance pipeline systems, on-farm sprinkler irrigation systems and electrical controls.
- 1.2 The NIC will operate the systems in the initial stages of the project during which it will spearhead the training for members of the Water Users Association (WUA), so that the group can assume responsibility for the system in the long term.
- 1.3 A significant portion of the cost of the project will be funded by the Government of Jamaica, but given that it is independent of the NIC's existing operations, it is also the government's policy that the rates charged for the service must be reflective of costs.
- 1.4 The NIC submitted a rate application to the Office on 3rd April 2007 requesting a decision on the recovery rate to be charged for the services. The NIC estimates that the total annual operating cost associated with this project is \$35.148M. This amount was apportioned among variable and fixed costs of \$30.528M and \$4.62M respectively. The fixed cost was used to develop the service charge and the variable cost used to calculate the volumetric rate.
- 1.5 NIC proposed a service charge of \$824.41 per hectare and a volumetric rate of \$8.02 per cubic metre.
- 1.6 A public consultation was held on 14th May 2007 with the farmers of the Pedro Plains community and their main concern about the reliability of service has been incorporated in the service standards in this determination.
- 1.7 After reviewing the NIC's application, the Office has determined that the service charge is \$438.97 per hectare. This service charge is a fixed monthly charge and must be paid irrespective of the amount of water consumed.
- 1.8 The Office has also determined that the demand charge is \$6.67 per cubic metre. Table 1 details the applicable rates and charges.

Table 1: Office determined Rates and Charges

Type	Office determined rates and charges
Service charge	\$438.97 per hectare
Demand charge	\$6.67 per cubic metre

- 1.9 The rates are effective October 1st 2007 and will be for a period of at least fifteen (15) months. NIC is required to submit at least one (1) set of audited financial statement prior to the Office's review of the rates.

Chapter 2: Overview

2.1 Background

According to the NIC, the farmers within the Beacon/Little Park project area have been producing short term crops (cash crops) without adequate irrigation infrastructure for a long time. This has affected the efficiency of production over the years as several farmers have either gone out of business or have been suffering considerable financial losses. As a result of this, as part of the NIDP project, capital was committed to rehabilitate existing irrigation infrastructure and strengthen the management of the irrigation district in the initial stage, and then to build out an irrigation network in areas where it is absent.

- 2.2 A feasibility study in 1999 identified Beacon/Little Park in Pedro Plains as one of the areas that required a new irrigation network. This area was designated as requiring a new infrastructure as presently the production of food supplies is done with a small amount of water, which is taken from the potable water system. The method of irrigation practiced is one where cans, buckets and garden hoses are used. Mulching¹ is also a part of the irrigation culture in this area.

2.3 Beacon system

At Beacon, the project will include the construction of a new well, a pumping station and conveyance pipeline system, on-farm sprinkler irrigation system and electrical controls. There will also be support services to implement and sustain a Water Users Association (WUA).

2.4 Little Park system

At Little Park, the project consists of installing two new wells with pumping stations and conveyance pipeline system, on farm sprinkler irrigation systems and electrical controls. Like the Beacon project, support services will be set up to assist with implementing and sustaining a Water Users Association (WUA).

¹ This involves placing material over the soil in order to retain moisture, deter weeds and keep the soil from eroding. It also prevents the need to constantly water the soil.

Chapter 3: NIC's Proposal

3.1 Introduction

The NIC submitted an application to the OUR on April 3rd 2007 requesting:

- A determination of the recovery rate for agricultural customers
- A determination of the economic rate for non-agricultural customers

Initially, the Beacon/Little Park project will be operated by the NIC but in the long run will become the responsibility of the Water Users Association in the area, with the NIC providing advisory and technical support. In the meantime, the members of the WUA will be involved in several training programmes which will include:

- Identification of soil types and most appropriate method of irrigation;
- Information on the types of irrigation systems available;
- How to source, install and maintain irrigation equipment and;
- Workshops geared towards development of accounting and management skills to ensure that the WUA is well equipped to operate the systems whenever they assume management responsibility.

This training is supported by Rural Agricultural Development Authority (RADA), ESPS unit in the Ministry of Agriculture, the NIC's Project Unit and the Department of Cooperatives and Friendly Societies.

3.2 NIC's Proposal

The NIC states that since this is a new project, it was unable to state the actual expenditures that will be incurred, but have taken into consideration the present operating environment to obtain the 'best' estimates for these costs. Table 2 outlines the summary of NIC's proposed capital and operational expenditure to support this project.

Table 2: NIC's Proposal

Category	-	Amount (\$)	Amount (\$)
Volume of water to be produced (cubic metres)	3,807,600	-	
Total area (hectares)	467		
Type of expenses:-	-		
Salaries		5,856,000	
Repairs and maintenance - pipeline		240,000	
Electricity		24,132,676	
Other direct costs (roads and verges)		300,000	
Total variable cost			30,528,676
Administrative and billing		3,600,000	
Office expenses		240,000	
Office utilities		120,000	
Rental Premises		120,000	
Operation supervision		360,000	
Licence fee		60,000	
Contribution to capital cost		10,000	
Total fixed cost			4,620,000
Total operating cost			35,148,676
Total capital cost			235,620,000
Proposed rate per cubic metre (demand charge)			\$8.02
Proposed service charge per hectare			\$824.41

- 3.3 The demand charge is derived from dividing the total variable cost by the volume of water to be sold.
- 3.4 The service charge is derived from total fixed cost of \$4,620,000 divided by total irrigated area.
- 3.5 The NIC also proposed to have an indexing mechanism similar to the NWC's price adjustment mechanism (PAM) applied to the rates on an annual basis.
- 3.6 Unlike other NIC programmes, the government will not subsidize the operational cost of the project as such it is essential that the operating costs are fully recovered. The NIC has stated that the government will fund a significant portion

of the capital cost while the users (farmers) are required to pay a portion of the capital cost over a period of time. A monthly contribution to capital cost of \$10,000 is proposed. Consequently, NIC expects to recover the total operating costs of the project as well as the portion of the capital cost not funded by government from the farmers.

- 3.7 The project was commissioned on 28th June 2007.
- 3.8 As a part of its tariff review process, the Office conducts public consultation on all rate applications. Subsequent to the receipt of the NIC's application, the Office issued a public notice inviting interested persons to submit comments on the application. It also arranged to have a public consultation with the farmers of the Pedro Plains area in St. Elizabeth.

Chapter 4: Public Consultation

4.1 Introduction

The OUR convened a public consultation meeting at the St. Peter's Anglican Church Hall, Pedro Plain, St. Elizabeth on 14th May 2007 to discuss the rates proposed by the NIC for irrigation water for the Beacon/Little Park Project.

- 4.2 The NIC made a presentation on its application and answered queries from farmers in attendance. In general, the farmers appeared to be satisfied with the proposed rates; however they had a few concerns.

4.3.1 *Continuity of Service*

(a) The farmers enquired about the actions that will be taken in the event that the NIC fails to provide water on a daily basis and the recourse that will be available to them.

Response: NIC advised that the well has sufficient capacity to provide adequate water for the farmers. It advised however, that as the pump operates with electricity, power outages may impact on their ability to deliver water to the farmers. They stated however that in the event of prolonged outages measures will be implemented, such as the trucking of water, to ensure that water reaches the farmers.

(b) The farmers enquired about the measures that will be in place in the event of a pump failure.

Response: NIC advised that the pumps are linked thus in the event of a pump failure [outside of an electrical outage] water will be rerouted from a working pump, but at a lower pressure, to the service area.

4.3.2 *Role of Water Users Association*

The farmers enquired about the role of the Water Users Group (WUG).

Response: NIC advised that the WUG will assume ownership of the project, after the farmers obtain the necessary training. The farmers will be trained in the efficient use of irrigation methods. After the systems have been handed over to the WUG for management and operation, the NIC will continue to play a role, by providing the necessary technical support.

Chapter 5: Office Evaluation of Application

5.1 Introduction

The NIC has stated that it does not intend to provide non-farmers with the service and in this regard, the Office will not consider any economic rates for this customer category. NIC, as part of its application, requested that the Office makes a determination on the recovery rate for farmers. The Office's evaluation is done within this context.

5.2.1 Employee Costs

In addition to a core staff complement of 4 persons², and the oversight responsibility provided by the Regional Manager, the NIC also proposes to hire 6 persons to maintain and repair the 3 pumps and 3 pump houses. Although these persons are not members of staff, the NIC has included a yearly provision of \$432,000 to pay for these services. The Office is of the view that the efficient operation of this project is important and as such, where possible, persons with the skill sets that can operate as well as maintain and repair the system should be sought. Furthermore, the allocation of a fixed amount for the payment of services to repairmen gives the indication that the pumps and pump houses will be required to be repaired on a monthly basis. It is not foreseeable that this will occur since these systems are new. In addition, 6 persons are not required to be on "stand-by" to be utilized just in case pumps and pump houses require repair. Given the foregoing, the Office has disallowed this provision for 6 contractual workers in the determination of salaries. It has instead made a general provision for repairs and maintenance cost which is discussed below.

5.2.2 The NIC also states that the project will have a regional manager to oversee the operations, but this manager's time will be split between Beacon (45%), Hounslow (45%) and Seven Rivers (10%). After reviewing the information for each of the three projects, the Office has no objection to the allocation of this service, as the larger projects: Beacon/Little Park and Hounslow, are in close proximity to each other and will require a significant amount of the manager's time. It has therefore allowed the provision of \$3,120,000.

5.2.3 After incorporating the above adjustments, the total salary provision is \$5,424,000. NIC had proposed \$5,856,000.

5.3 Electricity

NIC proposed electricity cost of \$24,132,676. Although there is no actual data on this cost item, the Office reviewed the historical information of NIC's irrigation district to determine if this provision was reasonable. In terms of service area and

² This includes 1 works supervisor and 3 systems operators.

customer base, the Hounslow irrigation district represents the closest proxy to Beacon/Little Park. Consequently, the Office used information relating to this district as a guide to determine the reasonableness of the provision.

- 5.3.1 Over a 5-year (2000-2005) period, Hounslow's average kilowatt hour cost per cubic metre (\$kwh/m³) was \$2.80. The Office has however noted that the depth of the wells for Hounslow and Beacon/Little Park are different. Beacon/Little Park has fewer wells, but their depths are 70% greater than that of Hounslow's. Hounslow \$kwh/m³ was adjusted upwards to reflect this greater depth resulting in a cost of \$4.77/m³. When JPS rate adjustment was added³, this amount increased to \$4.85/m³. If this rate is applied to volume of water produced (3,807,600) the estimated electricity cost is \$18.46M. This amount is significantly less than NIC's provision of \$24.13M and the Office has concluded that the NIC's provision is unreasonable. The Office has instead included \$18.46M as provision for electricity cost.

5.4 Repairs and Maintenance (R&M)

- 5.4.1 NIC assumes that at least one 20 feet length of pipe will be damaged each month and would require replacement. A provision of \$240,000 for repairs to pipeline is included in the proposal to account for this. Whilst the Office accepts that overtime there will be wear and tear on the network assets, it does not expect that the new pipes installed would get damaged and require replacement within the first month of being in operation.
- 5.4.2 The NIC also made provision for 6 contractual workers to be on stand by to repair and maintain the 3 pumps and 3 pump houses. As discussed above, the Office is of the view that it is not prudent for the business to make a yearly provision for workers that are not permanent members of staff. It however recognizes the need for routine repairs and maintenance to the irrigation facilities, but thinks that an allocation for general repairs and maintenance of the facility is more appropriate.
- 5.4.3 The Office is of the view that it is more appropriate to include a general provision for R&M to account for yearly maintenance of the irrigation system. Given that there is no actual data on this project, the Office reviewed NIC's historical information to determine the proportion of its total cost is attributed to repairs and maintenance over a 4-year period (2003 to 2006). The data indicates that R&M contributes on average 4% to total operating costs. This figure is adjusted to reflect projected inflation and revised upwards to 4.5%. With total operating costs projected at \$24.18M, the provision for R&M is determined to be \$1.21M.

³ Based on June 2007 rate adjustment, the average bill of a Rate 40 customer increased by 1.27%.

5.5 Total Direct Costs

The total of these costs will determine the demand charge. After accounting for the above adjustments, **the Office has determined that the total direct cost is \$25.392M.** The composition of this is shown in Table 3.

5.6 Total Fixed Costs

In addition to the payment of a demand charge for the volume of water consumed, the farmers must pay a service charge to cover the fixed overheads incurred in providing the service. This charge is derived from dividing the total fixed costs by the total number of acreage expected to be served. NIC has proposed total fixed cost of \$4,620,000 which includes provision for billing, office expenses, licensing, operation supervision and capital contribution.

5.6.1 Administrative Accounting and Billing Cost

The NIC has included a provision of \$3.6M to account for the development of an accounting software that will facilitate the calculation, printing and distribution and collection of bills. The NIC states that the same software will be used in the 3 project areas. The Office is of the view that if the same software is going to be used then it is more appropriate to allocate this cost over the 3 service areas. The NIC has used an apportionment of 45%/45%/10% to allocate the regional manager's cost over Beacon/Little Park, Hounslow and Sevens River respectively. The Office has used this apportionment method to allocate the accounting cost. This results in a downward adjustment of the proposed amount to \$1.62M.

5.6.2 Contribution to Capital Cost

The NIC stated that in accordance with the Government's Water Sector Policy, the users of new systems are required to contribute to the capital cost of the project. As such, users will be required to pay a reasonable proportion of the capital cost. The company considered \$120,000 per year (payable in equal monthly instalments of \$10,000) as a reasonable amount and has included this as part of its fixed cost. The NIC also stated that the capital contribution will be determined on a case by case basis.

The Office, however, takes the view that this capital contribution reflects a policy decision, and as such will not make a decision on the reasonableness of the amount. The provision of \$120,000 has also been excluded from the derivation of the total fixed costs. The Office recognizes however, that for ease of collection, the NIC may want to include this amount on monthly bills to the users. The Office does not object to this mode of billing, but in the case that this form of collection is adopted, it should be clearly delineated on the bills as a separate line item. A note should also be included to indicate that this amount is not a part of

the billing for usage of the service. In addition, separate accounts should be maintained for these collections.

5.6.3 *Licensing*

There is also a provision of \$60,000 per year for licensing fee in the rate proposal. This is to account for the cost involved in NIC's licensing of the WUA. However this fee would not be applicable in the first year as the system would be operated by the Commission.

At the public consultation, the NIC could not give a specific timeline within which the WUA would assume operation of the schemes. This would be dependent on the level of training and how quickly the WUA members can demonstrate their know how in the operation of the project on an ongoing basis. Consequently, the Office has disallowed this provision from the total fixed costs. At the time that this becomes relevant, the NIC can submit an application to the Office for review of the existing rates.

5.6.4 *Operation supervision*

In addition to a supervisor and part-time manager included in the total direct cost, the NIC included a provision of \$360,000 for operations supervisor as part of its total fixed costs. NIC states that this position will provide technical guidance on all operational issues pertaining to the operation and maintenance of the irrigation system. This supervision will be provided by NIC's Director of Engineering and Technical Services. Normally, this amount would have been excluded as the cost would have already been accounted for in NIC's economic rates, and its inclusion in this project's cost would result in an over recovery. The Office is however of the view that these circumstances are exceptional since it is important to develop rates for Beacon/Little Park that are cost reflective and would send correct signals to the customers. It has therefore allowed this provision. The Office will however deduct this amount from the NIC's total operating cost at the next rate review.

- 5.6.5 The Office has allowed the other proposed provisions. After inclusion of the above adjustments, **the Office has determined that total fixed cost is \$2,460,000.** Table 3 summarizes the breakout of each of the costs.

Table 3: Office determined total costs

Item	NIC Proposal (\$)	Office determined (\$)
Salaries	5,856,000	5,424,000
Repairs and maintenance - pipeline	240,000	-
Repairs and maintenance – general	-	1,209,165
Electricity	24,132,676	18,459,305
Other direct costs (roads and verges)	300,000	300,000
Total direct costs	30,528,676	25,392,471
Administrative and billing	3,600,000	1,620,000
Office expenses	240,000	360,000
Office utilities	120,000	120,000
Rental Premises	120,000	120,000
Operation supervision	360,000	360,000
Licence fee	60,000	0
Contribution to capital cost	10,000	0
Total fixed costs	4,620,000	2,460,000
Total operating cost	35,148,676	27,852,471

Chapter 6: Office Determination

6.1 Revenue requirement

The Office has determined that the total operating costs to be recovered from revenues is \$27.852M. Given that there is no associated taxation, depreciation charge or return on capital, the \$27.852M represents the revenue requirement for the project. The rates determined should be sufficient to cover this amount.

6.2 Service Charge

The billing structure consists of two parts: a service charge and a demand charge. The service charge is derived from dividing the total fixed costs by the total acreage. The NIC proposed a service charge of \$824.41 per hectare. After making the adjustments to the total fixed costs, the Office has determined that the applicable service charge is \$438.97 per hectare.

6.2.1 Determination 1

The Office has determined that the service charge is \$438.97

This service charge is to be paid on a monthly basis and is independent of water consumed.

6.3 Recovery Rate

The total revenue projected from the collection of monthly service charge has been deducted from the revenue requirement to determine the net revenue requirement that the demand charge should cover. The total revenue to be generated from the service charge is projected at \$2.46M. This results in a net revenue requirement of \$25.392M. The total water sales is projected at 3,807,600m³. Consequently, the Office has determined that the volumetric charge per cubic metre is \$6.67/m³.

6.3.1 Determination 2

The Office has determined that the volumetric rate is \$6.67 per cubic metre.

6.4 Determination 3

The Office has determined that these rates will become effective September 1st 2007 and will be in effect for a period of at least fifteen (15) months.

6.5 Indexation Mechanism

The NIC also proposed that the Office develop an indexation mechanism to allow for annual adjustment of the rates without applying for a rate review. However, with the absence of actual data, the Office is unable to develop appropriate weights or an index to accurately reflect the movement in costs that will be associated with this project. It has therefore decided that at this time, an indexation mechanism will not be developed. The NIC is required to submit

annual audited data on the operation of this project. After this submission, the Office will review the rates to determine if they adequately reflect the costs of providing the service. At that time it will, if necessary, develop an indexation mechanism.

6.5.1 Determination 4

The Office has determined that no indexation mechanism will be developed at this time. NIC is required to submit annual audited data to the Office prior to any review of the rates.

Chapter 7: Quality of Service Standards

7.1 Introduction

It is important that NIC deliver acceptable quality of service given that the customers have to pay the full cost of the service. During the public consultation, it was evident that continuity of service is one of the main issues that the farmers in the service area were concerned about.

7.2 The NIC has a Citizen's Charter which outlines service standards which the Commission commits to observe. Whilst the Office has no objection to this Charter, it has developed, as part of this determination, quality of service standards which will govern NIC's service delivery. These standards are categorized as either Guaranteed or Overall Standards and are discussed below.

7.3 Guaranteed Standards

The Guaranteed Standards are service level agreements to be honoured by the company. They affect individual customers and a breach of any standard will result in a compensatory payment. Table 4 summarizes these standards.

Table 4: Guaranteed Standards

Area of Focus	Office Determined Standard
Meter Reading	Customers' meters must be read monthly.
Meter Replacement	Maximum of 30 business days to replace faulty meters
Reconnection	Customers are to be reconnected within 48 hours after payment of overdue amounts inclusive of reconnection fees
Wrongful Disconnection	NIC must, within 12 hours, reconnect any supply that the company inadvertently disconnected and a written apology extended.
Reliability of Supply – Trucking of water	Water is to be trucked to customers for any water lock off exceeding 24 hours ⁴ .
Payment of Compensation	NIC must, within 30 working days of breach claim, process and make payment or inform customer that claim is denied (and upon what basis). Customers may make claims by telephone.

7.4 A breach of any Guaranteed Standard will result in a compensatory payment to customers. This payment will be equivalent to the service charge in the relevant customer category and should be credited by NIC to the affected account.

⁴ The trucking of water must be at the NIC's expense.

7.5 Overall Standards

Unlike Guaranteed Standards, Overall Standards are not customer specific and are there to guide the general delivery of service by the Commission. Although there is no compensation attached, the Office will take into consideration the NIC's performance against these Overall Standards whenever the Commission requests a rate review. Table 5 summarizes the applicable Overall Standards.

Table 5: Overall Standards

Area of Focus	Office Determined Standard
Reliability of Supply – Notification of intention to interrupt supply	Minimum notification of 12 hours for short interruptions (less than 4 hrs) and 24 hours for longer interruptions
Reliability of Supply – Restoration after emergency lock off	Maximum of 24 hours to restore supply
Response to Complaints	95% of all investigations are to be completed within 30 business days.

7.6 Reporting Requirements

NIC must submit bi-annual reports on its performance against the Guaranteed Standards. The report must be submitted within 30 business days of the end of each six months period of operation.

Chapter 8: Summary of Office's Decision

8.1 The following summarizes the Office's decisions:

1. The service charge is \$438.97.
2. The service charge is independent of the amount of water used and shall be paid on a monthly basis.
3. The demand charge is \$6.67 per cubic metre
4. The rates become effective on October 1st 2007 and will be in effect for at least 15 months.
5. NIC must submit audited annual data on the Beacon/Little Park operation.
6. The Office will determine if an indexation mechanism is necessary at the next rate review.
7. The NIC must adhere to Guaranteed Standards as outlined in Table 4. Breach of any of these standards will result in a compensatory payment equivalent to the relevant service charge.
8. The NIC must submit bi-annual reports to the Office outlining its performance against the Guaranteed Standards. These reports are due 30 days after the end of each 6 month period.