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BRITISH COLUMBIA
UTILITIES COMMISSION

ORDER
NUMBER G-69-93

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AN ORDER IN THE MATTER OF the Utilities Commission
Act, S.B.C. 1980, c. 60, as amended

and

An Application by BC Gas Inc.

BEFORE: M.K. Jaccard, Chairperson)
F.C. Leighton, Commissioner; and) August 13, 1993
E.L. Sleath, Commissioner)

ORDER

WHEREAS:

- A. On March 2, 1992 BC Gas Inc. ("BC Gas") applied for cost deferral for two Demand-Side Management ("DSM") programs: fuel substitution programs for commercial water heating and commercial booster water heating. In its Revenue Requirements Decision of August 5, 1992 (p. 55), the Commission stated that it would examine the programs further in the Phase B Rate Design hearing. In the interim, the Commission allowed the deferral of costs for the programs, but noted that cost recovery could still be denied following the Rate Design hearing. Examination of the programs in a subsequent Rate Design hearing did not occur; and
- B. On December 31, 1992 BC Gas applied for deferral account treatment of two additional commercial DSM projects that had been identified in its Revenue Requirement Application, but had not previously been included in an application for a deferral account. These programs were a Multi-family Space Heating Incentive program and a Commercial Fuel Substitution Program; and
- C. On April 30, 1993 BC Gas submitted to the Commission a 'Filing of certain information relating to the BC Gas Integrated Resource Plan and Applications for Deferral Accounts in 1993, Integrated Resource Planning ("IRP"), and LNG Plant Preliminary Survey and Investigation Costs.' In that filing BC Gas requested certain deferral accounts related to IRP and DSM; and
- D. The Phase B Rate Design Hearing was held under Order No. G-38-93 to examine issues related to Rate Design, including IRP and DSM and related deferral accounts; and

E. The Commission has considered the Applications and is satisfied that the deferral accounts subject to the amendments and changes discussed in Appendix 1 attached hereto are necessary and in the public interest.

NOW THEREFORE the Commission hereby orders BC Gas as follows:

1. The Deferral Accounts applied for, with the exception of those related to feasibility studies of a possible new LNG Plant, are approved, subject to the adjustments and comments of the Commission as shown in Appendix 1 to the Decision hereto attached.
2. The Commission will render a Decision on the Application for deferral accounts related to a possible new LNG Plant in the complete Decision which will follow this Order.

DATED at the City of Vancouver, in the Province of British Columbia, this 13th day of August, 1993.

BY ORDER



Dr. Mark K. Jaccard

/cms

BC GAS 1993 RATE DESIGN HEARING PHASE B

APPENDIX 1 INTEGRATED RESOURCE PLAN AND DEMAND-SIDE MANAGEMENT DEFERRAL ACCOUNTS

AUGUST 13, 1993

1.0 INTRODUCTION

BC Gas Utility Ltd. ("BC Gas", "the Utility", "the Company" or "the Applicant") is the gas distribution utility subsidiary of BC Gas Inc. BC Gas provides gas distribution services to approximately 635,000 residential, commercial and industrial customers in over 100 communities throughout British Columbia.

The Phase B Rate Design Hearing was held under Order No. G-38-93 and examined issues related to Rate Design, Integrated Resource Planning ("IRP") and Demand-Side Management ("DSM") as well as corporate reorganization and consolidation. The Hearing was held in Kamloops, Cranbrook and Vancouver.

In final argument, counsel for the Applicant requested an early decision on the request for several deferral accounts which BC Gas had requested in its April 30, 1993 application for Deferral Accounts related to its IRP (Exhibit 19, "April 30 IRP" or "Workplan"). Therefore, this Appendix of the Decision specifically deals with those IRP and DSM related deferral accounts. This Appendix of the Decision also deals with BC Gas Applications for deferral accounts related to certain Commercial Marketing programs which had been applied for prior to the April 30 IRP, and had not been previously decided upon by the British Columbia Utilities Commission ("BCUC", "the Commission"). The April 30 IRP workplan also requested approval of expenditures for studies concerning the feasibility of a new Liquefied Natural Gas ("LNG") Plant. These expenditures will be the subject of a later part of this Decision.

A summary of all IRP Deferral Accounts requested, including those related to Commercial marketing programs and a new LNG Plant, was filed as part of Exhibit 60 during the hearing. This Appendix therefore will examine and decide upon all of the requested deferral accounts shown in that summary (attached for convenience as Attachment 1 to this Appendix), with the exception of those related to new LNG Plant feasibility studies. Thus the Commission, in this portion of the Decision, will decide on an amount requested of \$2,072,500 in IRP deferral accounts and an additional \$313,005 requested for deferral accounts related to other programs.

2.0 IRP BACKGROUND

Integrated Resource Planning is now well established for electric utilities, and is becoming more established for gas utilities throughout North America as well. In July 1992, BC Gas filed its draft IRP; this was described by BC Gas as a first attempt at IRP and, in the covering letter, BC Gas noted its intention to develop a revised IRP 'over the next few months'.

In February 1993, the Commission issued its Integrated Resource Planning Guidelines ("the Guidelines") which aimed to provide guidance for utilities in their processes of developing IRPs. The Guidelines stated that the IRP process also provides a framework that helps to focus public hearings on utility rates and energy project applications. Some of that focus on rates from the perspective of IRP has been in evidence in this hearing.

On February 25, 1993, subsequent to issuance of the Guidelines, the Commission held a workshop on the barriers to DSM and IRP. The purpose of that workshop was to discuss the financial and regulatory barriers to DSM and IRP, and methods or changes that might potentially be used to overcome those barriers. One issue raised in the workshop was the concern over the risk of non-recovery of IRP and DSM expenditures. In general, the Commission is of the opinion that utilities should be neither penalized nor rewarded for engaging in IRP or DSM or both, and mechanisms such as deferral accounts that minimize the risk of non-recovery of costs benefit both utilities and ratepayers. On the other hand, the Commission is also of the view that it is the responsibility of the utility to ensure and demonstrate that its IRP and DSM expenditures are well thought out and not extravagant in their approach to achieving their IRP and DSM goals. In other words the utilities must be willing and able to demonstrate prudence and cost-effectiveness in their IRP and DSM expenditures.

On March 4, 1993, the BCUC sent a letter to utilities, including BC Gas, stating that work plans for completion of their IRPs should be provided to the Commission by April 16, 1993, and that draft IRPs should be submitted by December 31, 1993, unless the Commission directed specific utilities to do otherwise. BC Gas, which had filed a draft "Least Cost Integrated Resource Plan" in July 1992 was specifically directed to file a revised draft IRP by April 30, 1993. In response, BC Gas filed its April 30 IRP document (Exhibit 19), which included its workplan and deferral account applications.

3.0 IRP DEFERRAL ACCOUNTS

As noted above, the amounts applied for with respect to IRP Deferral accounts are summarized in Attachment 1. The individual IRP and DSM proposals for which deferral accounting treatment is requested are described in Exhibit 19. The proposals were also discussed in Information Responses from the Applicant and during the hearing with the IRP Panel (T. 1267 to T. 1287). In Exhibit 4, Tab B49, BC Gas stated that BC Gas intended to file a revised IRP regardless of whether or not it received approval for the deferral accounts requested, but that the deferral accounts were necessary to assure "...the quality of the enhancements to the IRP, in accordance with IRP guidelines and BCUC suggestions....".

The Company's deferral account requests are discussed below in the order in which they appear in Attachment 1 to this Decision, with the exception of the DSM expenditures which will be discussed separately following this section, and the LNG feasibility studies Phases I and II which will be considered in the complete Decision.

3.1 End Use Modelling

The Company has budgeted \$45,500 for end use modelling. In an Information Response (Exhibit 4, Tab B56), BC Gas described the company's discussions and evaluations of end-use models. The answer indicated that the Company had not come to a decision on which end use model or models to use in the residential and commercial sectors, although its estimate of costs in Exhibit 19 indicated that the budget of \$45,500 was based on the purchase of off-the-shelf models such as the REEPS and COMMEND models, and on having them modified to meet the specific requirements of BC Gas.

When questioned during the hearing about whether the budget remained appropriate given that the evaluation of end-use models was still in progress, the BC Gas witness stated that he was satisfied that the budget was appropriate "for the time period which was envisaged which was for 1993" (T. 1273).

Commission staff engaged an independent consulting firm, Barakat & Chamberlin, Inc., to review BC Gas' rate design cost studies as well as the information presented in Exhibit 19. The Barakat & Chamberlin report (Exhibit 20) noted that BC Gas had budgeted \$9,000 of the total budget for customization of the off-the shelf end-use models, and stated that "Our consulting experience tells us that \$9,000 is a very small amount in this regard".

Commission's Views

The Commission shares Barakat & Chamberlin's view that the portion of the budget for adapting off-the-shelf end use models to BC Gas' specific needs seems insufficient to accomplish the task, which is to integrate functional end use models into the Company's planning processes.

3.2 Multi-Attribute Analysis

Exhibit 19 (Tab 6) states that the Company engaged Constable Associates Consulting Inc. to review multi-attribute analysis in the context of IRP and consult with key stakeholders to develop a list and weighting procedure for key attributes to be used in comparing resources as suggested in the Commission's Guidelines. BC Gas applied for a deferral account of \$20,000 for this task. The Commission is satisfied that this expenditure is appropriate.

3.3 Demand-Side Management

In Exhibit 19 (Tab 3), BC Gas applied for a total of \$1,078,000 for DSM expenditures. These proposed expenses were detailed in Exhibit 19, Tab 7 - the DSM Development Plan. The amount was revised to a total of \$1,105,000 in the final summary in Exhibit 60 due to an addition error in one of the items in the total, as was pointed out during the hearing (T. 1276).

Commission's Views

In general, the Commission is encouraged by BC Gas' DSM efforts although clearly there are some areas where additional information and research is required to better focus efforts to maximize benefits to the utility and its customers. The Commission remains uneasy about the lack of empirical evidence, in the form of studies or experience from other utilities, that BC Gas was able to bring forward in support of its DSM programs.

For instance, in its Application (Exhibit 1, Tab 6, page 6), BC Gas makes the statement that "The most effective tools for environmental protection are adequate public education and fostering an ethic of efficient energy use...." The company reiterates this statement in Exhibit 4, Tab B26. However, in Exhibit 4, Tab B64, the Company states that "At present BC Gas does not have any studies or evidence that indicate that general education programs have any impact on customer energy use behaviour...." Further, one BC Gas witness stated that "Now, with empirical data if the reference there is specific reports that show

that public education with regard to energy conservation and such matters is the best. I don't have specific reports". The witness continues, saying that the Company is relying on the experience of managers and employees dealing with customers (T. 1662).

Similarly, with respect to its proposed industrial energy audit program, BC Gas states that "Although, BC Gas does not have specific studies which show the impact of an Energy Audit Program on customer energy use behaviour, because of the unique needs and criteria of industrial customers, the effectiveness of an audit program would vary in different circumstances" (Exhibit 4, Tab B65).

In this regard, the Commission would caution BC Gas against relying too heavily on assumptions based on intuition or on inferences from employees' experience when designing DSM programs. The Commission is concerned that DSM budget allocations based on these unsystematic techniques could be less than optimal. Among other tools, BC Gas should utilize the systematic, hindsight evaluations of the DSM experience at other utilities, whenever possible. Also, any audit programs, customer surveys and customer monitoring should be directly linked to end use modelling efforts, so that the information from these efforts provide crucial data for the end use models.

The Commission is aware from the comments of a BC Gas witness (T. 1220) that BC Gas is attempting to gather the additional information necessary to develop and refine its DSM programs through some of its DSM research proposals. The Commission encourages the Company's work in this area. Nevertheless, at the present time, the overall package of DSM proposals appears somewhat unfocused.

A second concern of the Commission is the lack of an estimate of avoided cost, based on all of the relevant costs, which would enable it to determine whether or not a proposed DSM measure is economically beneficial. BC Gas agreed that it would be difficult for the Commission to make decisions about various DSM programs without an estimate of long run avoided costs, although BC Gas witnesses enumerated several difficulties or concerns about the Company's ability to provide such an estimate (T. 1238-1245).

3.4 "ROM" Model Development

As noted in Exhibit 19 (Tab 8), BC Gas currently employs a Gas Supply Optimization Model ("GSOM") for selecting its optimal mix of resources. The GSOM model uses a general linear programming formulation. The Company, in using the GSOM to evaluate alternative resource stacks against a range of forecasts in preparing its June 1992 Draft Least Cost Integrated Resource Plan (1992 LCIRP), identified several shortcomings of the GSOM. The \$165,000 budgeted for the ROM model is intended to modify

the GSOM model to accommodate IRP requirements. The BC Gas witness stated that he was satisfied that the \$165,000 budget was adequate (T. 1280).

During the hearing, the Company's witnesses indicated that alternative models had been looked at, but that BC Gas had decided to modify the GSOM for cost reasons and because planning staff were already familiar with the GSOM (T. 1280-T. 1282). However, BC Gas did not specify what other types of models had been examined. In response to a Commission Staff Information Request (Exhibit 4, Tab B67), BC Gas had stated that it was unaware of any off-the-shelf models similar to the ROM although it had recently become aware of a potential alternative model and had requested further information. The Company also stated that "Experience rather than evidence per se" has led to the conclusion that building on existing models is a quicker and cheaper way to integrate its resource optimization (Exhibit 4, Tab B67).

Commission's Views

BC Gas has offered little or no evidence of the range of alternative models assessed or on the suitability of a general linear programming model for incorporating demand-side options into the resource stack or for evaluating resources into a multi-attribute IRP framework. The Commission has serious doubts about the suitability of the proposed ROM to accomplish its intended task. It is the opinion of the Commission that BC Gas should examine a wide range of alternatives to integrate supply and demand analysis, in a way which would tie together the results of the GSOM and BC Gas' intended end use modelling efforts to provide the critical information necessary for development of an IRP.

3.5 DSM Benefit/Cost Tests

BC Gas budgeted \$17,000 for RCG/Hagler to develop a series of cost/benefit tests for analyzing the costs and benefits of DSM programs. Based on the evidence presented (Exhibit 3, Tab 8, p. 3) the Commission understands that these tests are complete and that the \$17,000 represents actual costs.

3.6 IRP Public Information and Consultation

BC Gas has proposed several public consultation processes: a strategy for IRP public consultation (Exhibit 19, Tab 10); the design and possible establishment of a public involvement process to address greenhouse stabilization policy as it affects the B.C. natural gas industry (Exhibit 19, Tab 11); and a two

or three phase public involvement program to determine the feasibility and siting of a potential new LNG plant (Exhibit 19, Tab 3).

In response to a staff information request, the Company in Exhibit 4, Tab B53 stated that the LNG feasibility study is very specific, whereas the IRP public consultation process is more general. BC Gas also indicated that it would integrate its public consultation efforts where synergies exist. The Barakat and Chamberlin report (Exhibit 20) complimented the Company on its strategy for public consultation and noted that it appeared to be a "sincere effort to attract meaningful input from the general public and traditional intervenor groups".

BC Gas has budgeted \$495,000 for the IRP public involvement and consultation process (T. 1251, Exhibit 60).

Commission's Views

While pleased to see this level of commitment from the Applicant to public participation, the Commission is concerned about the significant amount of \$495,000 requested for the strategy for IRP public involvement - excluding any additional costs attributable to the LNG feasibility studies or the greenhouse gas policy public involvement process.

The Commission is concerned that BC Gas' focus on several public processes at the same time may dilute the Company's efforts, and decrease the success of all of them, while also straining the ability of the interested public to participate in several simultaneous gas-related collaboratives. The Commission is of the view that synergies will be most apparent where they have been designed into the process, and such synergies are not apparent in the various BC Gas public involvement processes.

3.7 Greenhouse Gas Study

BC Gas and Westcoast Energy Inc. ("Westcoast") agreed to "jointly support the design and possible establishment of a multi-party public involvement process to address the issue of greenhouse gas stabilization policy as it affects the natural gas industry in B.C." (Exhibit 19, Tab 11). In response to a Commission staff Information Request (Exhibit 4, Tab B68) BC Gas indicated that there are several other public processes taking place. However, the Company also stated that the proposed public process would

be unique in that it would be industry led, it would focus specifically on the B.C. natural gas industry, and it would attempt to identify practical measures through which the natural gas sector could contribute to the stabilization of greenhouse gas emissions.

BC Gas has budgeted \$20,000 for its portion of the initial design phase of the potential greenhouse gas public involvement process.

Commission's Views

Greenhouse gas emissions are a serious concern, and the Commission appreciates BC Gas' intention to address this issue. However, in spite of the unique aspects of the proposal, there does appear to be the potential for significant overlap between the BC Gas/Westcoast public process and other processes attempting to deal with the issue of greenhouse gas emissions. More fundamentally, there is also the potential for overlap with BC Gas' other IRP related public process, as well as the work of the B.C. Energy Council and the B.C. Roundtable on the Economy and the Environment. As noted in the previous section, the Commission is concerned that several overlapping public processes may reduce the efficiency and success of them all, while straining the ability of the interested public to participate. In the Commission's view, there is little need for starting yet another collaborative in this area, at least until it has been identified as a priority by those stakeholders involved in the IRP collaborative.

An additional concern is the pervasive character of the greenhouse gas issue. The Commission is of the view that the focus of public involvement and education should be broad based, looking at all energy forms and even beyond the energy sphere.

3.8 Quantification and Monitoring of Externalities

In its June 1992 LCIRP, BC Gas included a study (Appendix E) entitled "Evaluation of External Costs Associated with Natural Gas Use" by G.E. Bridges and Associates Inc. Exhibit 19 (Tab 3) included a deferral amount for externalities quantification and monitoring of \$10,000, an amount noted as being one half of the G.E. Bridges and Associates expenditures to date. These expenditures are for work that is now complete, and the Commission accepts them valid.

3.9 End Use Survey

BC Gas identified \$160,000 in Exhibit 3, Tab 7 for end use surveys for residential and commercial customers. As described by BC Gas witnesses (T. 1271), the customers surveys will form part of a monitoring study. The main purpose of the monitoring study is to collect data and provide analysis for input into end use forecast models, input into DSM program design, and DSM program evaluation (Exhibit 4, Tab B54). From the evidence presented by the Applicant, these efforts, and the associated expenditures are necessary for its IRP to proceed expeditiously.

3.10 Monitoring Study Strategy Document

BC Gas, in Exhibit 3, Tab 7, indicated that it wished to add \$35,000 to the deferral account application for outside consultants in order to accelerate development of the Monitoring Study Strategic Document. The Monitoring Study Strategic Document will include objectives and deliverables of the monitoring study, discussion of research methods for the monitoring study, sampling strategies, time frames and a budget for the monitoring study. BC Gas indicated that the additional \$35,000 was to accelerate development of the Monitoring Study Strategic Document (Exhibit 4, Tab B54).

The Commission, with consideration of the above comments, approves the BC Gas Application for deferral of the IRP accounts, as summarized in Exhibit 60, with the exception of the LNG deferral accounts and subject to the following comments and adjustments:

The sum of the deferral accounts budgeted for end use modelling and ROM development appears to be, in total, a reasonable amount. However, BC Gas has not shown that the amount allocated for end use model development is sufficient to complete the models to a functional degree. Conversely, BC Gas has not demonstrated that the ROM development is the most cost effective means of developing a model that will adequately integrate supply and demand resources in an IRP context. BC Gas was able to offer little evidence that it had considered alternatives other than building upon its existing GSOM model, or that the chosen approach was the most cost-effective. Therefore, the Commission would support a shifting of budget between these two items.

The DSM deferral accounts are approved to a total of \$1,000,000. The Commission is of the view that there are sufficient opportunities for further economies and synergies between programs, and that approximately ten percent of the requested amount can be removed from the budget without undue harm to the overall objectives. The Commission is especially concerned that large funds could be allocated to industry audits without first ensuring that such audits are an effective means of encouraging cost-effective conservation. A similar concern holds for education programs.

The Commission noted the supportive comments made by the independent consultant hired by Commission staff regarding the Company's public participation plans. Moreover, the Commission agrees with BC Gas that there is no need for a collaborative to oversee studies of technical and economic DSM potential (T.1264-T.1266). However, it is the Commission's opinion that where BC Gas has proposed several public consultation processes, only one well focused collaborative is necessary. In the Commission's view that collaborative should begin as soon as possible and take as its initial focus the questions of the avoided cost of gas, and scenarios of achievable DSM potential. Given that this should result in significant economies, the total public participation budget is reduced to \$395,000. In this same regard, the Commission approves the \$20,000 expenditure for the design of a greenhouse gas study, but is not convinced of the value at this time of a further collaborative, when so many other bodies are studying the same issue. Thus further expenditures, beyond the initial \$20,000 approved here, will be at risk.

Finally in this area, the Commission experienced considerable frustration in the hearing at its inability to determine the long run avoided cost of gas to BC Gas customers under alternative supply and demand scenarios, with the calculations and cost assumptions clearly laid out. Many, if not all of the items applied for in this application are of little use without the long run avoided cost information necessary to evaluate demand-side versus supply side resources. Therefore it is important that the long run avoided cost be estimated as soon as possible, preferably by an independent consultant who would be credible to all parties in an IRP collaborative as noted above. This study should be undertaken immediately, and the results must precede the next rate application.

While the exact budget allocation for estimating avoided costs should be determined by BC Gas, approximately \$200,000 could be made available from the deductions suggested above from the DSM and Public Participation areas.

Finally, the Commission is concerned about the Utility's DSM focus being weighted heavily toward education programs, and has not been convinced of their effectiveness. The Commission will review the DSM programs and budget allocations very carefully to ensure that the Company's DSM efforts are as cost-effective as possible. The Commission is aware of a number of generic program categories other than education programs that may be useful in some circumstances. One example is utility loans recovered through bill savings. Another example is grants.

The Commission will also be reviewing the cost-effectiveness of DSM programs through their benefits to customers and society, as demonstrated through an IRP process that appropriately incorporates the long run avoided cost of supply resources.

4.0 DEFERRAL ACCOUNTS APPLIED FOR RELATED TO OTHER PROGRAMS

Prior to the filing of Exhibit 19 on April 30, 1993, BC Gas had applied for other deferral accounts related to certain marketing programs. The Commission had not responded to these previously for several reasons: the postponement of the Phase B Rate Design Hearing until the present time; the absence of avoided cost tests indicating the benefits of the proposed programs, without which the Commission could not adequately assess the programs; potential overlap of programs with those requested in the April 30 IRP and Deferral Account filing; and the withdrawal of the BC Gas Revenue Requirements Application.

As shown in Appendix 1, the Applicant has budgeted \$313,005 for these programs in 1993. Of that amount, BC Gas had spent \$88,185 in the first quarter of this year. The Company had also spent \$104,135 to the end of 1992 (Exhibit 4, Tab B53).

4.1 Commercial Water Heater and Commercial Booster Water Heater Programs

To review briefly, on March 2, 1992 BC Gas applied for cost deferral for two DSM programs: fuel substitution pilots for commercial water heating and commercial booster water heating. In its Revenue Requirements Decision of August 5, 1992 (p. 55), the Commission stated that it would examine the programs further in the Phase B Rate Design hearing. In the interim, the Commission allowed the deferral

of costs for the fuel substitution pilots, but noted that cost recovery could still be denied following the Rate Design hearing. Examination of the programs in a subsequent Rate Design hearing did not occur.

4.2 Multi-Family Space Heating and Commercial Fuel Substitution Programs

On December 31, 1992 BC Gas applied for deferral account treatment of two additional commercial DSM projects that had been identified in its Revenue Requirement Application, but had not previously been included in an application for a deferral account. These programs were a Multi-family Space Heating Incentive program and a Commercial Fuel Substitution Program.

Commission Views

The Commission believes that DSM programs should in future be justified on the basis of the appropriate cost/benefit tests using accepted long run avoided costs. It is the opinion of this Commission that in general the benefits of load building and fuel substitution programs have not been sufficiently justified to warrant their long term continuation in the absence of such tests.

While the Commission will approve the expenditures on the above programs as requested to December 31, 1993, it will be reluctant to approve any such expenditures beyond that date without further demonstration of their benefits in the manner suggested above. If the Company wishes to continue these programs beyond 1993, it must adequately justify the benefits accruing from the programs in the context of an IRP based on long run avoided costs. Otherwise, funds that the Company spends on such programs will be at risk beyond the end of this year.

File a summary of all IRP Deferral Accounts requested.

BC GAS INC.
1993 DEFERRAL ACCOUNTS

IRP PROGRAMS	BUDGETED COST TO DEC. 31/93	ANNUAL AMORTIZATION ¹
1. End Use Modelling	\$ 45,500	\$ 9,100
2. Multi-Attribute Analysis	\$ 20,000	\$ 4,000
3. Demand Side Management	\$1,105,000 ²	\$ 221,000
4. "ROM" Model Development	\$ 165,000	\$ 33,000
5. DSM Benefit/Cost Tests	\$ 17,000 ³	\$ 3,400
6. Public Information and Consultation	\$ 495,000	\$ 99,000
7. Greenhouse Gas Study	\$ 20,000	\$ 4,000
8. Externalities Quantification and Monitoring	\$ 10,000 ⁴	\$ 2,000
9. End Use Survey	\$ 160,000	\$ 32,000
10. Monitoring Study Strategic Document	\$ 35,000	\$ 7,000
11. LNG Phases I & II	\$1,500,000	\$ 300,000
TOTAL IRP PROGRAMS (1993)	\$3,572,601	\$ 714,500
OTHER PROGRAMS	BUDGETED COST TO DEC. 31/93	ANNUAL AMORTIZATION ¹
12. Fuel Substitution Incentive Program	\$ 54,600	\$ 10,920
13. Commercial Booster Water Heater Incentive Program	\$ 12,300	\$ 2,460
14. Commercial Domestic Hot Water Water Heater Incentive	\$ 31,805	\$ 6,361
15. Multi-Family Space Heating Incentive Program	\$ 214,300	\$ 42,860
TOTAL OTHER PROGRAMS (1993)	\$ 313,005	\$ 62,601
GRAND TOTAL (1993)	\$3,885,505	\$ 777,101

¹ Does not include carrying costs as reflected in rate of return. Costs were amortized over 5 years.

² Includes \$71,000 spent to date.

³ Dr. Dan Violet and RCG/Hagler Bailly Inc.

⁴ One half of G.E. Bridges and Associates expenditures to date.