Rep: OEB
Doc: 11L1X
Rev: 0

E.B.O. 134

IN THE MATTER OF the Ontario Energy Board Act, R.S.O. 1980, Chapter 332;

AND IN THE MATTER OF a Review by the Ontario Energy Board of the Expansion of the Natural Gas System in Ontario.

BEFORE: J.C. Butler, Vice-Chairman and Presiding Member

J.A. DeKort, Member

M.A. Daub, Member

REPORT OF THE BOARD

8

June 1, 1987

9

ISBN 0-7729-2610-7

Was Page i. See Image [OEB:11L1W-0:2]

10

TABLE OF CONTENTS

PAGE

1. INTRODUCTION 1

2. BACKGROUND 2

Need for Review 4

3. THE REVIEW 7

Board Staff Discussion Paper 15

Technical Conference 16

4. ROLE OF THE BOARD 18

5. THE PUBLIC INTEREST 20

Participants' Positions on the

Public Interest 21

The Board's Findings 24

6. TESTS OF ECONOMIC FEASIBILITY 27

Five-Year, Rate of Return Tests 29

Participants' Positions on the

Five-Year Rule 30

Other Economic Feasibility Tests

Presently in Use 31

Was Page ii. See Image [OEB:11L1W-0:3]

11

Participants' Positions on Existing

Tests of Economic Feasibility 33 Alternative Tests 34 The Cost Test 35 The Benefit Test 39 Union's Alternative to the Benefit Test 42 The Board's Findings on Economic Feasibility Tests 46

7.	THE ISSUE OF SUBSIDY	49

Participants' Position on

Subsidies 50 The Board Findings on Subsidy 55

APPENDIX A

Economic Feasibility Tests 59

Was Page 1. See Image [OEB:11L1W-0:4]

1. INTRODUCTION

1.1 In the summer of 1986, the Ontario Energy Board (the Board) examined six applications by The Consumers' Gas Company Ltd. (Consumers') to provide service to the Town of Deep River, the Village of Chalk River and the Township of Rolph, Buchanan, Wylie and McKay (E.B.L.O. 216 et al.). The Board denied these applications and, in its Reasons for Decision, the Board concluded that the criteria used by the utilities to assess and justify system expansion should be reviewed.

1.2 On January 9, 1987, Notice of a Review by the Ontario Energy Board of the Expansion of the Natural Gas System in Ontario (the Review) was issued.

Was Page 2. See Image [OEB:11L1W-0:5]

2. BACKGROUND

2.1 There are three major gas distributors in Ontario which together serve approximately 1,500,000 customers: Consumers', ICG Utilities (Ontario) Ltd (ICG) and Union Gas Limited (Union). Each distributor operates within a franchised area.

2.2 Consumers' is Canada's largest natural gas distributor, serving about 850,000 customers in southern, central and eastern Ontario, western Quebec and northern New York State. The company has assets of about $1.4 billion and distributes about 9,000 10(6)m(3) of gas annually through its network of 18,657 kilometres of mains.

2.3 ICG operates a natural gas distribution system consisting of approximately 5,600 kilometres of

pipeline in northwestern, northern and eastern

Was Page 3. See Image [OEB:11L1W-0:6]

25

Ontario. ICG's utility assets are valued at almost $400 million. ICG delivers approximately 3,100 10(3)m(3) of gas annually and serves approximately 163,000 customers.

26

2.4 Union operates a fully integrated gas distribution system employing storage, transmission and distribution facilities in southwestern Ontario. It sells over 7,300 10(6)m(3) of gas annually. Union also transports and stores about 5,700 10(6)m(3) of gas annually for other utilities and is Ontario's largest operator of underground storage pools with a developed capacity of 2,700 10(6)m(3). Union's utility assets are approximately $900 million.

27

2.5 In 1958, TransCanada Pipelines Limited (TCPL) completed its interprovincial pipeline from the Alberta-Saskatchewan border to Quebec, and western Canadian natural gas became widely available in Ontario. During the next two decades, the demand for natural gas in Ontario grew rapidly due to its abundant supply and relatively low price. This demand in turn led to a major expansion of distribution facilities by Ontario's natural gas utilities.

28

2.6 By the late 1970's, most of the system expansion taking place pertained to new subdivisions, upgrading of existing pipeline capacity and development of storage facilities.

Was Page 4. See Image [OEB:11L1W-0:7]

29

2.7 In the early 1980's, expansion of the natural gas distribution network was stimulated by federal government programs designed to reduce Canada's dependence on imported oil. One of these programs, the Distribution System Expansion Program (DSEP), administered by The Department of Energy, Mines and Resources (EMR) provided funds to the gas utilities of Ontario in the form of contributions in aid of construction to assist in expansion of their distribution system.

30

2.8 DSEP was designed to facilitate specific types of system expansion projects. The key criteria for funding such projects were the lack of financial viability and the volume of oil that gas would displace.

31

2.9 Another program, the Canada Oil Substitution Program (COSP), provided a grant to homeowners who converted from oil to natural gas. This program encouraged oil customers to convert to natural gas.

32

2.10 These EMR programs which encouraged expansion of the natural gas distribution system were phased out in 1984 and 1985.

33

Need for Review

34

2.11 As noted above, in the summer of 1986 the Board examined six applications from Consumers' for

leave to construct gate stations and pipelines and for franchises and certificates to serve the Village of Chalk River, the Town of Deep River and the Township of Rolph, Buchanan, Wylie and McKay, in the County of Renfrew.

2.12 The Board denied the applications as the project did not meet Consumers' fifth-year rate of return feasibility test. In its Reasons for Decision the Board noted that the impact on the public interest, through either granting or denying gas service to the municipalities in question, was not adequately presented in the evidence.

2.13 The Board indicated in its Reasons for Decision that certain important questions concerning system expansion to smaller communities should be considered:

- with DSEP discontinued, what are the means whereby marginally uneconomic areas of Ontario are to be served, if at all;
- what is the role of the Board in the light of the removal of DSEP and to what extent should it be encouraging gas service to marginally uneconomic areas;
- with Ontario utilities facing mature markets, is expansion into uneconomic areas appropriate;
- should the shareholders or customers of utilities subsidize uneconomic expansion into smaller communities;

- are there lower limits of return that should be permitted on a project basis? Are size of project or amount of subsidy factors that should be considered in assessing a project;
- have the changing circumstances with respect to energy resulted in the test of public interest being changed;
- are the current methods used by the utilities for assessing the economic feasibility of projects appropriate and what changes, if any, should be made;
- should the economics of system expansion be considered on the basis of marginal/incremental costs or on a fully allocated cost basis?

2.14 The Board indicated that these issues would best be addressed outside the context of a specific application and that it would call a special hearing for this purpose some time in early 1987. The Board anticipated that the recommendations from that special hearing would assist in determining whether new guidelines should be developed for leave to construct applications.

Was Page 7. See Image [OEB:11L1W-0:10]

47

3. THE REVIEW

48

3.1 The Board's Notice of January 9, 1987, invited any party interested in system expansion in Ontario to participate in the Review. The procedure set out in the Notice was designed to obtain input by way of written submissions from participants responding to a discussion paper (the Discussion Paper) developed by Board staff. The procedure also provided for technical conferences or workshops to review outstanding issues.

49

3.2 Although public participation through written submission has not been used previously by this Board it has been successfully used in other jurisdictions (e.g. the National Energy Board). It was considered that this procedure would encourage a valued input from many parties who might not wish to incur the expense or invest the time required for an oral hearing. By adopting this process the Board hoped to obtain

Was Page 8. See Image [OEB:11L1W-0:11]

50

a broader and more diverse input to the Review in the most cost effective manner.

51

3.3 The Notice also set out the deadlines for each phase of the Review. Most were extended in order to accommodate the wishes of the participants.

52

3.4 The Notice was served on the Clerks in every Municipality in Ontario and was published in approximately 42 newspapers.

53

3.5 Parties who wished to participate in the Review were directed to indicate their intent, in writing, by January 28, 1987. That deadline was extended with the last participant being granted status on February 4, 1987. A total of 129 Letters of Participation were received. The following is a list of Participants:

54

Gas Distributors

55

The Consumers' Gas

Company Ltd. P.Y. Atkinson
K. Walker

56

ICG Utilities

(Ontario) Ltd D.E. Gibbons
J. Roland

57

Natural Resource

Gas Limited W.K. Ferguson

Union Gas Limited J.B. Jolley

Was Page 9. See Image [OEB:11L1W-0:12]

Municipalities

Township of Bosanquet C.P. McKenzie

County of Brant C.G. Spencer

Township of Brock G.S. Graham

Township of Burford B.M. Cadman

City of Burlington G.E. Goodman

Town of Chesley J. Albright

Town of Cobourg R.G. Stinson

Township of Dawn J. Langstaff

Town of Deep River R. Adam

Town of Dundas J.R. Gerrie

Township of Elma G.S. Tucker

Town of Flamborough R.G. Stewart

Township of Glanbrook H. Kooyman

Township of Golden R.G. LaCroix

Township of Haldimand M.P. Bosetti

The Regional Municipality

of Hamilton-Wentworth L.D. Turvey

Town of Kincardine G.R. Sutton

City of Kitchener J.A. Ryder

Township of Moore R.H. Whitman

Town of Napanee K.D. Deyo

The Regional Municipality
of Niagara A.R. Pierson

Was Page 10. See Image [OEB:11L1W-0:13]

Municipalities (cont'd)

City of North Bay R.F. Barton

Township of North
Dorchester C. Walton

Township of Oro R.W. Small

The Regional Municipality
of Ottawa-Carleton J.D. Cameron

Town of Paris P.H. Dearling

Town of Parry Sound W.E. Ewing

County of Peterborough W.D. Armstrong

Town of Simcoe D. Brunton

City of Toronto J. Rabinowitz
R.M. Feig

91 The Regional Municipality of Waterloo S.A. Thorsen

92 Township of Westmeath P. Burn

93 Township of West Nissouri C.E. Babb

94 Town of Wiarton R.J. Kastner

95 Citizens

96 Trevor Allinson

97 Neil Baird

98 Charles and Shirley Barlow

99 Mr. & Mrs. J. Blakely

100 Harold A. Boswell

101 Reg Bright

102 Denine Brown

Was Page 11. See Image [OEB:11L1W-0:14]

103 Citizens (cont'd)

104 Harold and Judith Cottom

105 A.H. and Ella de Quehen

106 David Dingwall

107 Dr. Mauro G. Di Pasquale

108

F.E. and W.F. Dix

William J. Eakins 109

Lynda Forbes 110

Tom Gammage 111

Lorne Greig 112

Jennifer F. Hardacre 113

Judy and Stew Herod 114

Hans I. Huitema 115

W.K. Hunt 116

James R. Innis 117

Owen James 118

Harry Jones 119

Mrs. K. Kopal and Ms. M. Kopal 120

Jim Landon 121

Lynda Lapeer 122

Marc A. Larose 123

Mr. and Ms. W.G. Loader 124

Thomas Loughlin 125

Norma Martin 126

Citizens-(cont'd)

127

128

Mr. & Mrs. E.S. & V.L. Morrison

129

L.G. McIlroy

130

Donna S. McGillis

131

Beverly Nicholls

132

Daniel A. Nicholls

133

Joan M. Nolasco

134

Don Mikel

135

Barry Octeau

136

Dr. B. Quarrington

137

George R.J. Rapai

138

Mr. & Mrs. Brian Rapsey

139

Graham & Jean Rogers

140

Steve Rowe

141

Mr. & Mrs. K. Savage

142

W.J., Violet and Steve Sawyer

143

Dirk J. Schmachtel

144

Daniel Scobie

145

Mark Scott, Edward E. Scott, Jane Scott

146 Richard Shapcott

147 Michael Sheehy

148 Mr. & Mrs. Donald E. Smith

149 Scott and Susan Stanley

150 Charles Stimac

Was Page 13. See Image [OEB:11L1W-0:16]

151 Citizens (cont'd)

152 Jo Anne St. James

153 Pat and Birgit Tunney

154 Mervyn Wells

155 Mr. & Mrs. George Welton

156 J.D. Williamson

157 Marilyn Williamson

158 P.W. Wilmer

159 G.M. and Glorya Woods

160 Other Participants

161 Alberta Petroleum Marketing Commission S.F. McAllister

162 Association of Municipalities of Ontario M. Dunbar

163
B.C. Hydro and Power
Authority E. C. Eddy

164
Brant County Federation of
Agriculture M. Sharp

165
Canadian Enerdata Limited R. Zarzeczny

166
Canadian Petroleum
Association D.B. Macnamara

167
C-I-L Inc. P.D. Jackson

168
Committee of Southwestern
Ontario Municipalities A.C. Wright

169
Concerned Citizens of
Haldimand G. Hinton

170
Dow Chemical Canada Inc. F.G. Marcinkow

Was Page 14. See Image [OEB:11L1W-0:17]

171
Other Participants (cont'd)

172
Eastont Integrative Services
Incorporated (E.I.S.I.) C.B. Walker

173
Energy Probe D.I. Poch

174
Foothills Pipe Lines
(Yukon) Ltd. H.N.E. Hobbs

175
Great Lakes Forest Products J.L. Davies

H. Rentsch Associates Ltd. H.E. Rentsch 176

Inco Limited T.W. Leishman 177

Independent Petroleum Association of Canada R.G. DeWolf 178

Industrial Gas Users Association P.C.P. Thompson, Q.C.
T. Bjerkelund 179

Lambton Gas Storage Association A. Kimpe 180

Ministry of Energy I.B. MacOdrum 181

Monenco Consultants Limited D.H. Stevenson 182

Ontario Corn Producers' Association D. LeDrew 183

Ontario Hydro C.R. Chorlton 184

Parry Sound Area Economic Development Commission M.B. Stagg 185

Polysar Limited G.P. Sadvari 186

PSR Gas Ventures Inc. P.H. McMillan 187

Tecumseh Gas Storage Limited P.Y. Atkinson 188

Thunder Bay-Atikokan Iain Angus, MP 189

190

Other Participants (cont'd)

191

TransCanada PipeLines

Limited C.C. Black

192

Twin Elm Estates Ltd. G. Brothers

193

Board Staff Discussion Paper

194

3.6 The Discussion Paper outlined criteria previously used by the Board when assessing the public interest in system expansion projects and examined economic feasibility tests currently used by the gas distributors' when evaluating system expansion projects. In the Discussion Paper, Board staff also presented alternative feasibility tests to stimulate discussion and a critical re-evaluation of the tests now in place.

195

3.7 A copy of the Discussion Paper and Procedural Order-1 were provided to all participants. Procedural Order-1 set out the format for responses to the Discussion Paper. All responses were distributed to all participants and all participants were given the opportunity to reply to each others' responses.

196

3.8 The Board received 25 responses to the Discussion Paper and seven replies to those responses.

197

Technical Conference

198

3.9 On March 8, 1987, Procedural Order-2 was issued indicating that a Technical Conference (the Conference) would be held on April 6, 1987, to discuss matters arising from the responses and replies of participants.

199

3.10 Procedural Order-3, issued March 27, 1987, indicated that the Conference would be held on April 9, 1987, and it would be conducted by Board staff. It also indicated that the following matters would be discussed:

200

- Public Interest;

- Existing Economic Tests;

- Economic Feasibility Tests presented in the Discussion Paper: and

- Contributions in Aid of Construction.

201 3.11 The Conference extended over two days and was attended by the following participants:

202
B. Taylor — on behalf of Consumers'
D. Rewbotham
P. Davis

203
J. Hunter — on behalf of ICG
D. Gibbons

204
J. Anderson — on behalf of Union
P. Pastirik
D. McCash

Was Page 17. See Image [OEB:11L1W-0:20]

205 L. Smith — on behalf of the Town N. Williamson of Deep River

206 E. de Quehen — on behalf of the Public Interest Participants

207 D. Poch — on behalf of Energy

208 P. Muldoon — Probe

209 A. Ryder — on behalf of the City of Kitchener

210 T. Loughlin — on his own behalf

211 J. Thorne — on behalf of the City of Toronto

212
K. Taylor — on behalf of Western Gas Marketing Limited, an affiliate of Trans Canada PipeLines Limited

213 3.12 The NDP Caucus, although not a participant, was represented by M. McVea.

214 3.13 A transcript of the Conference was taken and was made available to the Board along with all submissions by all participants in connection with the Review. These transcripts and all documents submitted to the Board as part of this Review are part of the Board's files and are available for public review.

215

4. THE ROLE OF THE BOARD

216

4.1 There are three items of legislation which provide a comprehensive means to ensure the orderly and equitable provision of natural gas to Ontario consumers. These are the Ontario Energy Board Act (the OEB Act), R.S.O. 1980, Chapter 332, the Municipal Franchises Act, R.S.O. 1980, Chapter 309 (the MF Act) and the Public Utilities Act, R.S.O. 1980, Chapter 423 (the PU Act).

217

4.2 Before a utility can supply natural gas to a community, the utility is required under section 46 of the OEB Act to make an application for a Board Order granting leave to construct. If granted, it would permit the construction of the gas transmission line. Pursuant to section 8 of the MF Act, Board approval is required for the construction of works to supply gas and the actual supply of gas itself. Board approval is signified by the issuance of a certificate of public convenience and necessity.

218

4.3 Under section 9 of the MF Act, the Board's approval is required of the terms and conditions contained in the municipal by-law and the Franchise Agreement under which the utility serves the municipality.

219

4.4 Under this legislation a distributor seeks Board approval to undertake a project and the Board is required to give or withhold such permission according to whether or not the Board judges the proposed project to be in the public interest. As part of its consideration of the public interest, the Board considers the impact of the proposed project on other customers and requires, in either the leave to construct or in the certificate of public convenience and necessity application, that an economic analysis be produced.

220

4.5 The Board also is required under section 19 of the OEB Act to examine the cost of all property plant and equipment included in the utility's proposed rate base, including the current capital budget, to assess whether these items will be "used or useful" in deciding if they should be included in rate base. This assessment includes all transmission, distribution and storage facilities which the distributor proposes to include in the capital budget. Rates are ultimately set by the Board to reflect the costs associated with those items in the rate base.

221

5. THE PUBLIC INTEREST

222

5.1 The Board has a statutory obligation to consider the public interest before it makes a determination to grant or reject a leave to construct application for a proposed pipeline or station (Section 48 (8) of the OEB Act).

223

5.2 In the Discussion Paper and at the Conference, Board staff indicated that the Board typically employs a broad definition of the public interest which takes account of the facts and particular circumstances of each case.

224

5.3 Board staff presented a list of criteria related to the public interest. These are as follows:

225

1. Economic feasibility;

226

2. Community benefits

227

o Industrial development

o Alternative fuel considerations

228

o Increased revenues to government (e.g. taxes)

Was Page 21. See Image [OEB:11L1W-0:24]

229

o Local employment

o Regional development;

230

3. Utility benefits;

231

4. Security of supply and safety;

232

5. System flexibility;

233

6. Route/site selection and landowners' concerns;

234

7. Environmental impact;

235

8. Government policy; and

236

9. Other factors.

237

Participants' Positions on the Public Interest

238

Consumers'

239

5.4 Consumers' stated that the principles that the Board should consider in determining public interest should be broad and wide ranging.

240

ICG

241

5.5 ICG noted that Board staff had included most of those public interest factors that the Board should consider. ICG advocated the view that each case is unique and the Board has to consider each application on its own merits to determine exactly what are the public interest concerns.

Was Page 22. See Image [OEB:11L1W-0:25]

242

Union

243

5.6 Union indicated that in its opinion the tendency over the last five or six years has been to consider the cost to existing customers as the primary public interest factor in evaluating system expansion projects. It also indicated that the other factors discussed by Board staff are probably equally important.

244

The City of Kitchener

245

5.7 The City of Kitchener submitted that decisions regarding uneconomic expansion of rate base should be made by the government and were thus beyond the scope of the Board's mandate.

246

Concerned Citizens of Haldimand;

247

Lynda Forbes and Public Interest Participants

248

5.8 These groups generally supported the Board's broad interpretation of the public interest but expressed concern that public interest factors not be incorporated into a formula. They also stressed the importance of a hearing for each application so that all matters regarding public interest could be considered by the Board.

Was Page 23. See Image [OEB:11L1W-0:26]

249

W. K. Hunt;
Brant County Federation of Agriculture;

250

Ontario Corn Producers' Association and Working Committee for the Expansion of Natural Gas Service in the Burford - Oakland Project Area

251

5.9 Several participants expressed a view that the widest public interest in Ontario would be served by provision of natural gas service to more rural municipalities. They expressed the concern that the agricultural sector has been forced to compete for system expansion with concentrated urban areas. Some groups argued that rural expansion should be heavily weighted in terms of public interest considerations since a healthy agricultural sector contributes to the well-being of the province as a whole.

252

Western Gas Marketing Limited

253

5.10 Western Gas Marketing Limited stated that public interest is a dynamic concept and also argued that none of the public interest factors are necessarily fully quantifiable at any given point in time.

254

IGUA

255

5.11 IGUA indicated that the costs associated with uneconomic system expansion ought to be borne by the customer classes that directly benefit from that expansion.

Was Page 24. See Image [OEB:11L1W-0:27]

256

Kincardine and District Recreation Board and Parry Sound Area Economic Development Corporation

257

5.12 This group expressed concern that with the end of DSEP, smaller communities in Ontario may not receive gas service.

258

The Board's Findings

259

5.13 The Board finds that it has jurisdiction to review all matters relating to the production, distribution, transmission and storage of natural gas. Mr. Justice Keith in reviewing the history and origins of the OEB Act, stated:

260

In my review that statute makes it crystal clear that all matters relating to or incidental to the production, distribution, transmission or storage of natural gas ... are under the exclusive jurisdiction of the Ontario Energy Board ... .

261

These are all matters that are to be considered in the light of the general public interest and not local or parochial interests. The words "in the public interest" ... which I have quoted would seem to leave no room for doubt that it is the broad public interest that must be served. (Union Gas Limited vs. Township of Dawn, (1977) 76 D.L.R. 613)

262

5.14 The Board reiterates that the concept of public interest is dynamic and it must change according to the circumstances. The Board considers that the relevant criteria from those listed above,

Was Page 25. See Image [OEB:11L1W-0:28]

263

and others depending on the circumstances, should be addressed as fully as possible so that the Board has complete information on which to base its determination as to whether or not a project is in the public interest.

264

5.15 There can be no firm criteria for determining the public interest and the Board will not attempt to define these criteria closely. The weighting the Board attaches to each criterion considered can also change with the circumstances of a specific application.

265

5.16 When considering the public interest in prior proceedings the Board has been satisfied if the welfare of the public is enhanced without imposing an undue burden on any individual, group or class. The Board will continue to be guided by this general principle in determining the extent to which gas service should be extended into other areas of the province.

266

5.17 The Board considers that system expansion should not be unlimited and that it is required to continue to determine whether the expansion of gas service is in the public interest.

267

5.18 The Board has concerns with the concept of "economic feasibility" as it has been used in these proceedings. These concerns will be examined in detail below. The Board considers

Was Page 26. See Image [OEB:11L1W-0:29]

268

that regardless of the "economic feasibility" test used to evaluate a project, it has not been, nor will it be, the sole criterion examined. Even though "economic feasibility" is an important factor, it may be given more weight in some situations, and less in others such as safety or security of supply projects.

269

5.19 Any application to the Board should include evidence on all public interest criteria considered relevant by the participants. Any data that can be quantified in a meaningful fashion should be presented that way with assumptions clearly stated.

270

5.20 The Board recognizes that the views of a local community may differ from those of an industrial customer or of a utility. In reaching its decision, the Board attempts to accommodate differing interests in its assessment of the public interest. The greater the number of interests that are represented at a hearing, the more confidence the Board can have in its judgement regarding the public interest.

271

5.21 The Board therefore encourages wide participation in hearings regarding these matters.

Was Page 27. See Image [OEB:11L1W-0:30]

272

6. TESTS OF ECONOMIC FEASIBILITY

273

6.1 Because of its important influence on how the public interest is viewed, the question of economic feasibility will be examined in detail and the existing and proposed "tests" to assist judgements about economic feasibility will be considered. In so doing, the Board's concerns with the concept of economic feasibility will be developed.

274

6.2 Over the years, the Ontario gas distribution utilities have refined the economic feasibility tests used to evaluate system expansion projects. These tests have been examined from time to time in rate application hearings before the Board. However, the examination of each utility's economic feasibility tests has been on an individual basis without benefit of a common public review. A summary of these economic feasibility tests is contained in Appendix A.

Was Page 28. See Image [OEB:11L1W-0:31]

275

6.3 In the Discussion Paper, Board staff outlined what it perceived to be the weaknesses of the feasibility tests currently employed by Union, Consumers' and ICG.

276

1. The tests are based on a measure of feasibility which is too narrowly defined. Therefore these tests fail to recognize many of the additional benefits which accrue to an individual customer and to the area served by a new project, such as, savings on energy costs and major regional or more macroeconomic benefits.

277

2. Existing customers are serviced by facilities built at historical capital costs which have been significantly depreciated. These are significantly lower than current costs used in project assessment. A new project where current capital costs are used and where the annual costs are tested at a point in time when depreciation is low (5th year) is obviously at a disadvantage.

278

6.4 The first group of these are the "Five-Year, Rate of Return Tests".

Was Page 29. See Image [OEB:11L1W-0:32]

279

Five-Year, Rate of Return Tests

280

6.5 Five-year, rate of return tests are presently employed by Consumers' and ICG to demonstrate the economic feasibility of projects submitted to the Board in leave to construct applications. ICG also uses this methodology to assess all extensions involving more than 60 metres per customer. The test is based on the rate of return on investment to be achieved in the fifth year. The forecast of the annual incremental revenue from the project less its annual incremental gas costs, operation and maintenance expense, municipal and capital taxes, depreciation and income taxes, divided by the estimated cost less accumulated depreciation, equals the estimated rate of return on investment. This estimated rate of return is then compared with the Board approved rate of return on rate base for the distributor to determine if a particular project will be self-supporting. Generally, a project is considered economically feasible if the fifth-year rate of return on rate base equals or exceeds the Board approved rate of return on rate base.

281

6.6 The "five-year rule" has traditionally been considered a reasonable time frame since this is the period in which it was considered that the majority of the customer attachments would occur. It has also been considered by the

Was Page 30. See Image [OEB:11L1W-0:33]

282

Board as a reasonable time period for existing customers to subsidize new projects.

283

Participants' Positions on the Five-Year Rule

284

Consumers'

285

6.7 Consumers' indicated that they continue to use this method because of the Board's preference but the company considered that its Discounted Cash Flow (DCF) tests used to assess feasibility for other projects provide a better measure of the benefits and costs to existing customers from such

projects.

286

6.8 Consumers' indicated that the five-year target for customer additions is an arbitrary and stringent target. it ignores load and revenue growth in the sixth and subsequent years when a surplus can occur which could create an overall surplus on a net present value basis. Therefore it does not account for the very long period of time in which the project may be producing greater than the allowable rate of return, which could offset the short subsidization period of up to four years.

287

ICG

288

6.9 ICG is of the view that its five-year rate of return test should be retained. ICG supports

Was Page 31. See Image [OEB:11L1W-0:34]

289

an expanded feasibility test which mirrors the rate of return approach by which the utilities are regulated.

290

Union

291

6.10 Union opposed the use of this test for evaluation of its system expansion projects.

292

Brant County Federation of Agriculture and Town of Kincardine

293

6.11 Both these Participants expressed concern with the five-year rate of return test as they felt that the five-year period should be extended.

294

Other Economic Feasibility Tests Presently In Use

295

6.12 Union and Consumers' use DCF analysis to assess the economic feasibility of most projects. DCF tests relate the net present value of the cash in-flows generated from a project to the net present value of its capital costs and other cash out-flows. The discounting of cash in flows and out-flows gives recognition to the time value of money (i.e. that a dollar spent today has a different value than a dollar spent in the future).

296

6.13 Most of the DCF tests employed by Union and Consumers' evaluate incremental costs and revenues of system expansion projects over their

Was Page 32. See Image [OEB:11L1W-0:35]

297

forecast economic life. At the Conference parties tended to agree that it becomes relatively insignificant to the end result if the DCF analysis is extended beyond twenty years. It was evident that, in general, incremental costs were used.

298

6.14 The three utilities confirmed that they use a five-year horizon for customer additions with the

revenues from these customers being assessed over the longer time horizon for the DCF test.

299

6.15 At present only Consumers' employs a formal risk analysis in the DCF feasibility test through the use of different time horizons for each class of customer to reflect the different risk that each imposes on the utility's system.

300

6.16 Union presently provides no such measure of risk in its DCF economic feasibility. However, in projects involving contract customers, the utility's risk exposure is eliminated by requiring that all capital costs be recovered over the contract period. Union indicated that it would not be opposed to performing sensitivity analyses on the factors incorporated in its tests to aid in establishing the risks involved.

Was Page 33. See Image [OEB:11L1W-0:36]

301

6.17 Union and Consumers' both agreed that the DCF methodology provides the best measure of the subsidy required from existing customers for a particular project. Each company noted, at the Conference, that they had refined the DCF methodology so that it could be easily adapted to assessing economic feasibility in the field.

302

Participants' Positions on Existing Tests of Economic Feasibility

303

Consumers'

304

6.18 Consumers' indicated a concern that neither of the tests it presently uses for financial feasibility allow for consideration of broad public interest benefits.

305

6.19 The company indicated that it supports changes which would allow these other beneficial factors to be considered.

306

ICG

307

6.20 ICG noted that its existing test is easily understood by its staff, the Board, and the municipalities as it follows the principles involved in rate of return on rate base determination.

Was Page 34. See Image [OEB:11L1W-0:37]

308

6.21 ICG submitted that the five-year test allows for easy measurement of cross-subsidization.

309

6.22 ICG noted that the DCF method can be subjective depending on the discount rate employed. It considered that the DCF methodology was difficult for its salesmen to perform.

310

Union

311

6.23 Union supported the position of Board staff that current economic feasibility tests, as presently

defined, produce a measure of feasibility which is too narrowly defined.

312

6.24 Union considered that storage and transmission expansion should be assessed separately and should not be included in the feasibility evaluation of the distribution projects that cause such expansion. Alternative Tests

313

6.25 During the Review, five alternative tests were presented. The Comparative Cost Test (Cost Test) and the Aggregate Customer Net Benefit Test (Benefit Test) were described in the Discussion Paper and Union Gas presented three tests of its own.

Was Page 35. See Image [OEB:11L1W-0:38]

314

6.26 As previously noted, the Board has concerns with economic feasibility tests, in particular how best to represent the appropriate benefits and costs. It is also concerned with the implications which flow from these tests as to the amount of subsidy required from existing customers. The five alternative tests address some of these concerns.

315

The Cost Test

316

6.27 The underlying assumption in the Cost Test is that it is unreasonable to expect a new project's costs to be fully recovered by rate schedules which are based, in part, on historic depreciated capital costs (see Appendix A for details of the test).

317

6.28 Feasibility for the Cost Test is thus determined by comparing a project's estimated fifth-year unit cost of service, excluding gas costs, to the utility's unit replacement cost of service. The project's fifth-year unit cost of service could then be adjusted by a load-risk factor (LRF) and/or a public interest factor (PIF). The LRF will adjust the project's unit cost upwards if its forecasted load is more uncertain or volatile than average. On the other hand, the PIF can be used to scale down a project's cost of service if it has specially meritorious public interest characteristics

Was Page 36. See Image [OEB:11L1W-0:39]

318

(e.g. geographical location, relative load concentration, security of supply).

319

6.29 A project will be acceptable if its adjusted unit cost of service is less than or equal to the utility's system-wide unit replacement cost of service.

320

Participants' Positions on the Cost Test

321

Consumers'

322

6.30 Consumers' submitted that the Cost Test has three major strengths: it recognizes the inequity in current tests with respect to the requirement that the cost of system expansion at current replacement costs should equate to the historical system average; it broadens the definition of feasibility to include total benefits and costs to society; and it will lead to a wider access to

natural gas throughout the province.

323

6.31 Consumers' noted the weaknesses: the difficulty in calculating the PIF value beyond the point of valuing the energy savings to end use customers; and the revaluation of Existing System Unit Cost may require an extensive and costly study on an ongoing basis.

Was Page 37. See Image [OEB:11L1W-0:40]

324

6.32 Consumers' also criticized the use of the fifth-year reference point for cost of service comparison.

325

ICG

326

6.33 ICG noted that the PIF and the LRF adjustments are likely to be very subjective. The company indicated that attempting to quantify these factors may detract from the importance that should be given to the issues.

327

Union

328

6.34 Union indicated that an important strength of this test is that it addresses formally the public interest aspect of system expansion and in particular the problem that, as the utility system matures, the expansion of that system will be more costly.

329

6.35 Union submitted that the subjectivity involved and the difficulty in administering the test are its two major weaknesses.

330

Union's Alternatives to the Cost Test

331

6.36 Union presented two tests as alternatives to the Cost Test. At present, a system expansion project will pass Union's DCF test if its profitability index is greater than or equal to

Was Page 38. See Image [OEB:11L1W-0:41]

332

one. That is to say, a project will be accepted if it does not require a subsidy from Union's existing customers.

333

6.37 Union's first alternative would be to accept projects with profitability indices less than one, say 0.7 or greater.

334

6.38 The second alternative would employ historical costs instead of current costs in evaluating a system expansion project. A project would be accepted if its profitability index is greater than or equal to one.

335

The Board's Findings on the Cost Test (and on Union's Alternatives)

336

6.39 The Board recognizes that the Cost Test is a very explicit attempt to substitute "fairness" for economic feasibility as the principal criterion for project evaluation. However, the Board is of the view that public interest factors will vary from case to case and therefore cannot be assigned a numerical value as is proposed in the Cost Test.

337

6.40 The Board also notes that the test lacks two of the principal strengths of consumers' and Union's DCF tests. First, it does not take into account the time value of money. Second, it does not quantify the system expansion project's required subsidy and hence rate impact.

Was Page 39. See Image [OEB:11L1W-0:42]

338

6.41 The Board is further concerned that the calculation of the utilities' system replacement costs would be time consuming and imprecise.

339

6.42 In the opinion of the Board, Union's alternative tests are too narrow in scope to fully assess all the quantitative and qualitative costs and benefits of system expansion.

340

6.43 The second suggested test does not quantify the magnitude of the subsidy required from the utility's existing customers and has the same faults regarding public interest factors as the Cost Test itself.

341

The Benefit Test

342

6.44 The Benefit Test provides an analytical two stage cost-benefit framework for evaluating system expansion projects. The first stage is a DCF financial feasibility test. This test is similar to the DCF tests presently employed by Consumers' and Union with the notable exception that a social discount rate is used instead of the utility's cost of capital.

343

6.45 At the second stage, the customer benefits and costs of a system expansion project are compared. The benefits of system expansion are mainly the fuel cost savings of the new gas

Was Page 40. See Image [OEB:11L1W-0:43]

344

customers. The cost to the existing customers of proceeding with a system expansion project which does not satisfy the DCF analysis is an increase in their gas bills. Both the costs and the benefits of a project would be discounted by the social discount rate used in the DCF analysis. If the present value of the customer benefits is greater than or equal to the present value of the customer costs, then the project could be accepted.

345

Participants' Positions on the Benefits Test

346

Consumers'

347

6.46 Consumers' submitted that the major strength of the Benefit Test is that it considers the broad

effects beyond the pure economics of adding incremental projects to the system.

348

6.47 The company also asserted that the test provides a satisfactory indicator properly balancing factors over the life of the project.

349

6.48 Consumers' submitted that the main problem will be in determining and justifying the social discount rate.

350

6.49 Consumers' expressed concern that some customer benefits are not quantifiable.

Was Page 41. See Image [OEB:11L1W-0:44]

351

ICG

352

6.50 ICG submitted that the greatest strength of the Benefit Test is its consideration of societal benefits. The company submitted that the Benefit Test requires excessive judgement in several areas, particularly in establishing the appropriate social discount rate.

353

6.51 ICG also indicated that careful consideration should be given before adopting a test which is premised on the assumption that natural gas will continue to be priced favourably to alternate fuels.

354

Union

355

6.52 Union noted that a strength of the Benefit Test was the fact that it quantifies a wide range of public interest benefits that result from project implementation. The company also mentioned other strengths: the test is flexible enough to be applied to most types of system expansion; it employs the widely supported DCF methodology; and the test accounts for rate impacts that result from project evaluation.

356

6.53 The major weakness of the test, in Union's view, is its subjectivity. Considerable judgement will have to be exercised in the determination of several factors notably the social discount rate.

Was Page 42. See Image [OEB:11L1W-0:45]

357

6.54 Union proposed modifying the Benefit Test to address its concerns (see below).

358

The Board's Findings on the Benefits Test

359

6.55 The Board considers that the Benefit Test has some advantages: it employs a DCF financial feasibility test; it uses a social discount rate; and, it helps to quantify some of the major costs and benefits of the system expansion project.

360

6.56 Although the Board sees merit in this test, one of the other alternative tests suggested by Union is

considered to be preferable.

361

Union's Alternative to the Benefit Test

362

6.57 The alternative test proposed by Union to the Benefit Test is a three stage test which is a broader and more sophisticated version of the Benefit Test. Although the description employs Union's financial feasibility test, Union suggested that each utility could adopt the methodology it prefers for the first stage.

363

6.58 The first stage is Union's DCF financial feasibility test. It a project passes this test, it would be accepted, subject to the provision that it does not entail significant other social costs (e.g. environmental damage) that are not

Was Page 43. See Image [OEB:11L1W-0:46]

364

included in the feasibility calculation. If a project fails the first stage test, then it can proceed to the second stage for further evaluation.

365

6.59 At the second stage, all the quantifiable benefits not quantified in the first stage are quantified (e.g. energy cost savings to the new customers).

366

6.60 The subsidy required from the existing customers as well as other quantifiable social costs are calculated. The present values of all the above benefits and costs are determined using a social discount rate (the customers' cost of capital).

367

6.61 A sensitivity analyses on the key variables (e.g. social discount rate, gas prices, alternative fuel prices, inflation) is performed to assess the project's risk. If the analysis shows a project is relatively insensitive to major changes in the key variables, it is an added factor in favour of the project. A benefit to cost ratio is calculated by dividing the present value of the stage-two benefits by the present value of the stage-two costs. If the resulting ratio is greater than one, the project could be accepted subject to the provision that it does not entail significant other costs that still cannot be strictly quantified.

Was Page 44. See Image [OEB:11L1W-0:47]

368

6.62 At the third stage, the results of the first and second stages are considered together with any relevant unquantifiable costs or benefits and a judgement is made as to whether the project is in the public interest. If a project's second-stage benefit/cost ratio is greater than or equal to one, it may receive third-stage acceptance unless the resulting rise in rates (due to the subsidy) would cause a serious loss of the utility's existing load or it had significant unquantifiable social costs.

369

6.63 Alternatively, a project with a benefit/cost ratio less than one could be approved if it had significant unquantifiable social benefits. Participants' Positions on Union's Alternatives to the Benefits Test

370

Union

371

6.64 Union recommended that the Board adopt its three-stage methodology as a framework for system expansion decision-making.

372

Consumers'

373

6.65 Consumers' agreed that Union's Alternative to the Benefit Test is preferable to Union's other proposals.

Was Page 45. See Image [OEB:11L1W-0:48]

374

ICG

375

6.66 ICG conceded that this test seems to be an improvement over the Benefit Test. However, ICG stated that it did not endorse any of the Alternative Tests but preferred to modify its existing fifth-year rate of return test. It considered that the proper forum for deciding whether or not to change the current test is a public hearing involving an application, not at a technical conference. ICG also expressed the hope that any new guidelines adopted by the Board would be restricted to information requirements only and that the utilities would retain the right to present this information as they see fit.

376

The Board's Findings on Economic Feasibility Tests

377

6.67 The Board finds that of the tests currently in use by the utilities, the DCF analysis provides a superior measure of the subsidy required from existing customers for a particular project.

378

6.68 The Board directs all utilities to employ DCF analysis as part of its assessment of the feasibility of projects for system expansion.

379

6.69 The Board encourages the use of more formal risk measurement in the feasibility test and it

Was Page 46. See Image [OEB:11L1W-0:49]

380

would not discourage the use of sensitivity analyses of variables being regularly employed in the test.

381

6.70 The Board finds that incremental costs should be used in evaluating the feasibility of system expansion.

382

6.71 The Board will continue to assess the adequacy of the DCF analysis and any other tests used for project evaluation at the time of a utility's rate case hearing.

383

6.72 The Board finds that Union's three-stage test has considerable merit. The Board requires each utility to develop a three-stage process as outlined below to aid the Board in its determination of the public interest.

384

6.73 The first stage is a test based on a DCF analysis.

385

6.74 The second stage should be designed to quantify other public interest factors not considered at stage one. All quantifiable other public interest information as to costs and benefits should be provided at this stage.

386

6.75 The third stage should take into account all other relevant public interest factors plus the results from stage one and stage two.

Was Page 47. See Image [OEB:11L1W-0:50]

387

6.76 A project could, therefore, be accepted if it passed the DCF analysis of stage one and if the disadvantages and quantifiable costs from stages two and three do not disqualify it. If a project is not acceptable because it fails the DCF analysis or has significant other disadvantages, then stages two and three must be completed before the project can be said to be fully evaluated.

388

6.77 The Board is aware that each utility will continue to approve internally projects that lie within areas for which a franchise and a certificate of public convenience and necessity have been issued. At subsequent rate hearings the Board may assess the analyses employed before approving the inclusion in rate base of any specific project.

389

6.78 Any project brought before the Board for approval should be supported by all data used by the Applicant in reaching its conclusion that the project is viable. The utilities and other interested parties may use alternative analyses, but these and the results must be presented at the relevant hearing. The Board will continue to weigh the various benefits against the various disadvantages as it always has in reaching its decision in the public interest.

Was Page 48. See Image [OEB:11L1W-0:51]

390

6.79 The Board continues to hold the opinion that it is appropriate for existing customers to subsidize, through higher rates, financially non-sustaining extensions that are in the overall public interest if the subsidy does not cause an undue burden on any individual, group or class.

Was Page 49. See Image [OEB:11L1W-0:52]

391

7. THE ISSUE OF SUBSIDY

392

7.1 One of the major reasons for this Review is that much of the remaining expansion available to a utility and the public in a mature market area is generally uneconomic as judged by existing tests and a subsidy or a contribution in aid of construction is required. The preceding sections have dealt with changes that should be made in the determination of the subsidy or contribution required, and the public interest considerations. This section considers the potential expansion available and who should be required to make the contribution or provide the subsidy should it be required.

393

7.2 Each distributor provided a list of projects or municipalities that are currently not being served with natural gas but might be considered for system expansion.

394

7.3 Union indicated that approximately 37 communities in its franchise area fall into this category and expansion into a sample of 13 of these communities would represent an $8.8 million dollar investment.

395

7.4 Consumers' review of possible expansion in or adjacent to its franchise areas indicated that there were a possible 43 projects that could be considered for its long term system expansion program. A sample of 13 of these projects represented about $21 million dollars of investment.

396

7.5 ICG indicated that there were 80 communities in its distribution area, with a customer potential of about 21,000, that presently do not have gas service. ICG stated that it would not consider expansion in gas service to any of these communities in the absence of a capital contribution.

397

Participants' Position on Subsidies

398

The City of Kitchener

399

7.6 Kitchener considered that economic feasibility as currently determined should be paramount in any decision relating to system expansion. it recommended that the Board should not take into account many of the public interest factors

400

proposed by Board staff. Kitchener submitted that it is the responsibility of government to make decisions regarding uneconomic expansion. It stated that it makes no sense to impose the burden of this expansion on existing customers.

401

Consumers'

402

7.7 In the case of significant economic burden, Consumers' observed that it is neither fair nor logical for existing customers to bear the entire burden of subsidy for expansion.

403

7.8 Consumers' nevertheless supported the concept that areas of Ontario that are marginal with respect to gas service should be served if there are public interest benefits (including economic) beyond pure financial feasibility and where the extra cost to existing customers resulting from the extension will not be onerous.

404

7.9 Consumers' indicated that when broad public interest benefits accrue to Ontario, consideration should be given to the use of provincially administered funds for subsidizing system expansion. It was Consumers' view that a provincial fund similar to DSEP could be used to encourage expansion of service to customers who would not otherwise receive natural gas.

405

7.10 Another alternative discussed by Consumers' would be to recover some of the cost from the local

community benefiting from the project. This could be accomplished through a municipal contribution-in-aid of construction or in the form of a time-limited surcharge on the rates charged to gas customers within the municipality.

406

7.11 Consumers' advocated that costs resulting from uneconomic expansion strictly defined should only flow through the utility's cost of service when the amounts involved will not impose a significant burden on existing customers.

407

ICG

408

7.12 With respect to subsidization, ICG proposed various alternatives. It noted that subsidization could be a provincial government responsibility. It discussed the possibility of subsidizing projects through the total utility cost of service and ultimately through rates but noted that there must be a limit to the burden imposed on existing customers. In addition ICG noted that contributions-in-aid of construction could be collected from the customers that would benefit from the gas service.

409

7.13 ICG asserted that the concept of a fair return to the utility's shareholders and its ability

Was Page 53. See Image [OEB:11L1W-0:56]

410

to raise capital at the lowest cost possible should not be compromised when considering the public interest aspects of system expansion.

411

Union

412

7.14 In terms of subsidization, Union stated that, in the absence of government funding, uneconomic areas could only be serviced through rate increases or contributions-in-aid of construction as there is no justification for shareholder subsidization because a higher rate of return would then be required.

413

Energy Probe

414

7.15 Energy Probe stated that extending service to marginal areas should only occur where existing customers are not asked to subsidize new ones. Energy Probe believes that government policy on this matter must be clear before decisions can be made regarding the subsidization of system expansion. It considered that it would be difficult to proceed without knowing what the provincial government deemed to be in the public interest.

415

7.16 Energy Probe asserted that the provincial government must not only determine whether or not expansion is appropriate but also whether natural gas is the preferred energy alternative.

Was Page 54. See Image [OEB:11L1W-0:57]

416

If the government perceives a public interest in taxpayers or existing customers subsidizing extension,

the subsidy should be explicitly initiated by government.

417
7.17 In Energy Probe's view the Board must have explicit policy direction from the government regarding what constitutes the public interest before the Board incorporates broader public interest factors into the decision making.

418
Parry Sound Area Economic Development Commission

419
7.18 This group indicated that the government should determine the priority in which marginal areas are to be served and that a government subsidy should be provided.

420
Deep River

421
7.19 This municipality indicated the importance to a community of having natural gas service and stated that both the federal and provincial governments should encourage service of natural gas to small towns in Ontario by way of subsidies. It stated that it would not refuse to provide a contribution towards construction but that municipal funds for such projects would be difficult to raise.

Was Page 55. See Image [OEB:11L1W-0:58]

422
Public Interest Participants

423
7.20 This group stated that the policy of subsidization must be resolved by the government before any matters concerning feasibility tests should be considered.

424
City of Toronto

425
7.21 This municipality opposed system expansion which would impose an undue burden on existing customers.

426
Committee of Southwestern Ontario Municipalities

427
7.22 This group indicated that it is the role of federal and provincial governments to provide financial assistance where needed for system expansion into areas not currently served.

428
7.23 It submitted that municipal contributions in aid of construction would be inappropriate as such contributions would have implications on a municipality's financial integrity and would suggest the involvement of the Ontario Municipal Board.

429
The Board's Findings on Subsidy

430

7.24 As noted earlier, the Board considers that in general, the public interest is satisfied if

Was Page 56. See Image [OEB:11L1W-0:59]

431

the welfare of the public is enhanced without imposing an undue burden on any individual, group or class.

432

7.25 The Board has previously stated herein that the economic feasibility of a project should not be the sole criteria examined nor the determining factor in the approval process.

433

7.26 The economic feasibility tests currently employed by the utilities result in projects being accepted that require a degree of subsidy from existing customers. With the five-year rate of return test the project may require a subsidy from existing customers for the first four years. Similarly the DCF methodology may result in approval of a project which requires a subsidy from existing customers in its early years, with the subsidy being offset by the benefits in later years. The Board has, in the past, considered that subsidy as reasonable, recognizing that future benefits may offset the subsidy in later years.

434

7.27 The implication of accepting an economic test which has a broader definition of economic feasibility than that employed in the past is that the subsidy required may in general be greater than that which was deemed reasonable by the Board in the past.

Was Page 57. See Image [OEB:11L1W-0:60]

435

7.28 The Board notes that several projects that received DSEP funding did not meet the fifth year rate of return test. Nevertheless the Board accepted that the projects were in the public interest and approved these projects even though a subsidy would still be required from existing customers in the fifth year of the project.

436

7.29 The Board finds that a contribution-in-aid of construction should be required for those projects where the sole purpose is to supply gas into a new area and where the evaluation process demonstrates an undue burden on existing customers.

437

7.30 The Board would expect an agreement to be reached between the utility and the community regarding the contribution before an application is made to the Board.

438

7.31 In certain cases, the Board considers that special rates and/or loans by the utility to finance a contribution-in-aid of construction, may facilitate the expansion of the natural gas system.

439

7.32 A number of the participants strongly suggested that the provincial government encourage expansion of the natural gas system in Ontario by

Was Page 58. See Image [OEB:11L1W-0:61]

440

developing a program to fund uneconomic projects. The Board considers that, in addition to the methods of subsidy referred to above, some government support might be justified where the overall benefits to

the community as a whole warrant such action.

441

Completion of the Proceedings

442

7.33 The Board will issue a procedural order in future proceedings to adopt the Board's findings in this Report.

443

Dated at Toronto this 1st day of June, 1987.

<signed>
J.C. Butler
Vice-Chairman and
Presiding Member
<signed>
J.A. Dekort
Member
<signed>
M.A. Daub
Member

Was Page 59. See Image [OEB:11L1W-0:62]
444

Appendix A

445

Economic Feasibility Tests

Was Page 60. See Image [OEB:11L1W-0:63]
446

Economic Feasibility Tests: A Summary

Was Page 61. See Image [OEB:11L1W-0:64]
447

Was Page 62. See Image [OEB:11L1W-0:65]
448

Economic Feasibility Tests:

449

Details

450

A. Consumers' Gas Feasibility Cash Flow Test

451

Type Discounted Cash Flow (DCF)

452

Applicability - Large Volume Customers (340 10(3)m(3)/year+) Mains cost $50,000 +

453

Time Horizon Residential 50 years Small commercial and industrial 25 years Large volume 5 years Interruptible 3 years

454

Revenue	Years 1-5:	estimated incremental revenues

455

(assuming today's rates)

456

Year 6+: 5th year estimate used

457

Gas Cost	Years 1-5:	estimated incremental gas costs

458

(assuming today's incremental
price of gas)

459

Year 6+: 5th year estimate used

460

Storage Cost Storage costs (average incremental) are included in gas cost estimate

461

O&M Costs	Years 1-5:	estimated incremental O&M costs

462

Year 6+: 5th year estimate

Was Page 63. See Image [OEB:11L1W-0:66]

463

Consumers' Gas
Feasibility Cash Flow Test (cont.)

464

Capital Cost	Years 1-5:	Budget average unit costs or field

465

estimates

466

Year 6+: 0 Salvage Value?

467

Overhead Cost Incremental Overhead cost relating to the system expansion program is capitalized and allocated to each project in proportion to the capital cost of mains

468

Discount Rate Marginal after tax cost of capital (M.A.T.C.C.)

469

Risk Adjustment see Time Horizon

470

Inflation Adjustment none

471

Required Rate of Return see Discount Rate

472

Taxes Incremental taxes are estimated

473

Feasibility Calculation A project is feasible if the cumulative after tax net present value of operating cash flows is greater than or equal to the net present value of capital expenditures.

Was Page 64. See Image [OEB:11L1W-0:67]

474

Consumers' Gas
Feasibility Cash Flow Test (cont.)

475

Calculation of Contribution in Aid of Construction Capital contribution required to make the project' net present value equal zero.

Was Page 65. See Image [OEB:11L1W-0:68]

476

B. Consumers' Gas Capital Requisition Test

477

Type DCF

478

Applicability Small system expansion projects

479

Time Horizon Same as CFT

480

Revenues Same as Cash Flow Test (CFT)

481

Gas Costs Same as CFT

482

Storage Costs Same as CFT

483

O&M Costs Same as CFT

484

Capital Costs Same as CFT

485

Overhead Costs Same as CFT

486

Discount Rate Same as CFT

487

Risk Adjustment See Time Horizon

Was Page 66. See Image [OEB:11L1W-0:69]

488

Consumers' Gas
Capital Requisition Test (cont.)

489

Required Rate of Return Marginal after tax cost of capital

490

Taxes Incremental municipal, capital and income taxes are estimated as a % of capital and miscellaneous costs

491

Feasibility Criteria A project is feasible if its 5th year annual revenues are greater than or equal to its 5th year annual costs (operating and maintenance, gas, capital and taxes). The fifth year annual costs also include a return on the estimated capitalized revenue short fall during the first four years.

492

Calculation of Contribution in Aid of Construction Capital contribution required to make 5th year annual cost equal to 5th year annual revenue.

Was Page 67. See Image [OEB:11L1W-0:70]

493

C. Consumers' Gas Short Main Extensions

494

Applicability Main extensions of 300 metres or less

495

Feasibility Criteria Approved if average main extension, exclusive of road crossings, is 18 metres or less

Was Page 68. See Image [OEB:11L1W-0:71]

496

D. Consumers' Gas Leave to Construct Test

497

Type 5th Year Rate of Return

498

Applicability Leave to Construct Applications

499

Time Horizon See Feasibility Criteria

500

Revenues Same as CFT

501

Gas Cost Same as CFT

502

Storage Cost Same as CFT

503

O&M costs Same as CFT

504

Capital Costs Same as CFT

505

Overhead Costs Same as CFT

506

Discount Rate Not applicable

507

Risk Adjustment None

Was Page 69. See Image [OEB:11L1W-0:72]

508

Consumers' Gas
Leave to Construct Test (cont.)

509

Required Rate of Return See Feasibility Criteria

510

Taxes Incremental taxes are estimated

511

Feasibility Criteria A project is feasible if its estimated 5th year rate of return [5th year annual incremental revenues less 5th year annual incremental gas costs, operating and maintenance expense, municipal and capital taxes, depreciation (an accounting value") and income taxes divided by estimated rate base (an "accounting value") equals the company's marginal regulatory cost of capital.

512

Calculation of Contribution in Aid of Construction Capital contribution necessary to make project feasible

Was Page 70. See Image [OEB:11L1W-0:73]

513

E. Consumers' Gas Upgrading or Replacing Existing Facilities

514

Type DCF if quantifiable

515

Applicability Capital projects to upgrade or replace existing facilities

Time Horizon Economic life of project

Revenues Incremental if applicable

Discount Rate Marginal cost of capital

Feasibility Critera Choose the minimum cost alternative. N.B.: Unquantified factors such as safety will be taken into consideration

Was Page 71. See Image [OEB:11L1W-0:74]

F. Union Gas General Service Test (GST)

Type DCF

Applicability Non-Contract customers

Time Horizon 20 years

Revenues	Years 1-5:	Estimated incremental distribution

revenues (assuming today's rates)

Year 6 +: 5th year estimate

Gas Costs	Years 1-5:	Incremental volumes per year x

current average cost of gas

Year 6 +: 5th year estimate used

Storage Cost Not included

O&M Cost	Years 1-5:	Number of customers added per year x

532 Union's average O&M costs

533 Year 6 +: 5th year estimate used

534 Capital Cost Project Specific estimate Salvage value not included

Was Page 72. See Image [OEB:11L1W-0:75]

535 Union Gas

536 General Service Test (GST) (cont.)

537 Overhead Cost Incremental

538 Discount Rate Board approved cost of capital (B.A.C.C.)

539 Risk Adjustment None

540 Inflation Adjustment None

541 Taxes Incremental income taxes are calculated Municipal taxes are estimated to be 1% of total capital expenditures.

542 Required Rate of Return See Discount Rate

543 Feasibility Criteria A project is feasible if the net present value of cash inflows divided by the net present value of capital costs is greater than or equal to one.

544 Calculation of Contribution in Aid of Construction Capital contribution necessary to make project feasible

Was Page 73. See Image [OEB:11L1W-0:76]

545 G. Union Gas Contract Customer Test

546 Type Pay Back

547 Applicability Contract customers

548

Time Horizon	Contract length
Revenues	Contract volumes x contract rate
Gas Costs	Contract volumes x the current average cost of gas
Storage Costs	Not included
O&M Costs	Number of customers x average incremental operating cost of a contract customer
Capital Costs	All incremental capital costs associated with supplying gas to customers
Overhead Costs	See GST
Discount Rate	Not applicable

Was Page 74. See Image [OEB:11L1W-0:77]

Union Gas
Contract Customer Test (cont.)

Risk Adjustment	All risk borne by customer
Inflation Adjustment	None
Required Rate of Return	Board approved pre-tax cost of capital
Taxes	Analysis conducted on a pre-tax basis
Feasibility Criteria	A project is feasible if the payback period is less than or equal to the contract period. The payback period is:

$$X = \frac{F}{N-(RF)}$$

where:

X = The number of years required to return the facilities investment plus a required rate of return on invested capital

N = Gross Margin (Revenue less cost of gas less other operating and maintenance costs)

566

R = Pre-tax rate of return on rate base

567

F = Facilities capital costs

Was Page 75. See Image [OEB:11L1W-0:78]

568

Union Gas
Contract Customer Test (cont.)

569

Calculation of Contribution in Aid of Contribution The contribution is: F-X where: YN X = ---------- 1+(YR)

570

F = Facilities Capital Costs
X = Union's contribution

571

Y = Contract term in years where Y cannot be greater than 3 N = Gross Margin R = Pre-tax rate of return F-X = cannot be less than zero

Was Page 76. See Image [OEB:11L1W-0:79]

572

H. Union Gas Leave to Construct Test

573

Type DCF or 5th Year Rate of Return

574

Applicability Leave to Construct applications

575

Time Horizon Same as GST

576

Revenues	Years 1-5:	Estimated incremental distribution

577

revenues (assuming today's rates)

578

Year 6 +: 5th year estimate

579

Gas Costs Estimated volume per year x (current average cost of gas

580

Storage Costs Not included

581

O&M Costs Estimated number of customers per year x average O&M cost as approved in last rate

case; plus incremental compression fuel and operating expenses

582

Capital Costs Project specific estimate of transmission costs plus average distribution cost x number of new customers

583

Overhead Costs Incremental

Was Page 77. See Image [OEB:11L1W-0:80]

584

Union Gas
Leave to Construct Test (cont.)

585

Discount Rate Marginal Cost of Capital

586

Risk Adjustment Same as GST

587

Inflation Adjustment Same as GST

588

Required Rate of Return See Discount Rate

589

Taxes Same as GST

590

Feasibility Criteria Same as GST

591

Calculation of Contribution in Aid of Construction N.B. Unless there is one major customer for whom the line is being built, Union will not attempt to collect an aid to construct.

Was Page 78. See Image [OEB:11L1W-0:81]

592

I. Union Gas

593

Cost Reduction Test

594

Type DCF

595

Applicability Distribution main replacements, storage wells, compressors etc.

596

Time Horizon Economic Life

597

Revenues Incremental savings resulting from the capital expenditure

598

Gas Costs Not Applicable

599

Storage Costs Not Applicable

600

O&M costs All incremental expenses associated with project

601

Capital Costs Incremental capital costs plus salvage value

602

Overhead Costs Incremental

603

Discount Rate Marginal cost of capital

Was Page 79. See Image [OEB:11L1W-0:82]

604

Union Gas
Cost Reduction Test (cont.)

605

Risk Adjustment None

606

Inflation Adjustment Yes

607

Taxes Incremental income taxes are calculated. Municipal taxes are included if applicable.

608

Required Rate of Return See Discount Rate

609

Feasibility Criteria A project is feasible if the net present value of the savings associated with the capital project are greater than the net present value of the total project costs.

610

Where there are alternative ways of meeting a particular need the project alternative with the lowest revenue requirement, on a net present value basis, is considered the least cost alternative.

Was Page 80. See Image [OEB:11L1W-0:83]

611

J. ICG Earnings and Expenses Test

612

Type 5th Year Rate of Return

613

Applicability All projects which are not approved by the 60 metre rule

614

Time Horizon 5 Years

615

Revenues	Estimated incremental revenues (assuming today's rates)
Gas Costs	Estimated load x incremental gas costs
Storage Costs	Incremental costs (Union's current rates)
O&M Costs	Average incremental costs
Capital Costs	Estimated incremental capital costs
Overhead Costs	Incremental overhead costs are included
Discount Rate	Not applicable - methodology does not discount cash flows

Was Page 81. See Image [OEB:11L1W-0:84]

ICG Earnings and Expenses Test (cont.)

Risk Adjustment	See Feasibility Criteria
Inflation Adjustment	None
Taxes	General taxes = 0.88% of the investment in mains, regulator stations and service lines Incremental income taxes are calculated
Required Rate of Return	Board approved rate of return
Feasibility	A project is feasible if its 5th year operating income (revenues minus operating costs minus income taxes) as a percentage of its 5th year rate base (90.6% of net plant investment) is greater than or equal to the Board approved rate of return. A higher rate of return is required for projects that serve industrial customers.

Calculation of Contribution in Aid of Construction $C = \frac{.1274R - OI}{.0831}$

C = contribution required OI = operating income in 5th year without contribution R = 5th year rate base without contribution

Was Page 82. See Image [OEB:11L1W-0:85]

K. ICG 60 Metre Rule

Applicability	Extensions up to 300 metres

632

Feasibility An extension averaging 30 metres per customer is automatically approved

633

An extension averaging 60 metres per customer is automatically approved if for every customer there is also one potential customer

Was Page 83. See Image [OEB:11L1W-0:86]

634

L. Comparative Cost Test

635

Type 5th Year Rate of Return

636

Applicability All distribution system expansion projects

637

Time Horizon 5 years

638

Revenue Not applicable

639

Gas Cost Not applicable

640

Storage Cost 5th year depreciated project specific cost

641

O&M Costs 5th year project specific cost

642

Capital Cost 5th year depreciated project specific cost

643

Overhead Cost ?

644

Discount Rate Not applicable

645

Risk Adjustment Load risk factor (measures relative certainty of load forecast by customer class)

Was Page 84. See Image [OEB:11L1W-0:87]

646

Comparative Cost Test (cont.)

647

Inflation Adjustment None

648

Required Rate of Return Board approved cost of capital

649

Taxes 5th year project specific taxes

650 Feasibility Criteria A project is feasible if:

651 SC x LNF ò EPC x LRF ----- PIF

652 where:

653 SC = existing system's depreciated (5th year) unit replacement cost

654 LNF = load normalization factor (Actual Load) ---------- (Normalized Load)

655 EPC = expansion project's depreciated (5th year) unit cost

656 LRF = load risk factor

657 PIF = public interest factor (measures project's relative public interest merit, e.g., 1.0 to 1.5)

Was Page 85. See Image [OEB:11L1W-0:88]

658 M. Aggregate Customer Net Benefit Test

659 Type DCF

660 Applicability All distribution system expansion projects

661 Time Horizon Economic life of project

662 Revenue Not applicable

663 Gas Cost Incremental gas costs

664 Storage Cost Incremental storage cost

665 O&M Costs Incremental O&M costs

666 Capital Cost Incremental capital cost

667 Overhead Cost Incremental overhead cost

668 Discount Rate Project-specific, risk-adjusted, customer-oriented social discount rate

669

Risk Adjustment See Discount Rate and Required Rate of Return

Was Page 86. See Image [OEB:11L1W-0:89]

670

Aggregate Customer Net Benefit Test (cont.)

671

Inflation Adjustment Implicit in forecast of customer benefits of using gas over alternate fuels

672

Required Rate of Return The utility's project-specific, marginal cost of capital, reflecting the risk impact of the project from a shareholder's perspective, is incorporated in the capital recovery factor

673

Taxes Incremental taxes

674

Feasibility Criteria A project is feasible if the sum of the discounted life cycle marginal benefits to the new customers is greater than or equal to the sum of the discounted life cycle marginal costs to existing customers.

675

The marginal benefits are the value of customers' total fuel cost savings resulting from the ability to purchase natural gas instead of the next cheapest energy source (typically oil). The marginal costs are the incremental changes in the gas bills of the utility's existing customers.

676

Symbolically,

677

n	MB	n	Mc
ä --------	ò	ä	-------
i=0 (i + s)(i)	i=0	(i + s)(i)	

678

where:

679

MB = the marginal benefits to the new customers MC = the marginal cost to the existing customers s = the social discount rate n = the project's economic life in years.