**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - Portfolio**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $7,495,941 |
| 16 b) Incentive Costs = | $4,153,287 |
| 16 c) Total Utility Project Costs = | $11,649,229 |
| 17) Direct Participant Costs ($/Part.) = | $151 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 13.31 |
| 21) Avg. Dth/Part. Saved = | 3.77 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 121,737 |
| 24) Total Annual Dth Saved = | 459,252 |
| 25) Incentive/Participant = | $34.12 |

| **Cost Summary** | **2023** |
|---|---|
| Utility Cost per Participant = | $95.69 |
| Cost per Participant per Dth = | 65.30652566 |
| Lifetime Energy Reduction (Dth) | 6,114,223 |
| Societal Cost per Dth | $0.68 |

| **Test Results** | **2023 NPV** | **2023 B/C** |
|---|---|---|
| **Ratepayer Impact Measure Test** | ($24,445,082) | 0.55 |
| **Utility Cost Test** | $18,459,220 | 2.58 |
| **Societal Test** | $24,223,964 | 1.94 |
| **Participant Test** | $38,958,620 | 3.12 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - LIW**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $497,858 |
| 16 b) Incentive Costs = | $0 |
| 16 c) Total Utility Project Costs = | $497,858 |
| 17) Direct Participant Costs ($/Part.) = | $0 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 23.97 |
| 21) Avg. Dth/Part. Saved = | 23.03 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 128 |
| 24) Total Annual Dth Saved = | 2,948 |
| 25) Incentive/Participant = | $0.00 |

| **Cost Summary** | **2023** |
|---|---|
| Utility Cost per Participant = | $3,889.52 |
| Cost per Participant per Dth = | 168.8743944 |
| Lifetime Energy Reduction (Dth) | 70,672 |
| Societal Cost per Dth | $7 |

| **Test Results** | **2023 NPV** | **2023 B/C** |
|---|---|---|
| **Ratepayer Impact Measure Test** | ($642,191) | 0.35 |
| **Utility Cost Test** | ($158,247) | 0.68 |
| **Societal Test** | $99,917 | 1.20 |
| **Participant Test** | $645,841 | n/a |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - 4U2**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $1,003,036 |
| 16 b) Incentive Costs = | $0 |
| 16 c) Total Utility Project Costs = | $1,003,036 |
| 17) Direct Participant Costs ($/Part.) = | $0 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 18.69 |
| 21) Avg. Dth/Part. Saved = | 15.29 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 270 |
| 24) Total Annual Dth Saved = | 4,129 |
| 25) Incentive/Participant = | $0.00 |

| **Cost Summary** | **2023** |
|---|---|
| Utility Cost per Participant = | $3,714.95 |
| Cost per Participant per Dth = | 242.8978089 |
| Lifetime Energy Reduction (Dth) | 77,197 |
| Societal Cost per Dth | 12.99328373 |

| **Test Results** | **2023 NPV** | **2023 B/C** |
|---|---|---|
| **Ratepayer Impact Measure Test** | ($1,163,880) | 0.25 |
| **Utility Cost Test** | ($624,574) | 0.38 |
| **Societal Test** | ($367,676) | 0.63 |
| **Participant Test** | $676,559 | n/a |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - Res Support**

| **Input Data** | **2023** |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $170,386 |
| 16 b) Incentive Costs = | $0 |
| 16 c) Total Utility Project Costs = | $170,386 |
| 17) Direct Participant Costs ($/Part.) = | $0 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 8.16 |
| 21) Avg. Dth/Part. Saved = | 2.12 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 1,249 |
| 24) Total Annual Dth Saved = | 2,649 |
| 25) Incentive/Participant = | $0.00 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - LI Total**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $1,552,430 |
| 16 b) Incentive Costs = | $200 |
| 16 c) Total Utility Project Costs = | $1,552,630 |
| 17) Direct Participant Costs ($/Part.) = | $0 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 19.09 |
| 21) Avg. Dth/Part. Saved = | 11.96 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 723 |
| 24) Total Annual Dth Saved = | 8,648 |
| 25) Incentive/Participant = | $0.28 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - RES Total**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $3,002,776 |
| 16 b) Incentive Costs = | $2,438,689 |
| 16 c) Total Utility Project Costs = | $5,441,465 |
| 17) Direct Participant Costs ($/Part.) = | $51 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 11.01 |
| 21) Avg. Dth/Part. Saved = | 2.12 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 116,741 |
| 24) Total Annual Dth Saved = | 247,577 |
| 25) Incentive/Participant = | $20.89 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - CI Total**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $5.72 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $1,339,713 |
| 16 b) Incentive Costs = | $1,714,398 |
| 16 c) Total Utility Project Costs = | $3,054,111 |
| 17) Direct Participant Costs ($/Part.) = | $2,908 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 15.87 |
| 21) Avg. Dth/Part. Saved = | 47.51 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 4,273 |
| 24) Total Annual Dth Saved = | 203,027 |
| 25) Incentive/Participant = | $401.22 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - LI Blitz**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $51,535 |
| 16 b) Incentive Costs = | $200 |
| 16 c) Total Utility Project Costs = | $51,735 |
| 17) Direct Participant Costs ($/Part.) = | $0 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 10.98 |
| 21) Avg. Dth/Part. Saved = | 4.83 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 325 |
| 24) Total Annual Dth Saved = | 1,571 |
| 25) Incentive/Participant = | $0.62 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - Res Rebate**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $1,134,027 |
| 16 b) Incentive Costs = | $1,814,689 |
| 16 c) Total Utility Project Costs = | $2,948,716 |
| 17) Direct Participant Costs ($/Part.) = | $328 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 16.35 |
| 21) Avg. Dth/Part. Saved = | 7.61 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 15,548 |
| 24) Total Annual Dth Saved = | 118,250 |
| 25) Incentive/Participant = | $116.72 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - HEE**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $1,206,153 |
| 16 b) Incentive Costs = | $624,000 |
| 16 c) Total Utility Project Costs = | $1,830,153 |
| 17) Direct Participant Costs ($/Part.) = | $686 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 20.00 |
| 21) Avg. Dth/Part. Saved = | 28.44 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 1,194 |
| 24) Total Annual Dth Saved = | 33,960 |
| 25) Incentive/Participant = | $522.61 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - HER**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $6.57 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $492,210 |
| 16 b) Incentive Costs = | $0 |
| 16 c) Total Utility Project Costs = | $492,210 |
| 17) Direct Participant Costs ($/Part.) = | $0 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 1.00 |
| 21) Avg. Dth/Part. Saved = | 0.94 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 98,750 |
| 24) Total Annual Dth Saved = | 92,719 |
| 25) Incentive/Participant = | $0.00 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - CI Support**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $5.72 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $4,833 |
| 16 b) Incentive Costs = | $10,927 |
| 16 c) Total Utility Project Costs = | $15,759 |
| 17) Direct Participant Costs ($/Part.) = | $9 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 9.27 |
| 21) Avg. Dth/Part. Saved = | 2.07 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 345 |
| 24) Total Annual Dth Saved = | 715 |
| 25) Incentive/Participant = | $31.67 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - EDAM**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $5.72 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $79,913 |
| 16 b) Incentive Costs = | $2,624 |
| 16 c) Total Utility Project Costs = | $82,538 |
| 17) Direct Participant Costs ($/Part.) = | $3,828 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 16.00 |
| 21) Avg. Dth/Part. Saved = | 83.31 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 9 |
| 24) Total Annual Dth Saved = | 750 |
| 25) Incentive/Participant = | $291.59 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - CI Rebate**

| **Input Data** | |
|---|---|
| 1) Retail Rate ($/Dth) = | $5.72 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | **2023** |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $1,102,539 |
| 16 b) Incentive Costs = | $1,461,421 |
| 16 c) Total Utility Project Costs = | $2,563,960 |
| 17) Direct Participant Costs ($/Part.) = | $13,402 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 15.93 |
| 21) Avg. Dth/Part. Saved = | 217.26 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 887 |
| 24) Total Annual Dth Saved = | 192,710 |
| 25) Incentive/Participant = | $1,647.60 |

**Energy Conservation Act (ECO)**

BENEFIT COST FOR GAS -- Cost-Effectiveness Analysis

Company: **Minnesota Energy Resources**
Project: **Total Portfolio w/ ECO**
**BENCOST - MFDI**

| **Input Data** | **2023** |
|---|---|
| 1) Retail Rate ($/Dth) = | $5.72 |
| Escalation Rate = | 4.69% |
| 2) Non-Gas Fuel Retail Rate ($/Fuel Unit) = | $0.00 |
| Escalation Rate = | 3.59% |
| Non-Gas Fuel Units (ie. kWh,Gallons, etc) = | kWh |
| 3) Commodity Cost ($/Dth) = | $3.25 |
| Escalation Rate = | 4.69% |
| 4) Demand Cost ($/Dth/Yr) = | $131.24 |
| Escalation Rate = | 4.69% |
| 5) Peak Reduction Factor = | 1.00% |
| 6) Variable O&M ($/Dth) = | $0.05 |
| Escalation Rate = | 4.69% |
| 7) Non-Gas Fuel Cost ($/Fuel Unit) = | $0.02657 |
| Escalation Rate = | 3.59% |
| 8) Non-Gas Fuel Loss Factor | 7.70% |
| 9) Gas Environmental Damage Factor ($/Dth) = | $2.07 |
| Escalation Rate = | 2.30% |
| 10) Non Gas Fuel Enviro. Damage Factor ($/Unit) = | $0.01984 |
| Escalation Rate = | 2.30% |
| 11) Participant Discount Rate = | 3.02% |
| 12) ECO Utility Discount Rate = | 5.57% |
| 13) Societal Discount Rate = | 3.02% |
| 14) General Input Data Year = | 2020 |
| 15a) Project Analysis Year 1 = | 2023 |
| 15b) Project Analysis Year 2 = | |
| 15c) Project Analysis Year 3 = | |

| | |
|---|---|
| 16 Utility Project Costs | |
| 16 a) Administrative & Operating Costs = | $152,428 |
| 16 b) Incentive Costs = | $239,427 |
| 16 c) Total Utility Project Costs = | $391,855 |
| 17) Direct Participant Costs ($/Part.) = | $164 |
| 18) Participant Non-Energy Costs (Annual $/Part.) = | $0.00 |
| Escalation Rate = | 2.30% |
| 19) Participant Non-Energy Savings (Annual $/Part) = | $0.00 |
| Escalation Rate = | 2.30% |
| 20) Project Life (Years) = | 15.12 |
| 21) Avg. Dth/Part. Saved = | 2.92 |
| 22) Avg Non-Gas Fuel Units/Part. Saved = | 0 kWh |
| 22a) Avg Additional Non-Gas Fuel Units/ Part. Used = | 0 kWh |
| 23) Number of Participants = | 3,032 |
| 24) Total Annual Dth Saved = | 8,852 |
| 25) Incentive/Participant = | $78.97 |