

Analysis of Las Cruces Utilities Natural Gas Rate Increase

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**Las Cruces Proposed Natural Gas Rate Increase
Review and Analysis**

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- 1. Las Cruces City Council Resolution #21-153
- 2. Las Cruces Utilities Gas Line Extension Policy
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- 4. Supplement to Section VII, Economics of New Development, titled “Gas Line Extension Policy Implementation and Talavera Project Example”

I. Executive Summary

- The proposal to raise natural gas prices comes at a very bad time, especially for small businesses
 - Small businesses have been hit hard by Covid-19 closures, restrictions, and recession
 - Large new recovery surcharge for Winter Storm Uri adds to burden on businesses
 - Proposal increases small business energy charges much more than other customer classes
 - The average monthly small business gas bill will increase by over 75%
- Most of the \$2.4M annual increase is due to inappropriate expenses:
 - Unrealistic assumption of filling all personnel vacancies raises O&M costs by \$584K per year
 - New Annualized Debt Service obligates customers to pay \$935K more per year for 20 years
 - New debt would fund surge in building new gas lines with no economic justification
- Economic analysis strongly argues against new gas lines – expensive for both old and new customers
 - Talavera investigation demonstrates that other existing customers will pay over 66% of costs
 - Current gas customers will also heavily subsidize line extensions for other planned projects
 - For new construction, electric air-source heat pumps have lower total costs than gas
 - High cost of converting existing homes to gas will discourage signups to new lines
- New Annualized Debt Service is driven by enormous increase in gas development spending
 - Gas development annual spending averaged \$91,919 from 2015 to 2018
 - Annual average for 2021 to 2023 is \$3,871,463, creating need for long term debt
- The gas utility is financially healthy and can delay this increase
 - Operating Fund balance is 3.2 times recommended minimum
 - Capital Fund balance is enough to fund 7 years of gas line rehabilitation
- Gas system expansion is in conflict with City Resolution 21-153 and Climate Action Plan (CAP)
 - Resolution says retire natural gas debt and maintain reliability, safety and affordability
 - New gas lines create new debt, decrease affordability, and don't significantly aid reliability
 - CAP Strategy says electrify 6% of buildings by 2030, 75% by 2050, not add new gas buildings
 - Creating new gas-heated buildings creates need for later expensive conversions to electric
- **Recommendations**
 - Delay rate increase until gas utility completes transition plan and businesses recover
 - Define personnel skills needed for new natural gas and energy resources line of business
 - Pause new gas line extensions and scrutinize carefully to see if any are truly needed
 - Maintain gas lines for safe and reliable service to existing customers without cost increase

II. Introduction

The Las Cruces Utilities Department has proposed an increase in the rates it charges for natural gas, which were last changed in 2011. The proposed volume charges (\$/Dekatherm) represent an increase of 26.3% for Residential customers, and 162.1% for Small Commercial customers. There are also increases in the per-customer Access Charges, and a new Decarbonization charge of \$0.15/Dekatherm.

This report, commissioned by The Las Cruces Green Chamber of Commerce, evaluates the proposed gas rate increase, with special attention to:

- The need for and appropriateness of proposed rate increases
- Any market analyses justifying new capital expenditures
- The impact of new or extended gas service on the City's stated goals, including CO2 emissions

III. Rate Increase – Purpose and Timing

The City of Las Cruces Utilities Department serves natural gas customers in Las Cruces and Dona Ana County, and is funded by its customers rather than the City's general funds. This means the rates charged to customers need to generate sufficient revenue to operate and maintain the natural gas system in a safe and reliable manner. The Utilities Department engaged NewGen Strategies & Solutions, LLC to design new gas rates, based on 2020 expenses, with certain adjustments applied to create a Test Year. This process produced an estimated Revenue Requirement that is more than expected collections using current natural gas rates.

NewGen prepared a 34-page report¹ titled "Gas Utility Rate Review", which concluded that additional annual funding of \$2,409,226 is required; an increase in Base Rate Revenues of 22.5%². This 34-page report is an excerpt from a much larger Cost of Service study in the form of a multi-worksheet Excel file³. The Excel file includes NewGen's design of new rates that should enable collection of the full projected Revenue Requirement for the Test Year. Two large adjustments significantly increased costs over actual 2020 expenses and caused the majority of the additional estimated Revenue Requirement. These two adjustments were to Operations and Maintenance for additional personnel, and for Annualized Debt Service, and will be addressed in more detail later in this report.

The timing of the rate increase seems very inappropriate, for at least three reasons.

- Rate increases on Small Commercial customers would occur as they attempt to recover from mandatory closures and supply-side disruptions caused by the Covid 19 pandemic.
- An emergency surcharge for fees incurred during Winter Storm Uri will increase the cost of gas by \$1.69 per Dkth (158% for Small Commercial) for 30 months beginning June 1, 2021.
- Personnel increases and gas line extensions are a large driver of the rate increase, but neither change is compatible with Council resolutions to reduce debt and transition the gas utility towards less fossil-fuel dependence.

¹ <https://www.las-cruces.org/DocumentCenter/View/7099/Las-Cruces-Gas-Rate-Review>, 34 page PDF excerpt from the Cost of Service Excel File, "Las Cruces COS Model_02-01-2021.xls"

² Note that total charges to customers include commodity charges for natural gas that the City "passes through" to the customer, which are not affected by this rate increase. Rate impacts are discussed in more detail later in this report.

³ "Las Cruces COS Model_02-01-2021.xls", provided by Las Cruces Utilities by email.

IV. Causes of and Need for Rate Increase

A common argument for a rate increase is based on an assumption that utility rates always go up, and gas rates must increase because they have not changed since 2011. This assumption is false, as demonstrated by the very recent El Paso Electric (EPE) Rate Case (New Mexico Public Regulation Commission (NMPRC) Case No. 20-00104-UT). The Final Decision of the NMPRC, released June 23, 2021, was that EPE rates will decrease by 3.8% for the average residential customer.

Instead of accepting the assumption that rates must always go up, the major expenses were examined in terms of accuracy and appropriateness, keeping in mind the City's plans for the future (discussed in later sections of this report).

a. Revenue Requirement Summary

The presentation summarizing the proposed rate increase is available on the Utilities Customer Advisory Group (UCAG) website⁴ and includes a useful summary in Figure 1, which is reproduced below, with focus areas circled:

Figure 1 Summary Revenue Requirement

	FY 2019 Actual	FY 2020 Actual	Test Year
Cash Oper. & Maint. Expenses ¹	9,378,758	9,959,231	11,005,662
Vehicle and Equipment Replacement	401,491	639,606	923,790
Capital Improvements	3,085,503	2,974,540	1,000,000
Annualized Debt Service	520,174	567,117	1,529,604
(Less) JCI Series 2018 Bonds	(232,917)	(279,285)	(306,999)
Uncollectible expense	147,145	174,477	177,974
Total Revenue Requirement	13,300,153	14,035,685	14,330,030
(Less) Other Non-Rate Revenue	(1,136,483)	(1,072,701)	(1,212,227)
Net Revenue Requirement	12,163,670	12,962,984	13,117,803
Rate Revenue at Current Rates ¹	10,469,639	10,610,267	10,708,577
Additional Funding Needed	1,694,031	2,352,717	2,409,226

¹ Does not include cost or revenue for the gas commodity or proposed decarbonization

Adjustments (increases) in the circled expenses create the majority of the amount in Test Year Additional Funding Needed (also circled). Table 1 below outlines those increases, from the 2020 (Actual) expenses to the Test Year (Projected) expenses.

⁴ <https://www.las-cruces.org/2065/Utility-Customer-Advisory-Group-UCAG>, "City of Las Cruces, Natural Gas Rate Proposal, April 2021"

Table 1: Primary Causes of \$2.4M Rate Increase

Primary Causes of \$2.4M Rate Increase			
	FY 2020 (Actual)	Test Year (Projected)	Increase (Projected -Actual)
Cash Oper. & Maint. Expenses	\$9,959,231	\$11,005,662	\$1,046,431
Annualized Debt Service	\$567,117	\$1,529,604	\$962,487

These estimated increases can be examined in more detail using values from Schedule 1 in the Las Cruces Gas Rate Review document⁵.

b. Personnel Expenses

The Cash O&M expenses of \$1,046,431 are dominated by an increase in Personnel Costs of \$1,011,626⁶. Some of these costs are unavoidable, such as increases in salaries, FICA, PERA, and Dental, Health and other insurance costs. However, most of the costs are actually driven by an unrealistic assumption that all personnel vacancies will be filled. UCAG President Paul Royalty stated in his presentation⁷ on May 5th, 2021 during a Public Comments Session, “please note the significant increase in the personnel costs for the test year. That is because we have included the salaries of all positions within the gas utility. As most of you may know, there are always unfilled positions in the utility.”

To calculate the costs associated with the assumption of filling all vacancies, I used the more detailed Excel spreadsheet version⁸ of the Las Cruces Gas Rate Review document available on the UCAG website. This analysis⁹ calculated only the costs related to filling all vacancies, totaling \$584,456. This is most of the overall increase in the Cash Operating and Maintenance Expenses between 2020 and the projected Test Year.

There are two main reasons to reject the costs of filling all vacancies: (1) Filling all vacancies is unrealistic, as noted by Mr. Royal, and (2) Filling all vacancies in a time of transition risks hiring those with skills poorly matched to the needs of the post-transition organization. The “energy transition plan and road map” under development is likely to require new skills; for example, skills related to solar energy, energy efficiency, and/or financing and incentives to aid low-income families’ energy transition. Unfilled vacancies represent opportunities to hire appropriately skilled new personnel, without laying off existing employees. Historical values of personnel costs, adjusted for insurance, cost-of-living, and

⁵ <https://www.las-cruces.org/DocumentCenter/View/7099/Las-Cruces-Gas-Rate-Review>, 34 page PDF excerpt from the Cost of Service Excel File, “Las Cruces COS Model_02-01-2021.xls”

⁶ Id, Sched 3, Personnel, Adjustments, Column F

⁷ <https://www.las-cruces.org/2065/Utility-Customer-Advisory-Group-UCAG>, “City of Las Cruces, Natural Gas Rate Proposal, April 2021” video, 2:40 in to the video (14:05 total length).

⁸ “Las Cruces COS Model_02-01-2021.xls”, provided by Las Cruces Utilities by email.

⁹ <https://www.las-cruces.org/DocumentCenter/View/7099/Las-Cruces-Gas-Rate-Review>. Personnel cost increases were included as filling vacancies if the increases were over both 9% and \$18,000, to reject costs due to cost-of-living raises, etc. This meant increases in Gas Salaries of \$467,158 from Sched. 3a were included in calculation, and 27.73% of the \$422,998 increase in Shared Salaries on Sched. 3b, because 27.73% of Shared Salaries are allocated to Gas.

other increases should be used for Test Year costs. The all-vacancy-filling cost of \$584,456 should not be included in Test Year costs or the resulting “Additional Funding Needed”.

c. Line Extensions

In short, the Annualized Debt Service funds a surge in gas line extensions that are a 4,112% increase over the average spending in 2015 to 2018.

Table 1, above, shows a large increase in Annualized Debt Service. The increase is primarily due to an increase in Debt Service of \$934,600 to cover a new 20-year bond, which is used to fund a three-year surge in Gas Development. This surge is for a total of \$11,614,390 in spending on Gas Development in FY 2021, 2022, and 2023. This new debt is exclusively for Gas Line Extensions¹⁰; it is separate from Gas Admin, Miscellaneous, and Rehabilitation Expenses. In addition to the over \$11.6M in direct expenses for gas system expansion, the surge causes an additional \$7,077,621 of spending on interest and fees, growing the total cost to \$18,691,711.

Table 2a Gas Capital Improvements – Rehab versus Development (Line Extensions) Spending by FY

Fund 5250 Gas Capital Improvements	Actual FY 2015	Actual FY 2016	Actual FY 2017	Actual FY 2018	Actual FY 2019	Actual FY 2020	Planned FY 2021	Planned FY 2022	Planned FY 2023
INFRASTRUCTURE-REHAB	\$ 351,802	\$1,107,101	\$ 1,728,172	\$727,644	\$ 1,042,401	\$ 976,780	\$1,000,000	\$1,000,000	\$1,000,000
INFRASTRUCTURE-DEVELOPMENT	\$ 8,441	\$ 67,195	\$ 195,332	\$ 96,706	\$ 1,625,293	\$1,957,509	\$3,881,184	\$ 992,373	\$6,740,833
Total Expenses	\$ 360,243	\$1,174,296	\$ 1,923,504	\$824,350	\$ 2,667,694	\$2,934,289	\$1,070,599	\$2,800,991	\$7,740,833

Table 2a, above, shows the spending on both Rehabilitation and New Development of gas infrastructure for 2015 to 2023¹¹.

Table 2b Gas Capital Improvements – Rehabilitation versus Development (Line Extensions) Averages

Fund 5250 Gas Capital Improvements	Average 2015-2018	Average 2019-2020	Average 2021-2023
INFRASTRUCTURE-REHAB	\$ 978,680	\$1,009,590	\$ 1,000,000
INFRASTRUCTURE-DEVELOPMENT	\$ 91,919	\$1,791,401	\$ 3,871,463
Total Expenses	\$1,070,599	\$2,800,991	\$ 4,871,463

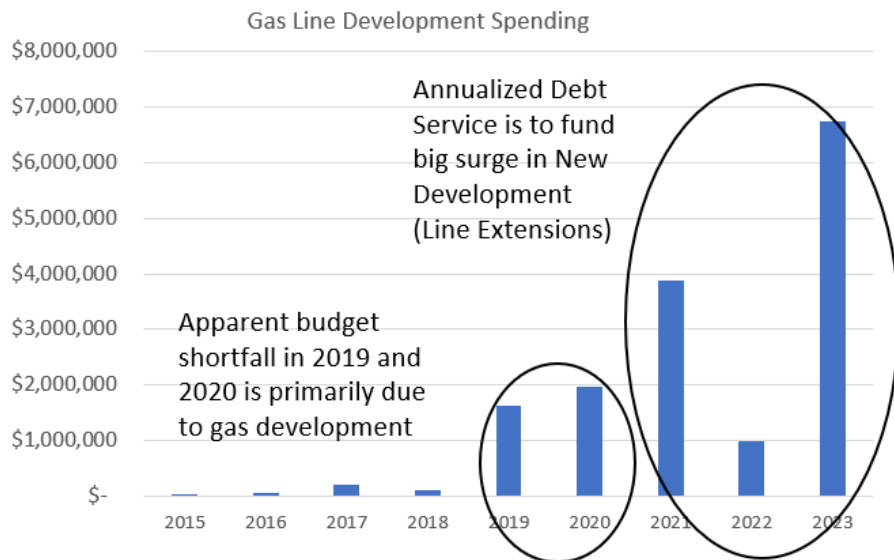
Table 2b, above, shows the averages for three timeframes, demonstrating that Rehabilitation spending has been relatively consistent, but Gas Development costs (almost entirely consisting of Line Extensions) have increased enormously in recent years and are planned to increase even more.

¹⁰ <https://www.las-cruces.org/DocumentCenter/View/7099/Las-Cruces-Gas-Rate-Review>. Gas Development in Sched. 6B, lines 45 – 75, summarized on line 76, which includes only one ambiguously titled item, Calle Jitas, which was confirmed with Las Cruces Utilities to be a line extension.

¹¹ <https://www.las-cruces.org/DocumentCenter/View/7099/Las-Cruces-Gas-Rate-Review>. Data are from Infrastructure-Development in Sched. 6A, lines 2-5 for 2015 to 2020 included for Rehab, and line 6 for Development, and from Sch. 6B, lines 36 and 76, Accounts 804200 and 804200 of Fund 5250 for 2021-2023.

Figure 2, below, focuses on the New Development spending, and illustrates the enormous magnitude of the 2021 to 2023 gas line extension spending relative to prior years. In fact, spending averaged \$91,919 in 2015-2018 but increased to \$3,871,463 in 2021-2023; a 4,112% increase!

Figure 2 Gas Line Development Spending



In addition to illustrating the huge increase in spending for gas line extensions, Figure 2 demonstrates two other points about the “Additional Funding Needed” line at the bottom of Figure 1:

1. The big spending on New Development (line extensions) in FY 2019 and FY 2020 constitutes the vast majority of the Annual Funding Needed shown at the bottom of Figure 1 in both 2019 (\$1,625,293 of \$1,694,031 needed) and in 2020 (\$1,957,509 of \$2,352,717 needed).
2. The costs for New Development in 2021 to 2023 are even higher, which is presumably why Las Cruces Utilities (LCU) decided to borrow that money, and fund the surge with a 20-year increase in Annualized Debt Service.

There are several very concerning aspects of the extra Annualized Debt Service, and one of them is its long-term nature. Significantly increasing rates for the next 20 years, particularly in a time of energy transition, does not seem fiscally prudent, to put it mildly.

d. Gas Utility Financial Health

Examination of the Cost of Service (COS) study does not support a need for additional revenue, especially if additional costs for expansion and personnel are put on hold. The following table is an excerpt from COS Schedule 5:

Table 3 Gas Utility Financial Status

Minimum Fund Balance Calculation (5200)	
Adjusted Total Expenditures	\$ 8,474,013
Operating Fund Balance	\$ 4,515,348
Ending Fund Balance %	53.3%
Target	16.7%
Min. Fund Balance Needed	\$ 1,412,335
Apparent Excess Reserves	\$ 3,103,013
Gas Capital Improvements (Fund 5250)	
Beginning Fund Balance	\$ 6,991,596

Table 3 shows an Operating Fund Balance that is over \$3.1 M more than the Min. Fund Balance Needed; in other words a factor of 3.2 times the Min. Fund Balance Needed.

The COS does not include a recommended minimum balance for the Capital Improvements Fund, but the almost \$7 M of Capital Improvement funds seems to paint a very healthy financial picture. Table 3 shows that Capital Improvements fund balance of \$6.99 M equates to almost seven years of spending at the average 2019 – 2020 Infrastructure Rehabilitation level of \$1,009,590.

e. Modified Revenue Requirements

Figure 3 below shows what the Revenue Requirements would be if the following changes are made: Test Year Increases for \$584,456 extra personnel in O&M and for \$934,600 of Annualized Debt Service are removed, and New Development within the FY 2019 and 2020 Capital Improvements expenses is reduced to the 2015 to 2018 average of \$91,919.

The modifications to the FY 2019 and FY 2020 Capital Improvements line were made to show what the expenditures would have looked like if the big increases for gas line extensions in those years had not occurred. Those prior expenses cannot really be reversed, but removing them helps show what revenue requirements will look like going forward if the surge in new gas lines is eliminated. The modified “Additional Funding Needed” lines for 2019 and 2020 demonstrate that there will be much less need for gas rate increases if New Development goes back to the lower 2015-2018 spending level (\$91,919).

Figure 3 New Summary Revenue Requirement with Reduced Expenditures

New Summary Revenue Requirement				
	FY 2019 Modified	FY 2020 Modified	LCU Orig Test Year	Modified Test Year
Cash Oper. & Maint. Expenses ¹	9,378,758	9,959,231	11,005,662	10,421,206
Vehicle and Equipment Replacement	401,491	639,606	923,790	923,790
Capital Improvements	1,552,129	1,108,950	1,000,000	1,000,000
Annualized Debt Service	520,174	567,117	1,529,604	595,004
(Less) JCI Series 2018 Revenue Bonds	(232,917)	(279,285)	(306,999)	(306,999)
Uncollectible expense	147,145	174,477	177,974	177,974
Total Revenue Requirement	11,766,780	12,170,096	14,330,030	12,810,975
(Less) Other Non-Rate Revenue	(1,136,483)	(1,072,701)	(1,212,227)	(1,212,227)
Net Revenue Requirement	10,630,297	11,097,395	13,117,803	11,598,748
Rate Revenue at Current Rates ¹	10,469,639	10,610,267	10,708,577	10,708,577
Additional Funding Needed	160,658	487,128	2,409,227	890,171

Figure 3 shows that reducing the expenses associated with the added staff and gas line extensions reduces the projected “Additional Funding Needed” amount by over \$1.5 M, or about 63% from the originally estimated funding increase. The remaining “Needed” amount of \$890,171 is significant, but much less than originally described, and easier to defer in times of recovery and transition.

V. Gas Rate Increase Impact on Existing Customers

a. Commercial

Las Cruces small businesses have been severely impacted by the Covid-19 recession, restrictions, and closures. On top of Covid-19 impacts, a February 2021 winter storm (Winter Storm Uri) resulted in a two-fold increase in gas commodity charges for up to 30 months (Resolution 20-21-LCU033). If this additional gas rate increase is approved, the Small Commercial cost of gas by volume will increase by 320%, resulting in an increase in average Small Commercial monthly gas bills of 75%. This is a high burden for small businesses and an obstacle to economic recovery.

Table 4 Cost of Gas by Volume

Cost of Gas (Volume Charge, \$/Dekatherm)						
	Current Rates	Proposed New Rates	Winter Storm Uri Rider	Total Increase (\$)	Total New Rate	Total Increase (%)
Residential	\$ 1.34	\$ 1.69	\$ 1.69	\$ 2.04	\$ 3.38	152%
Small Commercial	\$ 1.07	\$ 2.80	\$ 1.69	\$ 3.42	\$ 4.49	320%
Large Commercial	\$ 1.02	\$ 2.03	\$ 1.69	\$ 2.70	\$ 3.72	265%
Industrial	\$ 1.02	\$ 1.02	\$ 1.69	\$ 1.69	\$ 2.71	166%
Irrigation	\$ 0.76	\$ 1.48	\$ 1.69	\$ 2.41	\$ 3.17	317%
High Volume	\$ 0.29	\$ 0.56	\$ 1.69	\$ 1.96	\$ 2.25	676%

Table 4 shows that under the proposed new rates, Small Commercial costs for gas (by volume) would grow by a 320%. The only class of customers who will see a larger increase is the High Volume customers, but the Total New Rate columns shows those customers will still pay only about half the price (2.25/4.49) that small businesses do. The Total New Rate Column also shows that Total New Rates for Small Commercial are significantly higher than any other rate.

The total monthly costs include the Monthly Access Charge in addition to the Volume Charge above, and under the proposed new rates an additional Decarbonization charge (based on volume) would be added. In addition, the cost of gas purchased by Las Cruces Utilities (LCU) is included, at an average cost of \$2.5/Dth. Table 5 below shows the total average bill impact, including all costs and charges and based on average gas use for each customer class.

Table 5 Average Monthly Gas Bills

Customer Class	Current Bill	Proposed Bill (w/o storm rider)	Total Proposed Bill	Increase (w/o storm rider) %	Total Increase (%)
Residential	\$ 26.87	\$ 29.32	\$ 35.10	9.1%	30.6%
Small Commercial	\$ 75.15	\$ 107.17	\$ 131.97	42.6%	75.6%
Large Commercial	\$ 2,378.17	\$ 3,106.22	\$ 3,929.36	30.6%	65.2%
Industrial	\$ 12,352.32	\$ 12,842.64	\$ 17,515.03	4.0%	41.8%
Irrigation	\$ 26.38	\$ 29.95	\$ 32.04	13.5%	21.4%
High Volume	\$ 28,857.06	\$ 33,151.16	\$ 48,862.85	14.9%	69.3%

Table 5 shows that the Small Commercial class sees the highest increase of all customer classes. The small businesses that make up this class include restaurants, bars, gyms, retail businesses, and other businesses hit hard by closures, restrictions, employee shortages, and many other impacts of the recession related to the Covid-19 pandemic.

To impose such a large increase in operating expenses while they are trying to recover from all the losses suffered during the pandemic seems unconscionable.

b. Low Income Households

While this report was commissioned by the Green Chamber of Commerce and its focus is on small businesses, the impact on Low to Moderate Income (LMI) households is also of great concern. Energy

costs constitute a larger proportion of total expenses for LMI households, and so any increases in natural gas rates affect them more than others. Another factor is that LMI households are less likely to own their homes, and more likely to rent, making it difficult to save energy costs by investing in energy efficiency measures like better insulation and more efficient appliances. Furthermore, LMI citizens are more likely to work in retail, service, and other industries which were heavily impacted by Covid-19 closures and restrictions, and are often less able to switch to remote working than higher income white-collar employees.

LCU announced in a July 2, 2021 news release that “From March 1, 2020, through May 31, 2021, the Las Cruces Utility Assistance fund provided over \$460,000 and helped 2,343 residential customers pay their monthly utility bills.” The support provided to LMI households impacted by Covid-19 is commendable. The fact that this support was needed demonstrates that LMI households have limited margin to handle rate increases, and argues against additional rate increases on top of the Winter Storm Uri rate rider.

VI. Gas Line Extension Costs and Benefits for New Customers

We grew up in a world in which heating with natural gas was less expensive than with electricity, meaning that extension of gas lines to new customers would provide them with more affordable energy. However, technological advances have changed this world, making electric heat pumps more efficient and affordable than gas heat. Modern, electric air-source heat pumps have recently matured to the point where they can operate very efficiently at low temperatures without the need for backup heat, and multiple studies and reports confirm that total costs (equipment, installation, and operating) are now lower for heat pumps than for gas furnaces, except for some situations where gas service and appliances are already installed.

2018 RMI Study

RMI (formerly Rocky Mountain Institute) published a study in 2018 titled “The Economics of Electrifying Buildings”¹², in which it analyzed the costs of gas versus electric space heating, water heating, and cooking in Oakland, Houston, Providence, and Chicago, and found (page 20): “While costs can vary substantially depending on individual home characteristics, our analysis found several consistent results. Electrification is generally cost-effective for oil and propane customers, for both new construction and retrofits. For newly constructed homes, heat pumps are usually the lowest-cost option, particularly since a heat pump provides both heating and air conditioning, and these homes avoid the cost of both furnaces and air conditioners. For retrofits of existing homes, heat pumps can be lower cost than replacing both furnace and air conditioner separately. For homes currently using natural gas heating and only needing to replace a gas furnace, it is usually more expensive to electrify than to stick with gas.”

2018 SWEEP Report

A 2018 analysis by the Southwest Energy Efficiency Project (SWEEP) called the “Benefits of Heat Pumps for Homes in the Southwest”¹³ reached a similar result, stating (referring to mini-split systems): “we conclude that heat pumps can be cost-effective for homeowners in the Southwest compared to use of

¹² Billimoria, Sherri, Mike Hennen, Leia Guccione, and Leah Louis-Prescott. The Economics of Electrifying Buildings: How Electric Space and Water Heating Supports Decarbonization of Residential Buildings. Rocky Mountain Institute, 2018, <http://www.rmi.org/insights/reports/economics-electrifying-buildings/>

¹³ Benefits of Heat Pumps for Homes in the Southwest, Neil Kolwey and Howard Geller, Southwest Environmental Efficiency Project, June 2018, page 29.

gas furnaces and central AC systems, in some applications. Namely, heat pumps are cost-effective for new homes for all the cities, due to the lower initial costs that result from not having to install ducts.”

2020 Colorado Electrification Study

Similar results were found in a November 2020 Colorado study¹⁴, “Electrification of Commercial and Residential Buildings”. The tables below summarize the results for the Denver area (note that El Paso Electric offers a similar \$150/ton rebate for high efficiency air conditioners and heat pumps, or \$750 for a 5 ton unit):

Table 6 Comparison of First Costs from 2020 Colorado Electrification Study

Type	First Cost for Electric Equipment	First Cost for Natural Gas Equipment	Current HP Rebate	First Cost Delta w/ Rebate	% Delta in First Cost w/ Rebate
Single Family Home					
Single Family Home New Construction	\$ 16,600	\$ 21,900	\$ 700	\$ (6,000)	-27%
Single Family Home Retrofit ¹	\$ 20,400	\$ 0	\$ 700	\$ 19,700	N/A
Single Family Home End-of-Life	\$ 20,400	\$ 17,600	\$ 700	\$ 2,100	12%
Office Building					
Office Building New Construction	\$ 221,300	\$ 239,400	\$ 0	\$ (18,100)	-8%
Office Retrofit ¹	\$ 241,200	\$ 0	\$ 0	\$ 241,200	N/A
Office Building End-of-life	\$ 241,200	\$ 236,600	\$ 0	\$ 4,600	2%

Table 2: Comparison of Operating Costs with Standard Xcel Energy Rates

Type	Utility Cost Natural Gas Equipment (\$/Yr)	Utility Cost Heat Pumps (\$/Yr)	Change in Total Utility Cost (\$/Yr)	% Delta in Utility Cost
Single Family Home	\$ 1,043	\$ 1,002	\$ (41)	-4%
Office Building	\$ 55,031	\$ 55,617	\$ 586	1%

The upper part of Table 6 shows that when building a new home or office building (“New Construction”), the First Cost is far lower for electric heat than for gas, despite including the additional cost of efficient heat pumps. However, when retrofitting an existing gas home or commercial building to electric space and water heating, the costs are currently higher for electric than for gas, even when the conversion is performed when the air conditioner and gas furnace need to be replaced anyway (the End-of-Life scenario).

The costs of converting buildings with existing electric heating to gas are not listed, but are likely to be much higher than replacement of electric resistance heating with a high efficiency heat pump. This is similar to the New Construction scenario, since the costs of installing gas lines and connections must be added to the costs of gas equipment.

¹⁴ Electrification of Commercial and Residential Buildings – An evaluation of the system options, economics, and strategies to achieve electrification of buildings, November 2020, by Group14 Engineering, PBC.

Within Table 6, the lower portion shows that operating costs in Denver are similar for gas and electric, differing by just a few percent, with gas slightly more expensive for homes and less expensive for commercial buildings. Fortunately, Group14 Engineering provided the calculator used for Table 1 and 2 in an Excel file “Electrification-Calculator_2020_11.09-Resi”, in a format enabling modification to adjust for the differences in climate and energy costs between Denver and Las Cruces.

2021 Analysis Using Las Cruces Data

Table 7: Operating Costs Using Las Cruces Data

Type	Utility Cost		Change in Total Utility Cost (\$/Yr)	% Change in Utility Cost (\$/Yr)
	Natural Gas Equipment (\$/Yr)	Utility Cost Heat Pumps (\$/Yr)		
Single Family Home	\$ 779	\$ 885	\$ 105	14%

Table 7 is similar to Table 6, except that it uses Las Cruces rather than Denver prices for electricity and natural gas to compare operating costs. It shows the results from a version of “Electrification-Calculator_2020_11.09-Resi” Excel spreadsheet calculator that has been adjusted for Las Cruces climate, and for its energy costs¹⁵. As in Denver, the Las Cruces operating costs are slightly lower for gas than electricity. However, a different picture emerges when total costs are considered, by adding the costs of equipment and installation to the energy costs.

Table 8: 15-Year Net Present Cost Savings with Las Cruces Electricity and Gas Rates

Type	Net Present Value		Savings with Electricity	% Savings with Electricity
	for Gas Equipment	Net Present Value for Electrical Equipment		
Single Family Home New Construction	\$ 30,664	\$ 25,800	\$ 4,864	16%

Table 8 shows results from the same Electrification Calculator, modified with Las Cruces climate and energy cost data, and incorporating initial equipment and installation costs as well as operating costs. The Net Present Value is used as a basis of comparison, and was calculated assuming a 5% interest rate, and identical 1.3% annual cost increases for gas and electricity energy costs.

As in the other studies, this calculation, using Las Cruces climate data, natural gas, and electricity costs, shows that total costs are lower for electricity than gas heat.

Propane to Natural Gas Conversion Difficulties

In the past, many appliances could be converted from propane to natural gas by changing orifices to account for the much larger volume of natural gas needed to supply the same energy as propane. Most appliances available today “are built to use either propane or natural gas and are not designed to be

¹⁵ Climate data from Values from: <https://www.usclimatedata.com/climate/las-cruces/new-mexico/united-states/usnm0492> (data pulled on 6/30/2021). Gas fuel usage from author’s 2020 utility bill, and other gas energy charges according to LCU proposed rates, including storm rider, proposed increase, and decarbonization rider. Electricity costs from New Mexico Public Regulation Commission decision of June 23, 2021, Rate No. 1 Residential (non-Time-of-Day) rates, and author’s 2020 fuel and purchased power clause (FPPCAC) costs.

converted or modified for use with another fuel.”¹⁶ The conversion of any gas appliance to another fuel involves not only replacing the orifices (fixed and pilot), but the replacement of appliance regulators, appliance burners, burner air shutters and possibly the venting as well. Conversion of households currently using propane for heating to natural gas is likely to be expensive due to appliance replacement, in addition to the costs of gas line installation and connection.

Summary of Gas versus Electric Heat Pump Costs

The bottom line is that for New Construction, or for buildings with existing electric heat, gas heating is more expensive than electric when the total of equipment, connection, and operating costs are included. These three recent, reputable, and geographically relevant studies all show that:

- Life cycle costs for air-source heat pumps are lower than life cycle gas costs for new construction or for homes with existing electric or propane heat
 - Initial new construction costs for electric air-source heat pumps are much lower than for gas heat
 - Operating costs for new technology heat pumps are similar to costs for natural gas, and depend on the relative costs of gas and electricity
- Retrofitting buildings with existing electric or propane heat to natural gas is very expensive
- Converting natural gas homes to electric heat pumps is much more expensive than avoiding creation of gas-heated homes

This clearly means that gas line extensions, which serve only customers without existing gas pipes and appliances, won't save money for those customers. It also shows that converting existing gas buildings to electricity is much more expensive than building them electric in the first place. The City's plans to gradually transition from natural gas to electricity outlined in its Climate Action Plan will be vastly more difficult and expensive if more homes are built with or converted to natural gas.

Building new homes with natural gas, or converting existing electric or propane homes to gas, makes no economic sense, without even considering the safety, health, and environmental problems associated with natural gas.

VII. Economics of New Development (Line Extensions)

As noted above, 39% of the proposed rate increase is caused by new Annualized Debt Service for New Development, which primarily consists of gas line extensions. Since these new gas lines will increase the bills for all customers for the next 20 years, it is important to examine their economics carefully. The available information makes the economics seem questionable, to say the least.

I asked LCU, via email and phone, several questions about the economic analysis done for new gas line extensions. I also reviewed responses to IPRA requests made by others. While the general response was that an economic analysis was done for each project, the complete analyses did not seem to be documented, and the details provided are troublesome.

After being referred to the City's Natural Gas Main Extension Policy, I raised the following question in an email exchange with LCU (with LCU's response in bold):

1. The Policy states, under Standard Connection Allowance, "To determine if a gas main extension from an existing distribution infrastructure is economically feasible, LCU will evaluate the

¹⁶ <https://www.propane101.com/lpgasapplianceconversions.htm>

Standard Connection Allowance (Standard Allowance) and the total cost of a specific gas main extension to an unserved area in the City's gas service area." Does this statement mean that the total cost per customer for a project should be less than the Standard Allowance for it to be economically feasible? If not, please explain.

In general, yes. Of the 15 gas mainline extensions projects, 60 % of the projects (9 projects) resulted in the standard connection allowance substantially covering the respective projects per parcel extension cost.

The Standard Connection Allowance is \$1400, but most projects apparently exceed this amount by a large margin. The spreadsheet I was provided via email, and a later version presented at the June 23rd, 2021 UCAG meeting, only included the number of interested customers for 4 projects, which are listed in Table 9 below. The table includes additional information on the Talavera extension from an IPRA request made by another customer, which was more complete than the response I received.

Table 9: Gas Development Project Costs Per Customer

Gas Development Project Description ⁽¹⁾	Project Cost	# Parcels	# Interested Customers	Cost/ Parcel	Cost/ Interested Customer	Cost/ Paid Customer
Talavera Extension Total ⁽²⁾	\$ 5,778,899	960	419	\$ 6,020	\$ 13,792	\$ 304,153
Saturn Circle Main Line	\$ 24,739	64	16	\$ 387	\$ 1,546	N/A
Thomas Moran/Chula Vista	\$ 344,078	88	27	\$ 3,910	\$ 12,744	N/A
Gas Main Extension to Silvermoon Court	\$ 30,126	21	12	\$ 1,435	\$ 2,511	N/A
(1) Project costs from NewGen COSS, except Talavera. Other info (parcel & interested customers) from May 24, 2021 email.						
(2) Talavera Extension Total cost, # of parcels, # of interested customers, and # of paid customers (19) from IPRA #21-547.						

From the information provided, the table indicates that only one project, the Saturn Circle Main Line, is below the \$1400 point of *"the standard connection allowance substantially covering the respective projects per parcel extension cost"*. One other project, the Silvermoon Court gas extension, has a per parcel cost (\$1435) that is mostly covered by the \$1400 Standard Allowance. But these calculations are overly optimistic, because they assume that all parcels connect to gas service, not just the ones who said they were interested. Also note that even the customers expressing interest are under no commitment to connect.

The Talavera Gas Line Extension has the most information, probably because it may be the furthest along in development, and it raises big concerns about economic viability and equity. LCU used the most optimistic (and unrealistic) interpretation, that all of the 960 parcels (developed and undeveloped) in Talavera will connect to gas. Under that assumption, the calculated cost per parcel is \$6,020. If all the customers who expressed interest eventually connect to gas, the real cost per parcel will be \$13,972, almost double the calculated value. However, the most concerning number is that only 19 customers had connected or committed to a gas connection as of May 26th, 2021, making the cost per customer over \$300,000. In reality, no Talavera customer will pay the exorbitant \$300,000 per customer costs; that cost is an indication of the subsidy paid to each Talavera customer by the rest of the gas system customers, if no additional Talavera customers connect to gas.

The way the Natural Gas Main Extension Policy has been interpreted and implemented means that the Talavera customers benefit from the unrealistically optimistic assumption that all parcels will connect to natural gas, resulting in the calculated \$6,020 per customer cost. Talavera customers will pay only the difference between \$6,020 and the \$1400 Standard Allowance (\$4,620), if they choose to connect.

Ultimately, the Talavera costs will be spread over the system's existing customers, because only a small fraction of the 960 parcels will connect to gas. The \$6,020 cost for the non-connecting parcels (currently 941 of the 960 parcels) will be paid by everyone else on the system. Even if all the 419 customers who expressed interest eventually connect to gas, (and who have no obligation to do so), they will pay only \$1,935,780 (\$4620 X 419) of the total \$5,778,899 cost; other customers will pay the remaining \$3,843,119. In other words, existing customers would pay over 66% of the total cost of \$5,778,899, even in one of the most optimistic scenarios.

This optimistic scenario is extremely unlikely. An informal survey of the three residents of the Talavera neighborhood known to the author indicated that none of them planned to connect to gas, due to its high cost, even with the subsidy discussed above. Unfortunately, the Talavera project is probably too far along to prevent, but it is an example of how the gas line extension cost calculations are both unrealistic and extremely costly to other customers.

For the other Gas Line Extensions shown in Table 9, the economic rationale for system expansion is also poor, because even if all the interested customers eventually connect to gas, the cost per interested customer exceeds the Standard Allowance. Unfortunately, LCU assumes that all parcels will connect to gas, calculates the optimistically low "Cost/Parcel" number, and recovers only that value from those new customers. As in Talavera, existing gas system customers will pay for project costs not recovered from the new customers.

For projects not listed in the table, no economic justification was provided. It is unclear what was meant by *"60 % of the projects (9 projects) resulted in the standard connection allowance substantially covering the respective projects per parcel extension cost"*, since data for only 4 projects was provided. It is also troubling that for 40% of the projects, the Standard Connection Allowance does not "substantially cover" the cost, even under the unrealistically optimistic calculations that are used.

VIII. Natural Gas System Reliability, Health, and Safety

a. Reliability

One of the advantages of natural gas service is its reliability, so measures intended to increase reliability should be carefully scrutinized to determine if they are necessary and cost-effective. Note that LCU successfully (and commendably) avoided any problems delivering gas services during February's extreme climate event called Winter Storm Uri, but did experience large cost increases due to the gas shortages in Texas, causing the 30 month "Recovery Rider" which will be added to local gas rates for the next 30 months. This indicates that the biggest risk to the LCU gas system may be added cost, not reliability.

When asked "Which of the projects listed under Gas Development and Line Extensions are primarily intended to be "system redundancy enhancements?", LCU provided a list of projects by email¹⁷. The total cost of these projects in FY 2021 to FY 2023 is \$1,329,280¹⁸, which is just 11.4% of the proposed

¹⁷ Answer from LCU (May 24, 2021 email) was: Those are Del Rey HP Extension, Elks Dr, Sonoma Ranch Metering Station, Talavera to HWY 70, Roadrunner Boring at Foothills, Picacho/Fairacres Elementary HP, and East Side City Gate Connection.

¹⁸ <https://www.las-cruces.org/DocumentCenter/View/7099/Las-Cruces-Gas-Rate-Review>, Sch. 6B CIP in 34 page PDF excerpt from the Cost of Service Excel File, "Las Cruces COS Model_02-01-2021.xls"

Gas Development spending of \$11,614,390. While 11% is a relatively small proportion of the total spending, this spending should be examined regarding whether it is wise or necessary. Increasing redundancy may increase reliability, but since within-system reliability is rarely a problem, that redundancy increase is likely an unnecessary expense.

One potential benefit of some types of line extension is called looping, consisting of two or more lines running in parallel, which can be added during line extensions. Looped lines can increase line capacity and increase the potential for “packing” (discussed below). However, as noted, the City experienced no outages during Winter Storm Uri in February 2021. Given that this extremely severe and rare event did not disrupt service to Las Cruces Utilities customers, it is unclear why increased line capacity might be needed.

Another justification offered for system expansion, referred to as packing, is a very temporary storage method involving simply increasing the pressure on existing lines to store more gas in them. However, packing is a poor justification for the expense of installing new gas lines, as was noted in NMSU Economics 572¹⁹: “This is done by packing more gas into the pipeline through an increase in pressure. Line packing is usually performed during a very short-term off-peak period in order to have extra natural gas for the next day’s or next hour’s peaking demands. Line packing only provides a temporary very short-term substitute for underground storage.”

Part of the reason why packing has limited potential for increasing reliability through additional storage capacity is the constraint on maximum pressure outlined in the Title 49 of the Code of Federal Regulations, CFR_49, Part 192, Transportation of Natural and Other Gas by Pipeline. Sections 192.619 and 192.620 specify Maximum Allowable Operating Pressures (MAOP), which vary with material, construction date, pressure test results, and other parameters. The maximum pressure limits the amount of gas that can legally be stored in distribution lines by packing.

Looping and packing can help provide capacity and a small amount of storage. However, both are poor reasons to build new lines if additional capacity and storage are not needed.

When asked: “Packing has been mentioned as a method for storing gas, for example in advance of a weather event. Did the City consider storage tanks as an alternative to accomplish that purpose?”, LCU responded: “The City has initially discussed storage for storing gas. A more comprehensive plan will be conducted with the assistance of a gas consultant within the next two years to address and prepare for gas supply disruptions.”²⁰

This report recommends that efforts to maintain and rehabilitate existing lines should be continued to uphold the high standards of reliability, service and safety that have been established by LCU, but gas development to provide new service should be eliminated, and gas development for “system redundancy” should be carefully scrutinized for necessity. The comprehensive plan to be developed with assistance from a gas consultant should guide this spending.

b. Health and Safety

¹⁹ Printed class notes, Lecture 2, New Mexico State University, Economics 572, Regulatory Policy & Industry Analysis: Water & Natural Gas, Fall 2019.

²⁰ Email from LCU, July 7, 2021

Combustion of natural gas inside homes causes issues of both health and safety. Carbon monoxide poisoning kills 430 people in the US each year, according to the US Center for Disease Control (CDC), which notes: “Gas- and oil-burning furnaces produce carbon monoxide (CO). CO is an invisible, odorless, poison gas that kills hundreds every year and makes thousands more sick.”

While no one currently served by LCU will have to stop their use of natural gas for heating or cooking if line extensions are stopped, better health outcomes are a powerful reason for LCU to limit line extensions. A 2020 RMI Report²¹ notes “a robust body of scientific research shows the pollutants released by gas stoves can have negative health effects, often exacerbating respiratory conditions like asthma.” The pollutants associated with gas stoves include Particulate Matter, Nitrogen Dioxide, Nitric Oxide, Carbon Monoxide, and Formaldehyde. All of these pollutants can have harmful effects, but to pick just one, Nitrogen Dioxide health effects in children may include: IQ and learning deficits, increased risk of childhood asthma, irritated airways, increased susceptibility to lung infections, and aggravated respiratory symptoms (wheeze, cough, chest tightness, and difficulty breathing).

The improved health outcomes associated with transitioning away from natural gas also point to the importance of utility initiatives to facilitate a transition to electricity for heating and cooking, particularly for lower-income families. An educational campaign to gas customers urging them to properly ventilate their gas stoves would also be in order.

IX. Conflicts with City Policy

a. City Resolutions

The City passed Resolution 21-153 on April 5, 2021, which included several provisions to guide the operations of the Gas Utility, including:

- (I) THAT the City will invest in the transition of the natural gas line of business to a natural gas and energy resources line of business and will support Action CE-8.3.2. of the CAP which seeks to establish an energy transition plan and road map with milestones and strategies to determine the path to non-fossil-fuel dependent energy, implementation of efficient use of natural gas programs, and decarbonization of the system and investments over the next 30-years.
- (II) THAT the energy transition plan and road map will address retirement of the natural gas utility’s debt while simultaneously acknowledging the requirement to finance the improvement, maintenance, and repair of its natural gas infrastructure for reliability, safety, and affordability in order to meet its obligations to our citizens and to make capital additions that facilitate the City’s goal of reducing greenhouse gas emissions by 19 percent by 2030, and shall calculate the costs to the community of doing all of these things while ensuring energy cost equity to our citizens.
- (V) THAT the City will invest in energy efficiency programs, ensure energy affordability and access in our community, and commit to no actions on energy or prohibitions that will result in regressive cost shifting to low and middle-income residents.

²¹ <https://rmi.org/insight/gas-stoves-pollution-health/>, Gas Stoves: Health and Air Quality Impacts and Solutions, 2020, Brady Seals and Andee Krasner

The Resolution clearly directs a transition away from fossil-fuel energy toward decarbonization of the system, retirement of debt, and avoidance of cost-shifting to low and middle-income residents. The surge in gas line extensions funded by the gas rate increase for existing customers contradicts this agreed-upon direction for the future on all these issues.

In addition, the establishment of “an energy transition plan and road map with milestones and strategies” implies a significant shift of focus for the gas utility, which will require at least a few changes in qualifications and skills of utility personnel. For example, the City may want to create programs to educate customers on low-cost energy options, aid low- and moderate-income families with energy efficiency programs to reduce costs of energy, provide rebates and/or financing to help with purchases of efficient air-conditioners/heat pumps, or organize community solar projects to provide low-cost solar energy to non-homeowners. These are just a few examples of the kinds of expertise that might be needed as the focus of the utility broadens from only natural gas to include other types of energy. As noted earlier, filling 100% of personnel vacancies is not advisable when we know a transition plan is being developed that is likely to significantly change the kinds of personnel needed.

Resolution (II) specifically refers to retirement of the natural gas utility’s debt. It is unclear how any plan to incur new debt of \$11.6M (with an additional over \$7M interest and fees) to expand gas services to new customers is consistent with this Resolution. The Annualized Debt Service adds \$934,600 per year for 20 years to utility expenses, which will be borne by all ratepayers, including the hard-hit small businesses and low- and moderate-income customers.

Resolution (V) indicates that LCU should promote the most affordable types of energy, as well as energy efficiency programs. As documented in previous sections, the most affordable type of energy for heating of newly constructed buildings (or existing electric buildings) is now electric air-source heat pumps. Promotion of these heat sources, rather than expansion of the gas system, would avoid the regressive cost shifting to low and middle-income residents that would be caused by the proposed rate increases. Note that no existing gas customers would lose service if gas line extensions are stopped, and in fact those customers would benefit from lower rates.

b. Climate Action Plan (CAP)

A relatively large portion of the Greenhouse Gas (GHG) reduction in the CAP, detailed in the GHG Model, is a result of the CAP’s Building Energy Sector Target BE4. The GHG Model assumes 2% of residential and commercial buildings switching from gas to electricity in 2020, with an additional 0.4% switching each year until 2030, and an additional 3.45% per year switching from 2030 to 2050. In order to meet those goals, any new gas customers now would have to be replaced by an equivalent number of existing gas customers switching from gas to electric later, simply to break even. Since switching to electric appliances post-construction is much more expensive than building new all-electric homes in the first place, providing new gas services bakes in a much higher overall cost for meeting GHG reduction goals.

X. Need for Long-Term Planning

Las Cruces is one of many state and local governments that has embraced the need for a transition to a clean-energy economy, as evidenced by its Climate Action Plan. Las Cruces is also, like many other governments, struggling with how to coordinate its short-term and long-term plans for investments in gas infrastructure so that those plans are consistent with its CAP.

As noted in “Aligning Gas Regulation and Climate Goals: A Road Map for State Regulators”²²: “While many states have adopted greenhouse gas (GHG) emissions targets and are conducting long-term planning for the transition away from natural gas, retail gas utilities and their regulators have generally continued to operate in a business-as-usual framework assuming static or increased natural gas usage. In most states, there is a lack of reconciliation between these two policy objectives. ... This disconnect is already resulting in large amounts of ratepayer money being committed to new infrastructure based on an assumed useful life of 60 years or longer. While this time frame might have been appropriate in a pre-climate mitigation paradigm, the mismatch between the time horizon of these new investments and climate goals exposes both gas utilities and their customers to new risks of under-collecting or even needlessly stranding infrastructure. As states achieve their climate goals, infrastructure once deemed to be used and useful may no longer be necessary for the same operation of the system ... Furthermore, **increasing rates resulting from stranded assets creates the potential of a utility death-spiral effect, where higher rates lead customers to electrify more quickly and raise the rates for remaining customers even more. This places the greatest impact on low-income ratepayers, who are least able to make the up-front investments required to electrify but who are the most affected by higher utility bills.**” (Emphasis added).

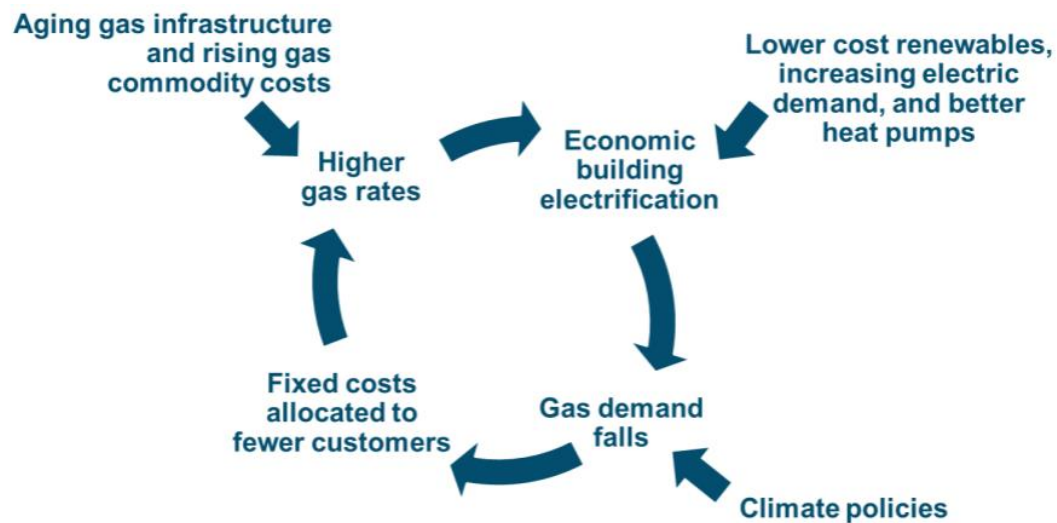
As noted earlier in this report, new technology heat pumps provide very affordable energy. Unfortunately, upfront costs for heat pumps can be a problem, because costs are very front loaded while the benefits accrue over many years. LMI households often have older and less efficient appliances and lack financing options, financial flexibility, and information.

This “Death Spiral” is shown more graphically below, reproduced from a California Energy Commission Report²³:

²² Aligning Gas Regulation and Climate Goals: A Road Map for State Regulators, Environmental Defense Fund, January 2021, page 4. Authors: Natalie Karas, Michael Colvin, Ted Kelly, Erin Murphy, Timothy O’Connor.

²³ Energy Research and Development Division, FINAL PROJECT REPORT, The Challenge of Retail Gas in California’s Low Carbon Future Technology Options, Customer Costs, and Public Health Benefits of Reducing Natural Gas Use, page 57. Primary Authors: Dan Aas, Amber Mahone, Zack Subin, Michael Mac Kinnon, Blake Lane, Snuller Price.

Figure 4 Changes in the Natural Gas Delivery Sector Could Lead to Lower Gas Demand and Higher Gas Rates



Note that while it is not depicted on the figure above, investing in gas line extensions would add to the costs of aging gas infrastructure in the upper left of the graphic above, and those least able to pay their way out are most likely to get caught in the death spiral.

XI. Recommendations

To maintain affordability for LCU natural gas services customers, LCU should:

- Put natural gas rate increases on hold until recovery from Covid-19 has taken full effect, and the utility's transition plan is in place.
- Fully maintain the existing natural gas system with the goals of reliability and safety.
- Keep personnel staffing at current levels until the transition plan and roadmap helps define what skills will be needed.
- Avoid extending gas lines to new service territories or customers until after the transition plan has been developed. Even then extensions should, for reasons detailed in this report, receive careful scrutiny.
- To address affordability, provide information and financing options to reduce costs through:
 - Energy efficiency measures like weatherization, insulation and better sealing.
 - Incentives and financing for electric air-source heat pumps for those using propane or electrical resistance heating.
- In accordance with Resolution 21-153, Las Cruces Utilities has committed to a "transition of the natural gas line of business to a natural gas and energy resources line of business". This transition is critically important to meeting the City's goals for reducing greenhouse gas emissions, and must be managed carefully to maintain both safety and affordability.

Author's Note:

This report examines the Revenue Requirements portion of the Cost of Service (COS) study. Analysis is ongoing, and in particular will focus on the Cost Allocation part of the COS. Initial investigation resulted in questions regarding apportionment methodology, which may be part of the reason Small Commercial rates increased more than other rates. An addendum is planned containing more analysis of the COS, and (potentially) other updates.

Errata:

The following minor changes were made on August 27, 2021

- (1) The Executive Summary language was slightly changed to clarify that the gas development spending listed was on an average annual basis, and a typo (extra "of") was fixed.
- (2) One project in Table 9 was corrected, from Elks Dr 2-Way to Thomas Moran/Chula Vista, and a reference to that table on page 17 was corrected from Table 8 to Table 9.
- (3) The words "in FY 2021 to FY 2023" were added at the bottom of page 17 as a clarification to the total cost of projects.

Errata:

The following changes were made on September 23, 2021

- (4) Table 2 on page 7 was expanded to two Tables, labeled 2a and 2b, for clarity and to detail the FY 2021 to 2023 costs, and the surrounding text was changed accordingly.
- (5) The cost of the second Elks Dr. project, namely Elks Dr. Sandhill Arroyo, was added to the total costs of projects stated to be "primarily intended for redundancy" on page 17 and the resulting percentage was changed from 10 to 11%.
- (6) Specificity was added to the footnote on page 21.
- (7) More significantly, the Addendum mentioned in the Author's Note above was added, as well as a Supplement to Section VII, Economics of New Development, titled "Gas Line Extension Policy Implementation and Talavera Project Example"

**21-153**

City Council Action and Executive Summary

Type of Action:

☒ Resolution☐ Ordinance☐ TIDD Resolution

District:	<input checked="" type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input type="checkbox"/> N/A		
1st Reading:		Adopted:	April 5, 2021
Drafter:	Alma Ruiz	Department:	Utilities
Program:	Utilities Administration	Line of Business:	Office of the Director
Title:	A RESOLUTION TO PLAN FOR AN ENERGY TRANSITION OF THE UTILITIES NATURAL GAS LINE OF BUSINESS.		

TYPE OF ACTION: ☒ Administrative ☐ Legislative ☐ Quasi-Judicial

PURPOSE(S) OF ACTION:

To Plan for Energy Transition of the Utilities Natural Gas Line of Business.

BACKGROUND / KEY ISSUES / CONTRIBUTING FACTORS:

The City of Las Cruces City Council ("City Council") adopted the Climate Action Plan ("CAP") on October 5, 2020, with Resolution 21-060 outlining Las Cruces' vision of sustainability over a 25-year time frame.

That vision and its seven components will be implemented by the City of Las Cruces ("City") and its public and private partners through inter-related policies, programs, regulations, investments, and procedures.

The City Council adopted the Elevate Las Cruces Comprehensive Plan ("Elevate") on February 18, 2020, wherein the City commits to sustainable growth by improving access to affordable housing, promoting equitable affordable housing, enhancing economic competitiveness, and bringing value to communities and neighborhoods.

Goal CE-8 of Elevate is to increase the share of renewable energy alternatives to reduce the community's overall carbon footprint.

Goal CE-12.2.1 of Elevate encourages development of incentives for industrial and manufacturing businesses to use cleaner energy to reduce carbon monoxide and ozone precursor emissions.

BE-4 of the CAP looks to decarbonize energy in buildings by converting six (6) percent of commercial buildings to all electric by 2030 and 75 percent by 2050. This will have an overall effect of reducing community-wide emission by 15 percent by 2050.

Target BE-4.A. of the CAP commits the City to work with its partners across the community to develop policies and incentive programs to ensure new buildings are carbon neutral and to convert a significant share of existing buildings to being carbon neutral for the purpose of using alternate energy.

The New Mexico Energy Transition Act (SB 489), aims to have investor owned electric utilities increase their use of renewable resources by requiring 40 percent of the state's electric energy to come from renewable sources by 2025; 50 percent, by 2030; 80 percent by 2040; and 100 percent clean energy by 2045, such that

the state's goal is to eliminate coal-fired and natural gas-fired electric generation that currently provides approximately 80 percent of electric power produced in New Mexico.

Any actions related to this resolution will align with SB 489, wherein implementing targets and goals shall not cause energy services to become unaffordable for Las Cruces residents, our businesses, or our industries.

The vision of Elevate commits to invest in the services, amenities, and economic environment that provide our residents with feasible options to live, work, and play in Las Cruces regardless of personal means or stage in life.

Elevate states a vision wherein Las Cruces believes in balanced development through sustainable growth practices where smart investment in new development enhances long-term economic value through quality design and resource conservation.

Elevate states a vision wherein Las Cruces fosters economic prosperity by enhancing our economic competitiveness regionally, nationally, and globally while creating economic opportunities for all city residents and businesses.

According to the CAP, 17 percent of the 2018 citywide Las Cruces greenhouse gas (GHG) emissions inventory comes from residential buildings and a portion of that comes from the combustion of fossil fuels including natural gas. Natural gas complements renewable energy supplies in addition to supporting our community's energy diversity and affordability.

For 85 years, the City has owned and operated a natural gas utility that has provided affordable, safe, and reliable natural gas retail services to the residents and businesses of the city while employing more than 60 residents.

The City has a responsibility to its residents to ensure the natural gas lines, in which they have invested, are maintained to excellent safety standards and to build a resilient system that provides reliable gas service to the community and businesses on demand.

PLAN(S):

City Council Strategic Plan, Other, Department Strategic Business Plan

COMMITTEE/BOARD REVIEW:

Utilities Board

ANNUAL BUDGET APPROVAL:

- ☐ Yes
- ☐ No
- ☒ N/A

Does this action amend the Capital Improvement Plan (CIP)?

- ☐ Yes
- ☐ No
- ☒ N/A

OPTIONS / ALTERNATIVES:

1. Vote "Yes" - Will approve the outlined Energy Transition Plan.
2. Vote "No" - Will not approve the outlined Energy Transition Plan.
3. Vote to "Amend" - City Council will provide Utilities staff strategic guidance for consideration.

4. Vote to "Table" - City Council will consider the outlined Energy Transition Plan at a later City Council Meeting.

RESOLUTION 21-153

A RESOLUTION TO PLAN FOR AN ENERGY TRANSITION OF THE UTILITIES NATURAL GAS LINE OF BUSINESS.

The City Council is informed that:

WHEREAS, the City of Las Cruces City Council ("City Council") adopted the Climate Action Plan ("CAP") on October 5, 2020, with Resolution 21-060, outlining Las Cruces' vision of sustainability over a 25-year time frame; and

WHEREAS, that vision and its seven components will be implemented by the City of Las Cruces ("City") and its public and private partners through inter-related policies, programs, regulations, investments, and procedures; and

WHEREAS, the City Council adopted the Elevate Las Cruces Comprehensive Plan ("Elevate") on February 18, 2020, wherein the City commits to sustainable growth by improving access to affordable housing, promoting equitable affordable housing, enhancing economic competitiveness, and bringing value to communities and neighborhoods; and

WHEREAS, Goal CE-8 of Elevate is to increase the share of renewable energy alternatives to reduce the community's overall carbon footprint; and

WHEREAS, Goal CE-12.2.1 of Elevate encourages development of incentives for industrial and manufacturing businesses to use cleaner energy to reduce carbon monoxide and ozone precursor emissions; and

WHEREAS, BE-4 of the CAP looks to decarbonize energy in buildings by converting six (6) percent of commercial buildings to all electric by 2030 and 75 percent by 2050. This will have an overall effect of reducing community-wide emission by 15 percent by 2050; and

WHEREAS, the New Mexico Energy Transition Act (SB 489), aims to have investor owned electric utilities increase their use of renewable resources by requiring 40 percent of the state's electric energy to come from renewable sources by 2025; 50 percent, by 2030; 80 percent by 2040; and 100 percent clean energy by 2045, such that the state's goal is to eliminate coal-fired and natural gas-fired electric generation that currently provides approximately 80 percent of electric power produced in New Mexico; and

WHEREAS, any actions related to this resolution will align with SB 489, wherein implementing targets and goals shall not cause energy services to become unaffordable for Las Cruces residents, our businesses, or our industries; and

WHEREAS, the vision of Elevate commits to invest in the services, amenities, and economic environment that provide our residents with feasible options to live, work, and play in Las Cruces regardless of personal means or stage in life; and

WHEREAS, Elevate states a vision wherein Las Cruces believes in balanced development through sustainable growth practices where smart investment in new development enhances long-term economic value through quality design and resource conservation; and

WHEREAS, Elevate states a vision wherein Las Cruces fosters economic prosperity by enhancing our economic competitiveness regionally, nationally, and globally while creating economic opportunities for all city residents and businesses; and

WHEREAS, according to the CAP, 17 percent of the 2018 citywide Las Cruces greenhouse gas (GHG) emissions inventory comes from residential buildings and a portion of that comes from the combustion of fossil fuels including natural gas. Natural gas complements renewable energy supplies in addition to supporting our community's energy diversity and affordability; and

WHEREAS, for 85 years, the City has owned and operated a natural gas utility that has provided affordable, safe, and reliable natural gas retail services to the residents and businesses of the city while employing more than 60 residents; and

WHEREAS, the City has a responsibility to its residents to ensure the natural gas lines, in which they have invested, are maintained to excellent safety standards and to build a resilient system that provides reliable gas service to the community and businesses on demand.

NOW, THEREFORE, Be it Resolved by the Governing Body of the City of Las Cruces:

(I)

THAT the City will invest in the transition of the natural gas line of business to a natural gas and energy resources line of business and will support Action CE-8.3.2. of the CAP which seeks to establish an energy transition plan and road map with milestones and strategies to determine the path to non-fossil-fuel dependent energy, implementation of efficient use of natural gas programs, and decarbonization of the system and investments over the next 30-years.

(II)

THAT the energy transition plan and road map will address retirement of the natural gas utility's debt while simultaneously acknowledging the requirement to finance the improvement, maintenance, and repair of its natural gas infrastructure for reliability, safety, and affordability in order to meet its obligations to our citizens and to make capital additions that facilitate the City's goal of reducing greenhouse gas emissions by 19 percent by 2030, and shall calculate the costs to the community of doing all of these things while ensuring energy cost equity to our citizens.

(III)

THAT the energy transition plan will provide for the education of citizens that prefer natural gas for home heating and cooking so as to inform these citizens about the environmental and financial impacts of converting their appliances to electricity.

(IV)

THAT the City is committed to reducing GHG emissions through smart innovation, new and modernized infrastructure, and advanced technologies that maintain reliable, resilient, sufficient, and affordable energy choices for our residents so that the natural gas utility shall take steps to use renewable natural gas (RNG) and hydrogen in its system to lower GHGs.

(V)

THAT the City will invest in energy efficiency programs, ensure energy affordability and access in our community, and commit to no actions on energy or prohibitions that will result in regressive cost shifting to low- and middle-income residents.

(VI)

THAT City staff is hereby authorized to do all deeds as necessary in the accomplishment of the herein above.

DONE AND APPROVED this 05 day of April 2021

APPROVED

Mayor

ATTEST:

City Clerk

Moved by: Yvonne Flores

Seconded by: Johana Bencomo

AYES Kasandra Gandara, Gabe Vasquez, Gill Sorg, Ken Miyagishima, Yvonne Flores, Tessa Abeyta-Stuve, Johana Bencomo

NAYS

LAS CRUCES UTILITIES

Sheet Number G-2021.1

Revision Approval Date: September 10, 2020

Effective Billing Date: October 1, 2020

LCUB Resolution Number 20-21-LCU011

NATURAL GAS

NATURAL GAS MAIN EXTENSION POLICY

APPLICABILITY

Natural gas main extensions necessary to any location within the City of Las Cruces (City) service area that Las Cruces Utilities (LCU) determines is economically feasible and does not cause an unreasonable incremental cost to existing customers. The design of this policy is based on the following objectives: 1.) Extension of natural gas service to customers in underserved areas, and 2.) Constructing total gas system distribution reliability and redundancy.

Standard Connection Allowance

To determine if a gas main extension from an existing distribution infrastructure is economically feasible, LCU will evaluate the Standard Connection Allowance (Standard Allowance) and the total cost of a specific gas main extension to an unserved area in the City's gas service area. The Standard Allowance is based on the expected 5-year base revenue stream from potential customers of a gas main expenditure that may be incurred for an "average" customer without significant adverse effect to existing customers. The Standard Allowance will be based on a system wide average consumption level of 80 dekatherms per year and rounded to \$1,400.00 and revised as cost of service gas rate charges are updated.

Gas Main Extension Assessment and Standard Allowance Administration

LCU will calculate the Cost of Gas Main Assessment per parcel based on the total project estimated cost and the number of parcels that will benefit from the gas main extension. At the discretion of LCU, the calculation of the Cost of Gas Main Assessment will be determined based on the units of parcels or service points (*Calculated Gas Main Extension Total Project Cost divided by the Number of parcels that benefit from gas main extension = the Cost of Gas Main Assessment*).

When the project has been accepted, LCU will notify all parcel property owners benefiting from the gas main extension. The date of this letter will serve as the Notification Date for purposes of the provisions below. The letter shall inform the parcel property owners that construction is complete and of the process for requesting connection, paying the assessment, and other provisions of this policy.

The Cost of Gas Main Assessment minus the Standard Allowance generally satisfies the Cost of Gas Main Assessment. In the event the Cost of Gas Main Extension project cost is less than the Standard Allowance, there will be no Remaining Assessment Balance.

Upon completion of the project, parcel property owners will be advised by letter of the availability of natural gas service and to contact the LCU Department's New Connections program within 3-months of the Notification Date.

Where gas main extension projects are impacted, or encounter external factors associated with existing property development constraints, and/or non-economic permitting construction requirements an additional process will be conducted to quantify the cost impact of noted constraints and/or restrictions.

Project scoping reports conducted for construction of a gas main extension from an existing gas distribution system will apply the Standard Allowance described above to the affected gas main extension cost per parcel to quantify the incremental excess cost per parcel. This excess cost per parcel is defined as the projects External Cost Balance (ECB), which is attributable to constraints and requirements.

A gas main project extending existing distribution infrastructure contributes to the total distribution system redundancy and reliability in parallel with extending gas availability in underserved areas where the ECB is deemed a system cost and not associated to the individual property parcels.

Developed Property

The parcel property owner will have 3-months after the notification date to contact LCU to finalize connection and receive gas service, in order to utilize the Standard Allowance. This does not include Connection Fees as outlined in the New Connection Charges Schedule of the LCU Gas Tariff. The connection charges and all applicable fees will be due at the time of connection.

- After 3-months from the Notification Date the Standard Allowance terminates and the parcel property owner will be required to pay the full Cost of Gas Main Assessment amount or elect the installment payment option.

Undeveloped Property

In the instance where there is an undeveloped parcel or parcels with no existing structure within developed areas benefiting from a gas main extension, the parcel property owner will have 10 years from the Notification Date to utilize the Standard Allowance. The utilization of the Standard Allowance will then be solely contingent on the parcel property owner connecting and receiving gas service within 3-months after a Certificate of Occupancy has been issued. This does not include Connection Fees as outlined in the New Connection Charges Schedule of the LCU Gas Tariff. The connection charges and all applicable fees will be due at the time of connection.

- A parcel property owner that elects to utilize the Standard Allowance before building on their undeveloped parcel will be required to pay the full amount of the Remaining Assessment Balance and will not have the installment payment option.

General Terms

For parcel property owners who agree to pay the assessment under the installment payment option, whether they are LCU's customer or not (in the case of renters/lessees), the monthly payment amount will be billed to the parcel property owner. Should the parcel property owner fail to pay all monies due, as herein provided, the City may exercise any or all of the following remedies: terminate all City utility service to the parcel property; file a municipal lien on the parcel property; and pursue in any other collection remedy available. In the event the parcel property owner sells or transfers ownership of the parcel property when there is an assessment balance due, the full unpaid balance is due on or before City utility service for the parcel property is transferred to a new customer. The "due on sale or transfer"

requirement also applies to foreclosure, deed in lieu of foreclosure, or short sales, and to probate or death transfers. The payment obligation due resides with the parcel property owner who agreed to the installment payment option until paid in full. No penalties will be assessed for early payment of the assessment amount.

This policy does not apply to newly constructed subdivisions as of the initial approval date of this tariff schedule.

Evaluation of Cost-of-Service Study
Addendum to Analysis of Las Cruces Utilities Natural Gas Rate Increase Report
Philip B. Simpson
September 9, 2021

My August 2, 2021 report examined the Revenue Requirements portion of the Cost of Service (COS) study, and noted on Page 23 that: “Analysis is ongoing, and in particular will focus on the Cost Allocation part of the COS. Initial investigation resulted in questions regarding apportionment methodology, which may be part of the reason Small Commercial rates increased more than other rates. An addendum is planned containing more analysis of the COS, and (potentially) other updates.”

This Addendum confirms that severe issues exist within the Cost-of-Service Allocation and Rate Design performed by NexGen Strategies, which may have resulted in the mis-allocation of rate increases and the disproportionate increases proposed for the Small Commercial rate class. Unfortunately, the magnitude of that mis-allocation is unknown because of a Rate Design completely disconnected from the previous Allocation calculations.

Process Overview

The Presentation titled City of Las Cruces Natural Gas Rate Proposal, April 2021, gave a brief overview of the Utility Rate Setting Process on slide 3, and correctly listed the phases as:

1. Revenue Requirement
2. Cost of Service Allocation
3. Rate Design

Most of the rest of the April Presentation focuses on Revenue Requirements, with two slides (12 and 13) giving a glimpse at phases 2 and 3 before presenting the “Proposed Rates – Full Cost” on slide 16.

Separately, a 34-page PDF file titled City of Las Cruces Utilities, Gas Utility Rate Review, was provided on the Las Cruces website that gave many more details about the Revenue Requirement, but very little, if any, information about the Allocation and Rate Design processes. A more complete version of The Cost-of-Service Study was provided to me as a large Excel file. This file provided an enormous amount of information, including multiple linked-together worksheets that were supposed to establish the final Rate Design.

Process Issues

Unfortunately, analysis of this Excel file revealed multiple serious issues. These issues are so egregious that, unless resolved, they invalidate the proposed Rate Design.

The two most significant problems are (1) an assumption that small and large customers have the same costs for meters, services, and billing, and (2) the final rates are pasted into the spreadsheet, without explanation or any connection to the calculations that must serve as the basis for Rate Design.

Cost Allocation Issue

Assuming that small and large customers have the same costs for meters and services is an extremely poor assumption, and that assumption can effectively subsidize large customers at the expense of small

commercial and residential users. The costs of meters are much higher for those handling hundreds of thousands of dekatherms per year than for meters handling much smaller amounts, and each very large customer also has higher service, support, and billing costs than a typical residential or small business account.

A weighting factor is normally used to take into account the different costs of meters, services, and billing customers of vastly different sizes. This COS study includes a mechanism to apply a weighting factor, but does not use it. The “service line length” provides an allocation factor that can be used as a weighting factor, by simply and appropriately listing a longer service line length for large versus small customers, but in this case an identical service line length of 50 feet is used for all customers¹. This is not appropriate, because, for example, the 2020 Billing Data worksheet shows that one customer, NMSU Co Gen 1, used 348,131 Dekatherms, for which it was billed \$987,177². The metering, billing, and service costs for that customer are likely to be significantly higher than for the average Small Commercial customer using 198 Dekatherms.

The New Mexico State University’s Center for Public Utilities course, Economics 572, Regulatory Policy & Industry Analysis: Water & Natural Gas, Fall 2019, used a weighting factor of 15 in one class example, and 25 in an exercise. The reasoning is that very large customers are assumed to have metering, service, and billing costs 15-25 times as large as small customers. This study’s assumption that those costs are the same for large and small customers is a very poor one, and as noted above, can have the effect of making small customers pay some of the expenses of large ones.

Unfortunately, the magnitude of that subsidy is impossible to determine because of the next problem, which is more disturbing.

Rate Design

The allocation of costs is a complex but rigorous and (normally) transparent process of linked calculations that proceeds from Revenue Requirements that establish the total costs that need to be recovered through customer rates, through Functionalization to describe where those costs came from, then Allocation to determine who should pay which costs, and finally Rate Design to define what each customer class should pay in terms of monthly Access Charges and Volume Charges.

After 24 worksheets and their calculations are linked together to provide a traceable, auditable trail of calculations that establish a transparent and reviewable record, those calculations are suddenly set aside and new values are pasted in to create the Rate Design.

In this case, Functionalization of costs occurs on Sch. 9 and Sch. 10, then Classification is done on Sch. 12, using Customer Allocators from Sch. 11, the Data worksheet, and the Revenue Requirements from Sch. 1, with all calculations linked together and progressing from one worksheet to another. However, the Proposed Rates on Sch. 13 are suddenly pasted in, without explanation, without any connection or linkage to any previous data or calculations.

¹ [“Las Cruces COS Model 02-01-2021.xls”, provided by Las Cruces Utilities by email. Assumed Length of Service Line \(feet\), Data worksheet, lines 16 and 17.](#)

² [“Las Cruces COS Model 02-01-2021.xls”, provided by Las Cruces Utilities by email. 2020 Billing Data worksheet.](#)

These pasted-in values eliminate any visibility into the justification for the chosen Access and Volume Charges, and violate the integrity of the entire process. The disproportionate increases to Small Commercial Customer rates are not defensible without an explanation of the rationale for the large rate increases.

This disconnect between the Allocation process and the Rate Design has a major impact on the Rate Design, because, for example, ignoring the Allocation calculations and using the pasted values more than doubled the costs recovered through monthly Access Charges. On Sch. 12 (lines 5 and 6) the fully linked and transparent calculations showed that a total amount of \$3,451,537 Access Charges should be recovered. However, the pasted-in Sch. 13 (line 39) Proposed Rate Revenue Access Charges total value is \$7,717,992 – more than double the Sch. 12 amount.

More than doubling the costs recovered through Access Charges, relative to the calculated Access Charges, seems totally unreasonable, and requires a strong justification. No justification has been offered in this case.

Adjustments to Rate Designs

When constructing a Rate Design, it is sometimes appropriate to adjust the rates that were calculated in the Allocation process. One common reason for adjusting rates is to comply with the principle of “Gradualism”, in order to avoid sudden increases in rates that can cause “rate shock”. This principle is sometimes invoked to justify changing the rates calculated in the Allocation process, for example when the calculations would indicate a large rate increase for one customer class, while another class rates would decrease. In those cases, a compromise is often selected whereby no rate class sees more than some percentage value, to “spread the pain” more evenly.

However, if an such an adjustment to the calculated Rate Design is performed, it must be done transparently, in a way that maintains integrity, by showing the calculated rates and then adjusting them according to some rule or desired outcome. The approach taken in this study, of ignoring all previous calculations without explanation, is not an acceptable method of making an adjustment.

Conclusion and Recommendation

The New Mexico Public Regulation Commission (NM PRC) does not have jurisdiction over the rates charged by a municipal gas utility like Las Cruces Utilities. If it did, in my opinion, the NM PRC would not accept this disproportionate and opaque Rate Design, and the Las Cruces Utilities Board of Commissioners and the Las Cruces City Council should not accept it either.

My recommendation is that NextGen Strategies (or another contractor) be directed to re-accomplish this COS study, with appropriate weighting factors for large and small meter, service, and billing costs, and with all calculations justifiable and visible for examination. My August 2nd report recommended natural gas rate increases be put on hold, and also that several types of costs be removed. Once the utilities transition plan and roadmap has been defined, and future operating costs are better understood, a revised study must incorporate both the new revenue requirements and proper allocation methodology and transparent calculations.

Gas Line Extension Policy Implementation and Talavera Project Example

Talavera Project Customer Assumptions ⁽¹⁾	Project Cost	Assumed # Customers	Cost Paid by Each New Customer	Actual Cost per New Customer	Total Paid by New Customers	Amount Subsidized by Existing Customers ⁽²⁾	Percentage Subsidized by Existing Customers ⁽²⁾
Assume All Parcels Connect	\$ 5,778,899	960	\$ 4,620	\$ 6,020	\$ 4,435,200	\$ 1,344,000	23%
Assume All "Interested" Parcels Connect	\$ 5,778,899	419	\$ 4,620	\$ 13,792	\$ 1,935,780	\$ 3,843,251	67%
Assume 1/2 "Interested" Parcels Connect	\$ 5,778,899	210	\$ 4,620	\$ 27,519	\$ 970,200	\$ 4,808,765	83%
Assume 1/4 "Interested" Parcels Connect	\$ 5,778,899	105	\$ 4,620	\$ 55,037	\$ 485,100	\$ 5,293,832	92%
Parcels Connected or Paid (after knowing cost)	\$ 5,778,899	19	\$ 4,620	\$ 304,153	\$ 87,780	\$ 5,691,125	98%
(1) Talavera gas extension cost, # of Interested Customers, Cost per New Customer, and Customers Connected or Paid (as of 5/26/2021) from IPRA #21-547.							
(2) Includes Standard Connection Allowance of \$1400, the estimated 5 year average gas gross revenue per customer, provided as a discount to new customers.							
Additional information is in "Analysis of Las Cruces Utilities Natural Gas Rate Increase", August 2, 2021							

The table above illustrates how the implementation of the Gas Main Line Extension Policy results in existing customers subsidizing new ones. This issue is also discussed in my report titled “Analysis of Las Cruces Utilities Natural Gas Rate Increase”, Section VII, page 16.

The Las Cruces Utility’s Response to the August 2nd Report says that “the majority of the Talavera extension costs are related to a phased extension of the high-pressure line”, implying that serving new customers is just a fringe benefit, and that the report’s analysis of costs was in error. But the Las Cruces Utility’s numbers in Exhibit B of their Response confirms that the numbers and calculated costs for existing customers used in the August 2nd Report and shown in the table above are correct.

Note that the interested customers are those who responded to a survey which stated: “The Natural Gas Main Extension Policy (Extension Policy) provides property owners who are actively interested in connecting to natural gas service an incentive that waives the gas main extension cost developed for your neighborhood.” This probably led many customers to believe that gas service would be free, and may help explain why so few (19) have connected as of May 2021. Note that even if all the customers who expressed an interest in gas service did connect (419 customers), the current customers would still pay 67% of the Talavera project cost.