

May 31, 2022

Ms. Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120-0093

Re: Annual Resource Planning Report (ARPR)
Docket: M-2022-3030280

Dear Secretary:

Enclosed is a copy of the National Fuel Gas Distribution Corporation (NFGDC) submittal of the Annual Resource Planning Report (ARPR) pursuant to Title 52, Pennsylvania Code § 59.81 through § 59.84.

In accordance with the Emergency Order at Docket #M-2020-3019262 issued on March 20, 2020, this Report is being filed electronically. No additional paper copies will be sent.

General inquires concerning this submission and specific questions regarding FORM-IRP-GAS-1A should be made to Sofia Cruz at (716) 857-7174.

Specific questions concerning FORMs-IRP-GAS-2A-Table 1, 2A-Table 2, 2B and 2C should be made to Nick Pasquarella at (716) 857-7010.

Definitive inquiries pertaining to FORMs-IRP-GAS-5, 6, 7, 8 or 9 should be directed to Michelle Kosko at (814) 871-8140.

Sincerely,

Sofia Cruz
Director-Market Planning
Rates & Regulatory Affairs

Enclosures

cc: Office of Consumer Advocate
Office of Small Business Advocate
Bureau of Investigation and Enforcement

Form-IRP-GAS-1A: Annual Gas Demand Requirements
Reporting Utility: National Fuel Gas Distribution Corporation - Pennsylvania Division
(Volumes in MMcf)

Index Year: Actual Year:	Historical Data		Current Year	Three Year Forecast		
	-2 2020	-1 2021	0 2022	1 2023	2 2024	3 2025
Firm Sales:						
Retail Residential	16,107	16,297	18,823	19,003	19,197	19,146
Retail Commercial	2,909	2,952	3,032	3,337	3,439	3,526
Retail Industrial	263	252	252	272	273	272
Electric power generation	0	0	0	0	0	0
Exchange with other utilities	0	0	0	0	0	0
Unaccounted for Gas	97	(67)	33	34	34	34
Company Use	10	7	8	8	8	8
Other (Off-system)	0	0				
Subtotal Firm Sales	19,386	19,441	22,149	22,654	22,952	22,986
Interruptible Sales:						
Retail	0	0	0	0	0	0
Electric power generation	0	0	0	0	0	0
Company's Own Plant	0	0	0	0	0	0
Subtotal Interruptible	0	0	0	0	0	0
Subtotal Firm and Interruptible Sales:	19,386	19,441	22,149	22,654	22,952	22,986
Transportation:						
Firm Residential	2,412	1,956	2,063	1,914	1,930	1,922
Firm Commercial	6,201	6,342	7,286	7,130	7,234	7,243
Firm Industrial	16,029	17,812	17,748	17,419	17,434	17,760
Interruptible Residential	0	0	0	0	0	0
Interruptible Commercial	0	0	0	0	0	0
Interruptible Industrial	0	0	0	0	0	0
Electric power generation	0	0	0	0	0	0
Subtotal Transportation	24,643	26,110	27,097	26,463	26,598	26,924
Total Gas Requirements	44,029	45,551	49,246	49,117	49,549	49,911
Increase (Decrease)		1,523	3,695	(130)	433	361
Percent Change (%)		3.5%	8.1%	-0.3%	0.9%	0.7%

FORM-IRP-GAS-1B: PEAK DAY REQUIREMENTS
 REPORTING UTILITY: National Fuel Gas Distribution Corporation - Pennsylvania Division
 (volumes in Mmcf)

Index Year: Actual Year:	Historical Data		Current Year	Three Year Forecast		
	-2 2020	-1 2021	0 2022	1 2023	2 2024	3 2025
Firm Sales						
Retail Residential	137.800	137.100	219.648	220.260	222.362	221.863
Retail Commercial	26.200	24.800	34.484	35.190	36.266	37.218
Retail Industrial	2.300	2.000	2.288	2.461	2.504	2.504
Electric Power Generation Exchanges with Other Utilities Unaccounted for Gas			0.385	0.388	0.392	0.393
Company Use			0.056	0.056	0.056	0.056
Other						
Subtotal Firm Sales	166.300	163.900	256.861	258.355	261.580	262.034
Interruptible Sales						
Retail						
Electric Power Generation						
Company's Own Plant						
Subtotal Interruptible Sales	0.000	0.000	0.000	0.000	0.000	0.000
SUBTOTAL FIRM AND INTERRUPTIBLE SALES:	166.300	163.900	256.861	258.355	261.580	262.034
Transportation						
Firm Residential	19.200	14.500	30.033	30.729	31.067	31.581
Firm Commercial	43.200	40.300	71.247	71.837	71.659	71.806
Firm Industrial	70.100	63.100	86.505	87.144	87.273	87.484
Interruptible Residential						
Interruptible Commercial						
Interruptible Industrial						
Electric Power Generation						
Subtotal Transportation	132.500	117.900	187.785	189.710	189.999	190.871
TOTAL GAS REQUIREMENTS	298.800	281.800	444.646	448.065	451.579	452.905
Increase (Decrease)		(17.000)	162.846	3.419	3.514	1.326
Percent Change (%)		-5.69%	57.79%	0.77%	0.78%	0.29%

Form-IRP-GAS-2C: Natural Gas Storage
 Reporting Utility: National Fuel Gas Distribution Corporation - Pennsylvania Division
 (Volumes in MMcf)

Index Year Actual Year	Historical Data				Current Year		Three Year Forecast					
	-2 2020		-1 2021		0 2022		1 2023		2 2024		3 2025	
	Annual	Peak	Annual	Peak	Annual	Peak	Annual	Peak	Annual	Peak	Annual	Peak
Storage Contracts (List): ¹												
1. NFGSC (ESS 1)	5,933.3	76.8	5,973.8	54.0	6,077.1	109.1	6,077.1	110.4	6,077.1	113.6	6,077.1	114.1
2. NFGSC (FSS)	45.3	9.0	153.9	9.5	147.4	10.2	147.8	10.2	147.8	10.2	147.8	10.2
3. NFGSC (FSS 2)	-	-	292.4	12.4	481.2	13.3	481.3	13.3	481.3	13.3	481.3	13.3
4. Columbia (FSS)	407.3	16.0	405.1	4.7	365.6	17.6	403.3	17.6	403.3	17.6	440.9	17.6
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total	6,385.9	101.8	6,825.3	80.6	7,071.3	150.2	7,109.5	151.5	7,109.5	154.7	7,147.1	155.2

¹ Rank contracts in order of magnitude for the current year. Reporting should proceed along rank ordering until 75% of total contract supplies is accounted for, or until ten contracts have been listed, whichever occurs first. Provide a separate sheet identifying the supplier for each contract listed. (Note: rank ordered based on MDQ).

FORM-IRP-GAS-3: NUMBER OF CUSTOMERS (YEAR END)
 REPORTING UTILITY: National Fuel Gas Distribution Corporation - Pennsylvania Division

	Historical Data		Current Year	Three Year Forecast			
	Index Year: Actual Year:	-2 2020	-1 2021	0 2022	1 2023	2 2024	3 2025
Sales Service:							
Retail Residential		174,203	178,806	182,506	183,083	183,407	183,730
Retail Commercial		11,289	11,455	11,733	11,840	11,941	12,048
Retail Industrial		176	172	177	177	177	177
Other							
Subtotal Sales Service		185,668	190,433	194,416	195,100	195,525	195,955
Electric Power Generation							
Transportation Service		27,598	23,350	22,448	22,194	22,200	22,200
CUSTOMER TOTAL		213,266	213,783	216,864	217,294	217,724	218,154
Increase (Decrease)			516	3,081	430	430	430
Percent Change (%)			0.2%	1.4%	0.2%	0.2%	0.2%

FORM-IRP-GAS-4A: ANNUAL SUPPLY AND REQUIREMENTS SUMMARY
 REPORTING UTILITY: National Fuel Gas Distribution Corporation - Pennsylvania Division
 (volumes in MMcf)

	Historical Data		Current Year	Three Year Forecast			
	Index Year: Actual Year:	-2 2020	-1 2021	0 2022	1 2023	2 2024	3 2025
Gas Supply:							
Supply Contracts		15,693	15,702	22,149	22,654	22,951	22,987
Spot Purchases		3,693	3,739				
Subtotal Gas Supply		19,386	19,441	22,149	22,654	22,951	22,987
Transportation		24,643	26,110	27,097	26,463	26,598	26,924
TOTAL GAS SUPPLY		44,029	45,551	49,246	49,117	49,549	49,911
Requirements:							
Firm Requirements		19,386	19,441	22,149	22,654	22,952	22,986
Interruptible Requirements							
Subtotal Firm & Interruptible		19,386	19,441	22,149	22,654	22,952	22,986
Transportation		24,643	26,110	27,097	26,463	26,598	26,924
Load Reductions		-	-	-	-	-	-
TOTAL GAS REQUIREMENTS		44,029	45,551	49,246	49,117	49,549	49,911
Surplus (Deficiency)		-	-	-	-	-	-

FORM-IRP-GAS-4B: PEAK DAY SUPPLY AND REQUIREMENTS SUMMARY
 REPORTING UTILITY: National Fuel Gas Distribution Corporation - Pennsylvania Division
 (volumes in MMcf)

	Historical Data		Current Year	Three Year Forecast			
	Index Year: Actual Year:	-2 2020	-1 2021	0 2022	1 2023	2 2024	3 2025
Gas Supply:							
Supply Contracts		166.300	163.900	256.900	258.400	261.600	262.000
Spot Purchases		0.000	0.000	0.000	0.000	0.000	0.000
Subtotal Gas Supply		166.300	163.900	256.900	258.400	261.600	262.000
Transportation		132.500	117.900	187.800	189.700	190.000	190.900
TOTAL GAS SUPPLY		298.800	281.800	444.700	448.100	451.600	452.900
Requirements:							
Firm Requirements		166.300	163.900	256.861	258.355	261.580	262.034
Interruptible Requirements		0.000	0.000	0.000	0.000	0.000	0.000
Subtotal Firm & Interruptible		166.300	163.900	256.861	258.355	261.580	262.034
Transportation		132.500	117.900	187.785	189.710	189.999	190.871
Load Reductions		0.000	0.000	0.000	0.000	0.000	0.000
TOTAL GAS REQUIREMENTS		298.800	281.800	444.646	448.065	451.579	452.905
Surplus (Deficiency)		0.000	0.000	0.054	0.035	0.021	(0.005)

FORM IRP - GAS - 5 - PROGRAM DESCRIPTION

COMPANY: NATIONAL FUEL GAS DISTRIBUTION CORPORATION 2021

CONTACT: MICHELLE KOSKO (814) 871-8140

PROGRAM: RESIDENTIAL HEAT SURVEYS

EXISTING

PROPOSED

OBJECTIVE:

To promote conservation measures and practices for residences containing four units or less and to respond to inquiries concerning heating systems, to assist in resolving high bill inquiries and to provide appropriate information for customers to evaluate conversion to natural gas from an alternate fuel.

2021 Goals - 10 Residential Heat Surveys, Air Conditioning Surveys, High Bill Inquiries and Conversions (all at customer request)

2022 Goals – 9 Residential Heat Surveys

DETAILS OF ACTIVITY AND IMPLEMENTATION SCHEDULE:

Provided 7 Residential Heat Surveys in 2021. Customer requirements determined the course of action which could include: an evaluation of the heating/cooling equipment and distribution system; insulation and ventilation; water heating; storm windows and doors; and calibrating some equipment. Customers are notified verbally and in writing of the findings and recommendations. Similar action is taken on high bill inquiries (4 in 2021) after obtaining a two-year history printout. An education session highlighting actions, which impact on energy reduction, is provided to each customer. All activities are performed free of charge to the requesting customer.

ACTUAL AND/OR ANTICIPATED RESULTS:

YEAR	<u>PEAK LOAD</u>	ELECTRIC MWH	<u>ENERGY SAVINGS</u>		
	REDUCTION KW		GAS MCF	OIL GALLONS	OTHER RESULTS
2021		N/A	N/A	N/A	
2022		N/A	N/A	N/A	

(Activity and savings are dependent on action taken by program recipient.)

MONETARY AND PERSONNEL RESOURCES:

YEAR	<u>PERSONNEL</u>		<u>CATEGORIZED PROGRAM EXPENSES</u>			
	ESTIMATED MANHOURS	LABOR	TRANSP	SERVICES	OTHER	TOTAL
2021	35	\$ 938	\$ 85	\$ 0	\$ 41	\$ 1,064
2022	45	\$ 1,224	\$ 87	\$ 0	\$ 42	\$ 1,353

FORM IRP - GAS - 5 - PROGRAM DESCRIPTION

COMPANY: NATIONAL FUEL GAS DISTRIBUTION CORPORATION - 2021

CONTACT: MICHELLE KOSKO (814) 871-8140

PROGRAM: COMMERCIAL HEAT SURVEYS

EXISTING

PROPOSED

OBJECTIVE:

To evaluate the heating system at a commercial establishment and to advise and educate the customer concerning conservation measures and practices for energy savings.

2021 Goal - 6

2022 Goal - 6

DETAILS OF ACTIVITY AND IMPLEMENTATION SCHEDULE:

Provided 2 Commercial Heat Surveys in 2021. A written report containing the results of an evaluation of the establishment is presented to the customer. This may include insulation, boiler or furnace performance, heat and cooling distribution systems, a fuel analysis for conversion from alternate fuels, modifications to correct comfort problems and energy savings recommendations. Work patterns and schedules are discussed to determine if changes here will have an impact on energy usage. There is no charge for the service, which is based on customer request.

ACTUAL AND/OR ANTICIPATED RESULTS:

<u>YEAR</u>	<u>PEAK LOAD</u>	<u>ELECTRIC</u>	<u>GAS</u>	<u>ENERGY SAVINGS</u>		<u>OTHER</u>
	<u>REDUCTION</u>			<u>OIL</u>	<u>RESULTS</u>	
	<u>KW</u>	<u>MWH</u>	<u>MCF</u>	<u>GALLONS</u>		
2021			N/A			
2022			N/A			

(Activity and savings are dependent on actions taken by program recipient.)

MONETARY AND PERSONNEL RESOURCES:

<u>YEAR</u>	<u>PERSONNEL</u>		<u>CATEGORIZED PROGRAM EXPENSES</u>			
	<u>ESTIMATED</u>	<u>LABOR</u>	<u>TRANSP</u>	<u>SERVICES</u>	<u>OTHER</u>	<u>TOTAL</u>
	<u>MANHOURS</u>					
2021	9	\$ 268	\$ 85	\$0	\$41	\$ 394
2022	27	\$ 816	\$ 87	\$0	\$42	\$ 945

FORM IRP - GAS - 5 - PROGRAM DESCRIPTION

COMPANY: NATIONAL FUEL GAS DISTRIBUTION CORPORATION 2021

CONTACT: MICHELLE KOSKO (814) 871-8140

PROGRAM: ENERGY CONSERVATION SURVEYS (ECS)

EXISTING

PROPOSED

OBJECTIVE:

To perform free Energy Surveys for customers who demonstrate ability - to - pay problems and determine if the customers are eligible for LIURP.

2021 Goal - 251

2022 Goal - 225

(Per customer request when payment arrangements are made.)

DETAILS OF ACTIVITY AND IMPLEMENTATION SCHEDULE:

A National Fuel conservation representative will identify procedures and measures, which will impact energy savings and comfort. Items discussed could include attic, wall and basement insulation, caulking and weather-stripping, heating and ventilation, comfort zone and behavior changes in lifestyle, which may significantly impact energy usage. A site specific report identifying deficiencies or actions to be taken is provided at each surveyed residence. Recipients of ECS, are often customers who have ability-to-pay problems. Many of these customers are also referred to the Low Income Usage Reduction Program for further services. Due to the COVID 19 Pandemic, there were only 3 surveys completed in 2021 which is a significant reduction from prior years.

ACTUAL AND/OR ANTICIPATED RESULTS:

<u>YEAR</u>	<u>PEAK LOAD</u>	<u>ENERGY SAVINGS</u>			
	<u>REDUCTION</u> <u>KW</u>	<u>ELECTRIC</u> <u>MWH</u>	<u>GAS</u> <u>MCF</u>	<u>OIL</u> <u>GALLONS</u>	<u>OTHER</u> <u>RESULTS</u>
2021			N/A		
2022			N/A		

(Savings are dependent upon actions taken by a survey recipient.)

MONETARY AND PERSONNEL RESOURCES:

<u>YEAR</u>	<u>PERSONNEL</u>		<u>CATEGORIZED PROGRAM EXPENSES</u>			
	<u>ESTIMATED</u> <u>MANHOURS</u>	<u>LABOR</u>	<u>TRANS</u>	<u>SERVICES</u>	<u>OTHER</u>	<u>TOTAL</u>
2021	14	\$ 402	\$ 85	\$ 0	\$ 41	\$ 528
2022	1,013	\$ 30,600	\$ 87	\$ 0	\$ 42	\$30,729

FORM IRP - GAS - 5 - PROGRAM DESCRIPTION

COMPANY: NATIONAL FUEL GAS DISTRIBUTION CORPORATION - 2021

CONTACT: MICHELLE KOSKO (814) 871-8140

PROGRAM: LOW INCOME USAGE REDUCTION PROGRAM (LIURP)

EXISTING

PROPOSED

OBJECTIVE:

To reduce the energy usage of qualifying low-income customers through weatherization and education, reduction of uncollectible accounts, collection and termination expenses of National Fuel as mandated by the PUC.

2021 Goal - 291 Homes

2022 Goal - 344 Homes

DETAILS OF ACTIVITY AND IMPLEMENTATION SCHEDULE:

Households, which qualify by having high consumption, high arrearage and income at or below the 200%, Federal Poverty Guidelines will be considered for LIURP. There were 94 households that received full services, which include a furnace safety check, a clean and tune, an energy audit, education sessions, weatherization measures, infiltration measures and in approximately 25% of the jobs, a post inspection by a National Fuel Representative. Major measures installed allow for a targeted goal of a twelve-year payback that may include attic insulation, wall insulation and furnace and/or water heater replacement. The average expenditure per household was \$5,779 for the 94 houses that received full services in 2021. There were 11 furnaces/boilers and 9 water heaters replaced for those who received weatherization measures. An additional 1 customer received partial services. National Fuel's Emergency Repair/Replacement Program provides repair or replacement of defective heating systems or water heaters for customers at or below the 200% of poverty guidelines and who are not eligible for weatherization under LIURP. In 2021, National Fuel repaired 10 furnaces/boilers, replaced 39 furnaces/boilers, and replaced 47 water heaters.

ACTUAL AND/OR ANTICIPATED RESULTS:

<u>YEAR</u>	<u>PEAK LOAD</u>	<u>ENERGY SAVINGS</u>			
	<u>REDUCTION</u> <u>KW</u>	<u>ELECTRIC</u> <u>MWH</u>	<u>GAS</u> <u>MCF</u>	<u>OIL</u> <u>GALLONS</u>	<u>OTHER</u> <u>RESULTS</u>
2021			2,388		
2022			8,738 (EST)		

MONETARY AND PERSONNEL RESOURCES:

<u>YEAR</u>	<u>PERSONNEL</u>		<u>CATEGORIZED PROGRAM EXPENSES</u>			
	<u>ESTIMATED</u> <u>MANHOURS</u>	<u>LABOR COST</u>	<u>TRANSP</u>	<u>SERVICES</u>	<u>OTHER</u>	<u>TOTAL</u>
2021	3,328	\$131,888	\$ 1,247	\$ 839,489	\$ 345	\$ 972,968
2022	3,328	\$111,781	\$ 1,247	\$2,822,652	\$ 416	\$2,936,096

FORM IRP - GAS - 6 - ENERGY USERS

COMPANY: NATIONAL FUEL GAS DISTRIBUTION CORPORATION – 2021

<u>ENERGY USERS</u>	<u>NUMBER OF CUSTOMERS</u> <u>(YEAR-END)</u>	<u>ANNUAL ENERGY CONSUMPTION*</u> <u>MCF</u>	CONSERVATION IMPACT (MW REDUCTION OF MCF SAVINGS)	
			<u>TARGET</u>	<u>ACTUAL</u>
RESIDENTIAL HEAT & NON HEATING	197,092	18,401,962.2		
COMMERCIAL	14,923	7,093,820.9		
INDUSTRIAL	594	18,087,273.4		
PUBLIC AUTHORITY	1,197	2,212,273.0		
RAILROADS				
RESALE INTERRUPTIBLE				
INTERDEPARTMENTAL				
TRANSPORTATION	23,352*			
TOTALS	213,806	45,795,329.5		

* These accounts are already included in the numbers above and the totals.

OTHER CONSERVATION ACTIVITIES

OUTREACH AND EDUCATION

Program expenses: None

Presentations are offered yearly to diverse agencies throughout the National Fuel 14 county territory. This presentation details the National Fuel Gas Universal Service programs offered, which includes weatherization and conservation measures. Our Universal Services Advisory Committee meets twice a year obtaining feedback from various agencies and community partner to improve our current Programs. Our goal is to outreach to various agency staff, increasing their awareness of NFG's Universal Service programs which will increase referrals and assistance to our customers.

Contact person: Michelle Kosko
Koskom@natfuel.com
(814) 871-8140

OUTREACH AND EDUCATION

Program expenses: None

Presentations are offered yearly to diverse agencies throughout the National Fuel 14 county territory. This presentation details the National Fuel Gas Universal Service programs offered, which includes weatherization and conservation measures. Our Universal Services Advisory Committee meets twice a year obtaining feedback from various agencies and community partner to improve our current Programs. Our goal is to outreach to various agency staff, increasing their awareness of NFG's Universal Service programs which will increase referrals and assistance to our customers.

Contact person: Michelle Kosko
Koskom@natfuel.com
(814) 871-8140

FORM IRP - GAS - 7 - PROGRAM SUMMARY
2021 EXISTING

COMPANY: NATIONAL FUEL GAS DISTRIBUTION
CONTACT: Michelle Kosko (814) 871-8140

CATERGORIZED PROGRAM EXPENSES

<u>PROGRAM NAME</u>	<u>PEAK LOAD REDUCTION</u>	<u>ENERGY USE CHANGE MCF</u>	<u>ALLOCATED MANHOURS</u>	<u>LABOR</u>	<u>TRANS/TOOLS</u>	<u>SERVICES</u>	<u>OTHER</u>	<u>TOTAL</u>
ECS	N/A	N/A	14	\$402	\$85	\$0	\$41	\$528
RESIDENTIAL HEAT SURVEY	N/A	N/A	35	\$938	\$85	\$0	\$41	\$1,064
COMMERCIAL HEAT SURVEY	N/A	N/A	9	\$268	\$85	\$0	\$41	\$394
LIURP	N/A	2,388	3,328	\$131,888	\$1,247	\$839,489	\$345	\$972,968
TOTALS	N/A	2,388	3,386	\$133,496	\$1,502	\$839,489	\$468	\$974,954

FORM IRP - GAS - 7 - PROGRAM SUMMARY
2022 EXISTING AND PROPOSED

COMPANY: NATIONAL FUEL GAS DISTRIBUTION
CONTACT: Michelle Kosko (814) 871-8140

<u>PROGRAM NAME</u>	<u>PEAK LOAD REDUCTION</u>	<u>ENERGY USE CHANGE MCF</u>	<u>ALLOCATED MANHOURS</u>	<u>CATERGORIZED PROGRAM EXPENSES</u>				
				<u>LABOR</u>	<u>TRANS/TOOLS</u>	<u>SERVICES</u>	<u>OTHER</u>	<u>TOTAL</u>
ECS	N/A	N/A	1,013	\$30,600	\$87	\$0	\$42	\$30,729
RESIDENTIAL HEAT SURVEY	N/A	N/A	45	\$1,224	\$87	\$0	\$42	\$1,353
COMMERCIAL HEAT SURVEY	N/A	N/A	27	\$816	\$87	\$0	\$42	\$945
LIURP	N/A	8,738 (Est)	3,328	\$111,781	\$1,247	\$2,822,652	\$416	\$2,936,096
TOTALS	N/A	8,738 (Est)	4,413	\$144,421	\$1,508	\$2,822,652	\$542	\$2,969,123

FORM IRP - GAS - 8 - BENEFIT ANALYSIS INPUTS 2021

COMPANY: NATIONAL FUEL GAS DISTRIBUTION CORPORATION

PROGRAM: LIURP

YEAR	Energy Savings (E) MCF	Average Energy Costs (ACE) \$ PER/MCF	Avoided Energy Costs (MCE) \$PER/MCF	Participant Demand Savings (D) KW	Utility Capacity Savings (G) \$/KW	Average Demand Costs (ACD) \$/KW	Avoided Demand Costs (MCD) \$/KW	Participant Costs (PC) \$	Tax Credits (TC) \$
2021	2,388	8.70	4.50	N/A	N/A	N/A	N/A	0	0

Incentive Cost (1) \$	Utility Costs (UC) \$	Participants (D) %	Non-Participant (D) %	Utility (D) %	Escalation Rate _____ %	System Sales or Demand (S) MCF	Sales or Demand Ratio (F) %	Uncollectible Accounts Reduction (UA) \$
0	972,968	*	*	*	4	18,401,962	0	0

FORM IRP - GAS - 9 - COST BENEFIT ANALYSIS RESULTS 2021

COMPANY: NATIONAL FUEL GAS DISTRIBUTION CORPORATION

PROGRAM: LIURP

Period of Analysis		Total Utility Benefits	Total Utility Costs	Revenue Reduction Cost	Participant Revenue Requirement	Total Participant Benefits	Total Participant Costs	Total All Ratepayers Benefits	Total All Ratepayers Costs
Beginning Year	Ending Year	(Bu)	(Cu)	(Cr)	(Rp)	(Bp)	(Cp)	(Ba)	(Ca)
		\$	\$	\$	\$	\$	\$	\$	\$
1/1/2021	12/31/2021	10,744	972,968	20,772	0	20,772	10,744	10,744	972,968

Discounted Payback Period	Net Present Value				Benefit-Cost Ratio				Rate Impact
	Participant (NPVp)	Non-Participant (NPVnp)	Utility (NPVu)	Ratepayers (NPVa)	Participant (BCR_p)	Non-Participant (BCRnp)	Utility (BCR_u)	Ratepayer (BCR_a)	Non-Participant (RIMnp)
	\$	\$	\$	\$		\$			\$Per MCF
	20,772	982,996	962,224	962,224	N/A	0.011	0.011	0.011	0.053