VERIFIED DIRECT TESTIMONY OF MELISSA BARTOS

Q1. Please state your name, business address and title.

A1. My name is Melissa Bartos. My business address is 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752. I am a Senior Vice President at Concentric Energy Advisors ("Concentric").

Q2. On whose behalf are you submitting this direct testimony?

A2. I am submitting this testimony on behalf of Northern Indiana Public Service Company LLC ("NIPSCO" or the "Company").

Q3. Please describe your educational and employment background.

A3. I received a Bachelor of Arts in Mathematics and Psychology with a concentration in Computer Science in 1998 from the College of the Holy Cross in Worcester, Massachusetts. I received a Master of Science degree in Mathematics with a concentration in Statistics in 2003 from the University of Massachusetts at Lowell. My entire career has been in energy consulting. I began my career with Reed Consulting Group, which was later purchased and merged into Navigant Consulting, Inc. I joined

what is now Concentric Energy Advisors in 2002. Both firms specialize in consulting for the energy industry.

Q4. What are your responsibilities as a Senior Vice President at Concentric?

A4. In my current position as a Senior Vice President at Concentric, I am responsible for the execution of numerous projects related to the energy industry. I specialize in demand forecasting, rates and regulatory issues and market analysis. My resume is attached as Attachment 15-A.

Q5. Have you previously testified before the Indiana Utility Regulatory Commission (the "Commission") or any other regulatory commission?

A5. Yes. I testified before the Commission in NIPSCO's most recent electric rate case in Cause No. 45772, as well as NIPSCO's last two gas rate cases in Cause Nos. 45621 and 45967. I have also testified before several other state, federal, and Canadian provincial regulatory agencies on dozens of occasions. My testimony list is attached as Attachment 15-B.

Q6. Are you sponsoring any attachments to your direct testimony in this Cause?

A6. Yes. I am sponsoring Attachments 15-A through Attachment 15-C, all of which were prepared by me or under my direction and supervision.

Q7. What is the purpose of your direct testimony?

A7. The purpose of my direct testimony is to explain how Historic Base Period (January 1, 2023 through December 31, 2023) kilowatt hours ("kWh") are normalized for weather. I also explain the methodology used to develop the forecasted number of customers and usage for the Budget Period (January 1, 2024 through December 31, 2024) and the Forward Test Year (January 1, 2025 through December 31, 2025).

Weather Normalization of Historic Base Year kWh

Q8. Please explain the weather normalization methodology.

A8. NIPSCO used the same baseload/temperature-sensitive load normalization methodology that was used in its last three electric rate cases (Cause Nos. 45772, 45159 and 44688). At a high level, to determine Historic Base Period usage for cooling season temperature-sensitive residential and commercial classes, actual kWh per customer is separated into two categories: (1) base use and (2) temperature-sensitive. Monthly temperature-sensitive kWh per customer in each of the cooling season months is adjusted by the ratio of normal to actual cooling degree days ("CDD") by month to derive normal temperature-sensitive kWh per customer by month. The monthly normal temperature-sensitive kWh per

customer is added to the base kWh per customer to arrive at the normal kWh per customer. This value is multiplied by the customer count by month to produce monthly normal sales. All calculations are performed on a billing month basis and use billing month kWh sales, the average number of days in the billing cycle, and billing month CDD for the cooling season.

Q9. What is a CDD?

A9. A CDD is a unit of measure used to relate a day's temperature to the energy demands of air conditioning. CDD are calculated by subtracting a reference point temperature of 65°F from the day's average temperature. For example, if a day's average temperature was 80°F, CDD is calculated by subtracting 65°F from 80°F, which results in 15°F CDD for that day.

Q10. What data sources do you use for your calculations?

A10. I use the Company's billing records to obtain monthly customer counts and billed kWh sales for the residential and commercial classes for the Historic Base Period. To calculate CDD, I use temperatures from DTN, a weather consulting service which aggregates National Weather Service weather stations relevant to the Company's service territory. I rely on

temperature data from three weather stations (Valparaiso, South Bend, and Fort Wayne) due to the geographical dispersion of NIPSCO's customers. A weighted average CDD for the Company is calculated using the percent of residential customers assigned to each station as a weight for that station.

Q11. What is base usage and how is it determined?

A11. Base usage is the portion of usage that is not dependent on weather, i.e., not temperature-sensitive. Consistent with recent prior NIPSCO electric rate cases, I assume that there is no temperature sensitive usage in the month of May, therefore, all usage in May is base use and is not affected by the weather normalization process. In addition, the total kWh per customer per day (Total Use/Customer/Day) for May is all base use.

Q12. How are monthly sales in the remaining cooling season months normalized for weather?

A12. The base kWh per customer per day is multiplied by the number of days ((base use/customer/day)*days in billing cycle) to produce monthly base kWh per customer. Temperature-sensitive kWh per customer equals the total kWh per customer minus the base kWh per customer. The

temperature-sensitive kWh per customer is normalized for weather by multiplying it by a ratio of normal CDD to actual CDD. Normal kWh per customer is calculated by adding the base kWh per customer to the normal temperature-sensitive kWh per customer. Total monthly normalized usage is generated by multiplying monthly normal kWh per customer by the monthly customer count. This calculation for the Historic Base Period is prepared separately for residential and commercial customers in Rates 511 (revenue codes 1 and 3), 521 (revenue code 4 and 5), 523 (revenue code 4), 524 (revenue codes 4 and 5), and 526 (revenue code 4 and 5), and the results are presented in Attachment 15-C. For cooling season non-temperature-sensitive Rate 523 (revenue code 5), weather normalized usage is equal to actual usage, and results for these rates are also presented in Attachment 15-C.

Q13. Has the definition of normal weather changed from NIPSCO's last electric rate case?

A13. No. The historical average CDD are defined as the most recent 20-year history (i.e., 20 years ended December 31, 2023). The 20-year billing ending December 31, 2023 is 870 CDD on a billing period basis.

Q14. What are the results of NIPSCO's weather normalization?

A14. Actual CDD during the Historic Base Period cooling season were 23% lower than normal (i.e., the Historic Base Period was cooler than normal), so cooling season usage for the weather normalized rates was adjusted up by 6% to reflect normal weather. NIPSCO Witness Lash uses the weather normalized volumes to calculate pro-forma expense and revenue levels. Weather normalization results by rate class are shown in Attachment 15-C.

Demand Forecast Methodology for the Budget Period and Forward Test Year

A. Demand Forecast Methodology Overview

Q15. Please explain the methodology employed for developing the forecasted number of customers and volume for the Budget Period and Forward Test Year.

A15. Residential and commercial customers and energy use are forecasted by rate class using econometric models for most forecasts, while some forecasts are derived by holding recent historical data constant. Econometric modeling (or regression analysis) is a common technique used to forecast customer counts and energy use and involves studying the relationship between one variable, the dependent variable, and one or

more other variables, the independent or explanatory variables. One of the primary applications of regression analysis is to predict or forecast values of the dependent variable given forecasted values of the independent variables. Total industrial energy use is forecasted based on knowledge gained through relationships with large industrial customers.

Q16. What historical residential and commercial data do you use to develop the forecasts?

A16. I use the Company's billing records through February 2024 to obtain separate historical monthly customer counts and billed kWh for one residential rate class (Rate 511) and eight commercial rate classes (Rates 520, 521, 522, 523, 524, 526, 541, and 542). Historical billed kWh is divided by historical customer counts to produce monthly historical kWh per customer data for each rate class. The historical customer counts and kWh per customer are used as the dependent variables in the Rates 511, 521, 523, and 526 customer count and Rates 511, 520, 521, 522, 523, 524, and 526 kWh per customer econometric models (i.e., 11 models). Forecasts for the remaining classes are based on historical actual data.

Q17. What do you use for the independent variables in the econometric

models for the residential and commercial classes?

A17. Several sources are used to obtain data for the independent variables included in the econometric models. Historical and forecast values for economic and demographic variables (e.g., households and gross state product) are from IHS Global Insight, Inc., a data consultant. Historical weather data (CDD and heating degree days ("HDD")) is provided by DTN, a weather consulting service. IHS Global Insight, Inc., and DTN are large, independent data providers relied upon by the Company in previous rate cases, as well as relied upon by many other companies world-wide. The same 20-year average CDD ending December 31, 2023 described in the weather normalization process above is used as the CDD during forecast period, and the 20-year average HDD ending December 31, 2023 is used as the HDD during the forecast period.

Q18. What is an HDD?

A18. An HDD is a unit of measure used to relate a day's temperature to the energy demands of space heating. HDD are calculated by subtracting the day's average temperature from a reference point temperature of 65°F. For example, if a day's average temperature was 30°F, HDD is calculated by subtracting 30°F from 65°F, which results in 35°F HDD for that day.

B. Residential Customer Forecast

Q19. Please describe the residential customer forecast methodology for Rate 511.

A19. The residential customer forecast for Rate 511 is developed using a monthly econometric model based on the number of households in the counties in NIPSCO's electric service territory.

Q20. Please describe the residential kWh per customer forecast methodology for Rate 511.

A20. The residential kWh per customer forecast for Rate 511 is developed using a monthly econometric model that incorporates weather in the form of CDD for the cooling season months of the year (May – October) and HDD for the heating season months of the year (November – April) for the months in which weather significantly affects residential kWh per customer.

Q21. How is the forecast of monthly residential energy use determined?

A21. Monthly residential customer counts for Rate 511 are multiplied by monthly residential kWh per customer for Rate 511 to produce monthly residential energy use for Rate 511.

C. Commercial Customer Forecast

Q22. Please describe the commercial customer forecast methodology for Rates 520, 521, 522, 523, 524, 526, and 541.

A22. The commercial customer forecast for Rate 521 is developed using a monthly econometric model that incorporates real gross state product. The commercial customer forecast for Rate 523 is developed using a monthly econometric model that is based on a trend. The commercial customer forecast for Rate 526 is developed using a monthly econometric model that incorporates real gross state product. The commercial customer counts for Rates 520, 522, 524, and 541 are assumed to remain constant at recent historical levels.

Q23. Please describe the commercial kWh per customer forecast methodology for Rates 520, 521, 522, 523, 524, and 526.

A23. The commercial kWh per customer forecast for Rates 520 and 522 (heating rates) are developed using a monthly econometric model that incorporates weather in the form of HDD for all the months in which HDD significantly affects kWh per customer in these rates. The commercial kWh per customer forecast for Rates 521, 523, 524, and 526 are developed using a monthly econometric model that incorporates weather in the form

of CDD for the cooling season months of the year (May – October) and HDD for the heating season months of the year (November – April) for the months in which weather significantly affects kWh per customer.

Q24. How is the forecast of monthly commercial energy use determined?

A24. Monthly commercial customer counts for Rates 520, 521, 522, 523, 524, and 526 are multiplied by monthly commercial kWh per customer for Rates 520, 521, 522, 523, 524, and 526, respectively, to produce monthly commercial energy use for Rates 520, 521, 522, 523, 524, and 526. The monthly commercial energy use for Rates 541 and 542 are based on recent energy use.

D. Industrial Customer Forecast

Q25. Please describe the industrial customer forecast methodology.

A25. The industrial customer forecast is provided by NIPSCO's Major Accounts group. The Major Accounts group relies on individual interviews of the largest industrial customers to understand their upcoming plans and expected level of electric consumption. The Major Accounts group also relies on historical industrial consumption and industry trends to forecast industrial electric energy consumption.

E. Other Forecasts

Q26. How were forecasts for public authority customers, railroad customers, and company use determined?

A26. Public authority and railroad customer counts were assumed to remain consistent with recent levels. Public authority and railroad energy use was based on recent energy use. Company energy use was based on averages of recent energy use.

Q27. How was the forecast for streetlighting determined?

A27. The streetlighting customer count forecast for Rates 550 and 555 were assumed to remain consistent with recent levels. The streetlighting energy use forecast for Rates 550, 555, and 560 were based on recent energy use.

Q28. Does this conclude your prefiled direct testimony?

A28. Yes.

VERIFICATION

I, Melissa Bartos, Vice President, Concentric Energy Advisors, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information, and belief.

Melissa Bartos

Date: September 12, 2024

MELISSA F. BARTOS
SENIOR VICE PRESIDENT

Ms. Bartos is a financial and economic consultant with over 25 years of experience in the energy industry. In the last several years, she has focused on natural gas markets issues, including helping natural gas utilities navigate industry changes related to decarbonization policies, conducting comprehensive market assessments for various clients considering infrastructure investments, and developing detailed demand forecasts for several gas distribution companies. Ms. Bartos has also designed, built, and enhanced numerous financial and statistical models to support clients in asset-based transactions, energy contract negotiations, reliability studies, asset and business valuations, rate and regulatory matters, cost-of-service analysis, and risk management. Ms. Bartos has also provided expert testimony on multiple occasions regarding natural gas demand forecasting and supply planning issues, natural gas markets, and marginal cost studies.

REPRESENTATIVE PROJECT EXPERIENCE

Future of Natural Gas Industry

- Assisted the New York Joint LDCs with strategy and preparation of joint comments in the Gas Planning Proceeding (Case No. 20-G-0131), which seeks to evaluate the future role of New York's gas utilities in light of the state's climate goals.
- Collaborating with a Massachusetts LDC to develop utility-specific proposal for filing in a policy proceeding before the Massachusetts Department of Public Utilities related to the role of natural gas local distribution companies as the Commonwealth works to achieve its net-zero by 2050 climate goals (D.P.U. 20-80).
- Presented at a Northeast Gas Association conference regarding the impact of decarbonization activities on the natural gas industry in the Northeast.

Natural Gas Market Assessments

- Reviewed and evaluated long-term natural gas supply and demand, existing natural gas pricing dynamics, and future implications associated with new natural gas infrastructure in New England, New York, and New Jersey.
- Provided an analysis of the existing Gulf Coast natural gas market, the client's natural gas pipeline competitors, changing flows, and how those factors may affect transportation values to the client going forward.
- Prepared a comprehensive study examining the costs associated with improving natural gas pipeline access from western Canada and the eastern U.S. to Atlantic Canada.
- Produced a report on the benefits associated with incremental natural gas supplies delivered to New York City.

- Prepared an independent natural gas supply and pipeline transportation route assessment associated with natural gas for the client's proposed LNG export terminal.

Natural Gas Expansion

- Conducted a study that examined potential commercial and industrial conversions from oil-based fuels to natural gas in various east coast U.S. markets.
- Produced a report that identified growth potential in off-system stationary and mobile markets in the mid-west that could be served by compressed natural gas or liquefied natural gas.
- Performed an external audit and filed expert testimony associated with two natural gas utilities' hurdle rate/contribution in aid of construction calculations for new off main customers.
- Produced a report that identified and reviewed innovative cost model approaches that utilities and regulators are using across the U.S. that allow expansion of gas distributions systems to new communities.
- Assisted in developing a strategy to identify residential natural gas growth opportunities within the client's franchise area.
- Presented at two Northeast Gas Association conferences regarding "Regulatory Policy and Residential Main Extensions".

Demand Forecasting

- Filed expert testimony regarding the development of demand forecast models for use in determining future billing determinants as well as weather normalization in rate cases for several natural gas and electric utilities.
- Filed expert testimony regarding the development of demand forecast models and the evaluation of natural gas resource plans for several northeast gas utilities.
- Provided detailed due diligence analysis regarding expectations for utility-specific future gas demand in many different transactions involving the potential purchase of natural gas utilities.
- Provided litigation support regarding demand forecasting techniques with respect to certain natural gas pipeline and storage decisions for a mid-west gas utility.
- Reviewed demand forecasting practices and procedures and recommended certain changes to improve the methodology and accuracy of the forecast for a multi-state utility.
- For a mid-west gas utility, developed a natural gas demand forecast that was utilized for supply and capacity decisions.

Ratemaking and Utility Regulation

- Participated in the rate case of a large North American gas distribution company, which determined the client's five-year incentive regulation plan, including performing benchmarking and productivity analyses that were filed with the regulator.
- Developed a marginal cost study, including data collection, analysis and testimony development, in support of rate case filings for a number of New England utilities.

- Provided comprehensive analysis, drafted testimony and provided litigation support regarding the appropriate return on equity for a New England water utility, and for proposed wind and coal electric generation facility additions for a mid-west combination utility.
- Performed a detailed analysis of the components included in the client's lost and unaccounted for gas calculation.
- Conducted multiple natural gas portfolio asset optimization analyses to evaluate performance of the client's asset manager for regulatory purposes.
- On behalf of multiple New England gas companies, participated in the 2009 Avoided Energy Supply Cost Study Group (for New England), which worked with third-party consultants to develop the marginal energy supply costs that will be avoided due to reductions in the use of electricity, natural gas, and other fuels resulting from energy efficiency programs.
- Conducted a study to determine the cost of significantly reducing peak day natural gas demand for a northeast gas utility through energy efficiency, conservation and demand management measures. Project involved researching natural gas energy efficiency plans in multiple U.S. states and Canadian provinces, reviewing energy efficiency potential studies, and exploring geothermal, peak pricing and direct load control options.

PROFESSIONAL HISTORY

Concentric Energy Advisors, Inc. (2002 – Present)
Senior Vice President
Vice President
Assistant Vice President
Project Manager
Senior Consultant

Navigant Consulting, Inc. (1996 – 2002)
Senior Consultant

EDUCATION

University of Massachusetts at Lowell
M.S., Mathematics (Statistics), 2003

College of the Holy Cross
B.S., Mathematics and Psychology, *magna cum laude*, 1998

PROFESSIONAL ASSOCIATIONS

Member of the American Statistical Association

Member of the Northeast Energy and Commerce Association

Member of the Northeast Gas Association

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Connecticut Public Utilities Regulatory Authority				
Connecticut Natural Gas Corporation & Southern Connecticut Gas Company	2014	Connecticut Natural Gas Corporation & Southern Connecticut Gas Company	Docket No. 13-06-02	CIAC Hurdle Rate Calculation
Federal Energy Regulatory Commission				
PennEast Pipeline Company, LLC	2015	PennEast Pipeline Company, LLC	Docket No. CP15-558	Market Conditions/Need
PennEast Pipeline Company, LLC	2016	PennEast Pipeline Company, LLC	Docket No. CP15-558	Market Conditions/Need
Millennium Pipeline Company, LLC	2017	Millennium Pipeline Company, LLC	Docket No. CP16-486	Market Conditions/Need
Laclede Gas Company	2017	Spire STL Pipeline, LLC	Docket No. CP17-40	Market Conditions/Need
Spire Missouri Inc. (Laclede Gas Company)	2021	Spire STL Pipeline, LLC	Docket No. CP17-40	Market Conditions/Need
Indiana Utility Regulatory Commission				
Northern Indiana Public Service Company LLC (Gas)	2021	Northern Indiana Public Service Company LLC (Gas)	Cause # 45621	Weather Normalization; Demand Forecast
Northern Indiana Public Service Company LLC (Electric)	2022	Northern Indiana Public Service Company LLC (Electric)	Cause #45772	Weather Normalization Demand Forecast
Northern Indiana Public Service Company LLC (Gas)	2023	Northern Indiana Public Service Company LLC (Gas)	Cause #45967	Weather Normalization Demand Forecast
Kentucky Public Service Commission				
Columbia Gas of Kentucky, Inc.	2021	Columbia Gas of Kentucky, Inc.	Case No. 2021-00183	Demand Forecast
Maine Public Utilities Commission				
Northern Utilities, Inc.	2011	Northern Utilities	Docket No. 2011-526	Integrated Resource Plan; Demand Forecast
Versant Power	2022	Versant Power	Docket No. 2022-255	Econometric Sales Forecast
Versant Power	2024	Versant Power	Docket No. 2023-336	Econometric Sales Forecast

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Massachusetts Department of Public Utilities				
New England Gas Company	2008	New England Gas Company	D.P.U. 08-11	Integrated Resource Plan; Demand Forecast; Supply Planning
New England Gas Company	2010	New England Gas Company	D.P.U. 10-61	Integrated Resource Plan; Demand Forecast; Supply Planning
Berkshire Gas Company	2010	Berkshire Gas Company	D.P.U. 10-100	Integrated Resource Plan; Demand Forecast
New England Gas Company	2012	New England Gas Company	D.P.U. 12-41	Integrated Resource Plan; Demand Forecast; Supply Planning
Berkshire Gas Company	2012	Berkshire Gas Company	D.P.U. 12-62	Integrated Resource Plan; Demand Forecast
NSTAR Gas Company	2014	NSTAR Gas Company	D.P.U. 14-63	Integrated Resource Plan; Demand Forecast
Berkshire Gas Company	2014	Berkshire Gas Company	D.P.U. 14-98	Integrated Resource Plan; Demand Forecast
Liberty Utilities (New England Gas Company)	2015	Liberty Utilities (New England Gas Company)	D.P.U. 15-75	Marginal Cost of Service Study
Berkshire Gas Company	2016	Berkshire Gas Company	D.P.U. 16-103	Integrated Resource Plan; Demand Forecast
Eversource Energy	2017	Eversource Energy (NSTAR Electric and WMECO)	D.P.U. 17-05	Marginal Cost of Service Study
National Grid (Boston Gas Company and Colonial Gas Company)	2017	National Grid (Boston Gas Company and Colonial Gas Company)	D.P.U. 17-170	Marginal Cost of Service Study
Bay State Gas Company d/b/a/ Columbia Gas of Massachusetts	2018	Bay State Gas Company d/b/a/ Columbia Gas of Massachusetts	D.P.U. 18-45	Marginal Cost of Service Study
Berkshire Gas Company	2018	Berkshire Gas Company	D.P.U. 18-40	Marginal Cost of Service Study
Berkshire Gas Company	2018	Berkshire Gas Company	D.P.U. 18-107	Integrated Resource Plan; Demand Forecast

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
NSTAR Gas Company	2019	NSTAR Gas Company	D.P.U. 19-120	Marginal Cost of Service Study
Bay State Gas Company d/b/a Columbia Gas of Massachusetts	2019	Bay State Gas Company d/b/a Columbia Gas of Massachusetts	D.P.U. 19-135	Integrated Resource Plan; Demand Forecast
Berkshire Gas Company	2020	Berkshire Gas Company	D.P.U. 20-139	Integrated Resource Plan; Demand Forecast
Boston Gas d/b/a National Grid	2020	Boston Gas d/b/a National Grid	D.P.U. 20-120	Marginal Cost Study
Berkshire Gas Company	2022	Berkshire Gas Company	D.P.U. 20-80	Future of Gas
Berkshire Gas Company	2022	Berkshire Gas Company	D.P.U. 22-20	Marginal Cost Study
Berkshire Gas Company	2022	Berkshire Gas Company	D.P.U. 22-148	Integrated Resource Plan: Demand Forecast
New Hampshire Public Utilities Commission				
Northern Utilities, Inc.	2011	Northern Utilities	DG 2011-290	Integrated Resource Plan; Demand Forecast
Liberty Utilities (EnergyNorth Natural Gas)	2017	Liberty Utilities (EnergyNorth Natural Gas)	DG 17-048	Marginal Cost of Service Study
Liberty Utilities (Granite State Electric)	2019	Liberty Utilities (Granite State Electric)	DE 19-064	Marginal Cost of Service Study
Liberty Utilities (Granite State Electric)	2023	Liberty Utilities (Granite State Electric)	DE-23-039	Marginal Cost of Service Study
New Jersey Board of Public Utilities				
South Jersey Gas Company	2015	South Jersey Gas Company	GR15010090	Energy Efficiency Cost Benefit Analysis
New York State Public Service Commission				
Liberty Utilities (St. Lawrence Gas) Corp.	2022	Liberty Utilities (St. Lawrence Gas) Corp.	Case 21-G-0577	Demand Forecast
National Fuel Gas Distribution Corporation	2023	National Fuel Gas Distribution Corporation	Case 23-G-0627	Marginal Cost Study
Ontario Energy Board				
Enbridge Gas Distribution	2012	Enbridge Gas Distribution	EB-2011-0354	Industry Benchmarking Study
Enbridge Gas Distribution	2013	Enbridge Gas Distribution	EB-2012-0459	Incentive Rate Making

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Pennsylvania Public Utility Commission				
Columbia Gas of Pennsylvania, Inc.	2021	Columbia Gas of Pennsylvania, Inc	R-2021-3024296	Weather Normalization; Demand Forecast
Columbia Gas of Pennsylvania, Inc.	2022	Columbia Gas of Pennsylvania, Inc	R-2022-3031211	Weather Normalization; Demand Forecast
Public Utilities Commission of Ohio				
Columbia Gas of Ohio, Inc.	2021	Columbia Gas of Ohio, Inc.	Case No. 21-637-GA-AIR	Adjustments to Demand
Régie de l'énergie du Québec				
TransCanada Pipelines Ltd.	2014	TransCanada Pipelines Ltd.	R-3900-2014	Natural Gas Market Assessment
Washington Utilities and Transportation Commission				
Puget Sound Energy, Inc.	2015	Puget Sound Energy, Inc.	UG-151663	Distributed LNG Market Assessment

NIPSCO Normalization

For 12 Months Ending December 2023

	511	511	521	521	523	523	524	524	526	526	
Actual KWH	1	3	4	5	4	5	4	5	4	5	Total
1	318,023,332	288,709	129,018,697	1,338,939	63,887,973	26,840	52,323,378	12,712,036	37,259,155	16,487,916	631,366,975
2	259,306,134	239,031	115,937,343	1,042,610	58,059,254	21,920	47,253,991	11,640,515	33,996,676	15,007,644	542,505,118
3	246,463,476	223,901	114,065,941	1,157,061	57,210,748	21,280	46,608,591	11,194,755	33,933,826	15,259,680	526,139,259
4	224,917,537	208,143	108,765,270	1,034,494	55,693,856	22,240	45,086,831	11,674,560	36,324,847	15,513,984	499,241,762
5	207,938,457	186,060	105,823,912	904,711	56,819,324	23,960	45,228,803	11,045,753	36,052,563	15,540,078	479,563,621
6	261,445,436	229,673	119,880,000	1,009,042	63,007,443	24,400	47,824,098	12,704,798	42,280,035	17,141,784	565,546,709
7	363,001,451	303,223	138,174,534	1,099,293	70,527,757	26,840	52,169,879	12,529,684	43,679,018	18,639,078	700,150,757
8	379,628,111	304,808	140,803,817	1,129,271	71,208,017	25,360	53,472,373	13,411,344	46,803,801	19,183,518	725,970,420
9	336,006,315	290,159	139,748,524	1,017,773	71,438,564	24,440	54,118,388	14,778,407	42,518,601	18,027,966	677,969,137
10	221,398,830	217,458	113,680,049	833,627	58,051,836	21,760	43,544,842	13,391,523	39,226,803	16,106,226	506,472,954
11	209,736,902	265,145	114,727,098	919,948	53,507,780	22,840	40,458,339	11,102,508	35,882,224	14,525,388	481,148,172
12	259,468,440	275,799	124,626,149	906,545	57,575,056	21,200	42,848,941	11,681,178	36,426,599	13,265,802	547,095,709
Annual	3,287,334,421	3,032,109	1,465,251,334	12,393,314	736,987,608	283,080	570,938,454	147,867,061	464,384,148	194,699,064	6,883,170,593

Normal KWH											
1	318,023,332	288,709	129,018,697	1,338,939	63,887,973	26,840	52,323,378	12,712,036	37,259,155	16,487,916	631,366,975
2	259,306,134	239,031	115,937,343	1,042,610	58,059,254	21,920	47,253,991	11,640,515	33,996,676	15,007,644	542,505,118
3	246,463,476	223,901	114,065,941	1,157,061	57,210,748	21,280	46,608,591	11,194,755	33,933,826	15,259,680	526,139,259
4	224,917,537	208,143	108,765,270	1,034,494	55,693,856	22,240	45,086,831	11,674,560	36,324,847	15,513,984	499,241,762
5	207,938,457	186,060	105,823,912	904,711	56,819,324	23,960	45,228,803	11,045,753	36,052,563	15,540,078	479,563,621
6	274,598,741	240,123	123,001,738	1,012,773	64,222,309	24,400	48,670,574	13,080,558	43,730,885	17,468,159	586,050,260
7	398,153,771	329,474	144,628,939	1,141,248	72,912,297	26,840	53,145,354	12,715,368	44,739,720	19,151,901	746,944,912
8	416,220,540	329,989	148,340,008	1,179,759	74,058,063	25,360	55,436,907	13,996,058	49,065,007	19,944,102	778,595,791
9	357,969,790	308,182	145,283,446	1,034,162	73,619,048	24,440	55,498,429	15,294,501	43,410,742	18,356,943	710,799,683
10	221,398,830	217,458	113,680,049	833,627	58,051,836	21,760	43,544,842	13,391,523	39,226,803	16,106,226	506,472,954
11	209,736,902	265,145	114,727,098	919,948	53,507,780	22,840	40,458,339	11,102,508	35,882,224	14,525,388	481,148,172
12	259,468,440	275,799	124,626,149	906,545	57,575,056	21,200	42,848,941	11,681,178	36,426,599	13,265,802	547,095,709
Annual	3,394,195,950	3,112,013	1,487,898,589	12,505,877	745,617,544	283,080	576,104,980	149,529,313	470,049,047	196,627,823	7,035,924,215

Difference											
1	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-
6	13,153,305	10,450	3,121,738	3,731	1,214,866	-	846,476	375,760	1,450,850	326,375	20,503,551
7	35,152,320	26,251	6,454,405	41,955	2,384,540	-	975,475	185,684	1,060,702	512,823	46,794,155
8	36,592,429	25,181	7,536,191	50,488	2,850,046	-	1,964,534	584,714	2,261,206	760,584	52,625,371
9	21,963,475	18,023	5,534,922	16,389	2,180,484	-	1,380,041	516,094	892,141	328,977	32,830,546
10	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-
Annual	106,861,529	79,904	22,647,255	112,563	8,629,935	0	5,166,526	1,662,252	5,664,899	1,928,759	152,753,622
Annual %	3.3%	2.6%	1.5%	0.9%	1.2%	0.0%	0.9%	1.1%	1.2%	1.0%	2.2%
Seasonal %	8.0%	7.1%	4.2%	2.6%	3.1%	0.0%	2.5%	3.1%	3.2%	2.6%	5.7%

NIPSCO Normalization

For 12 Months Ending December 2023

		511	511	521	521	523	523	524	524	526	526	
Actual KWH		1	3	4	5	4	5	4	5	4	5	Total
	1	318,023,332	288,709	129,018,697	1,338,939	63,887,973	26,840	52,323,378	12,712,036	37,259,155	16,487,916	631,366,975
	2	259,306,134	239,031	115,937,343	1,042,610	58,059,254	21,920	47,253,991	11,640,515	33,996,676	15,007,644	542,505,118
	3	246,463,476	223,901	114,065,941	1,157,061	57,210,748	21,280	46,608,591	11,194,755	33,933,826	15,259,680	526,139,259
	4	224,917,537	208,143	108,765,270	1,034,494	55,693,856	22,240	45,086,831	11,674,560	36,324,847	15,513,984	499,241,762
	5	207,938,457	186,060	105,823,912	904,711	56,819,324	23,960	45,228,803	11,045,753	36,052,563	15,540,078	479,563,621
	6	261,445,436	229,673	119,880,000	1,009,042	63,007,443	24,400	47,824,098	12,704,798	42,280,035	17,141,784	565,546,709
	7	363,001,451	303,223	138,174,534	1,099,293	70,527,757	26,840	52,169,879	12,529,684	43,679,018	18,639,078	700,150,757
	8	379,628,111	304,808	140,803,817	1,129,271	71,208,017	25,360	53,472,373	13,411,344	46,803,801	19,183,518	725,970,420
	9	336,006,315	290,159	139,748,524	1,017,773	71,438,564	24,440	54,118,388	14,778,407	42,518,601	18,027,966	677,969,137
	10	221,398,830	217,458	113,680,049	833,627	58,051,836	21,760	43,544,842	13,391,523	39,226,803	16,106,226	506,472,954
	11	209,736,902	265,145	114,727,098	919,948	53,507,780	22,840	40,458,339	11,102,508	35,882,224	14,525,388	481,148,172
	12	259,468,440	275,799	124,626,149	906,545	57,575,056	21,200	42,848,941	11,681,178	36,426,599	13,265,802	547,095,709
Annual		3,287,334,421	3,032,109	1,465,251,334	12,393,314	736,987,608	283,080	570,938,454	147,867,061	464,384,148	194,699,064	6,883,170,593
Normal KWH												
	1	318,023,332	288,709	129,018,697	1,338,939	63,887,973	26,840	52,323,378	12,712,036	37,259,155	16,487,916	631,366,975
	2	259,306,134	239,031	115,937,343	1,042,610	58,059,254	21,920	47,253,991	11,640,515	33,996,676	15,007,644	542,505,118
	3	246,463,476	223,901	114,065,941	1,157,061	57,210,748	21,280	46,608,591	11,194,755	33,933,826	15,259,680	526,139,259
	4	224,917,537	208,143	108,765,270	1,034,494	55,693,856	22,240	45,086,831	11,674,560	36,324,847	15,513,984	499,241,762
	5	207,938,457	186,060	105,823,912	904,711	56,819,324	23,960	45,228,803	11,045,753	36,052,563	15,540,078	479,563,621
	6	274,598,741	240,123	123,001,738	1,012,773	64,222,309	24,400	48,670,574	13,080,558	43,730,885	17,468,159	586,050,260
	7	398,153,771	329,474	144,628,939	1,141,248	72,912,297	26,840	53,145,354	12,715,368	44,739,720	19,151,901	746,944,912
	8	416,220,540	329,989	148,340,008	1,179,759	74,058,063	25,360	55,436,907	13,996,058	49,065,007	19,944,102	778,595,791
	9	357,969,790	308,182	145,283,446	1,034,162	73,619,048	24,440	55,498,429	15,294,501	43,410,742	18,356,943	710,799,683
	10	221,398,830	217,458	113,680,049	833,627	58,051,836	21,760	43,544,842	13,391,523	39,226,803	16,106,226	506,472,954
	11	209,736,902	265,145	114,727,098	919,948	53,507,780	22,840	40,458,339	11,102,508	35,882,224	14,525,388	481,148,172
	12	259,468,440	275,799	124,626,149	906,545	57,575,056	21,200	42,848,941	11,681,178	36,426,599	13,265,802	547,095,709
Annual		3,394,195,950	3,112,013	1,487,898,589	12,505,877	745,617,544	283,080	576,104,980	149,529,313	470,049,047	196,627,823	7,035,924,215
Difference												
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-	-	-	-
	6	13,153,305	10,450	3,121,738	3,731	1,214,866	-	846,476	375,760	1,450,850	326,375	20,503,551
	7	35,152,320	26,251	6,454,405	41,955	2,384,540	-	975,475	185,684	1,060,702	512,823	46,794,155
	8	36,592,429	25,181	7,536,191	50,488	2,850,046	-	1,964,534	584,714	2,261,206	760,584	52,625,371
	9	21,963,475	18,023	5,534,922	16,389	2,180,484	-	1,380,041	516,094	892,141	328,977	32,830,546
	10	-	-	-	-	-	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-
Annual		106,861,529	79,904	22,647,255	112,563	8,629,935	0	5,166,526	1,662,252	5,664,899	1,928,759	152,753,622
Annual %		3.3%	2.6%	1.5%	0.9%	1.2%	0.0%	0.9%	1.1%	1.2%	1.0%	2.2%
Seasonal %		8.0%	7.1%	4.2%	2.6%	3.1%	0.0%	2.5%	3.1%	3.2%	2.6%	5.7%

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **511**

1

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitive KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		318,023,332						318,023,332				
2023	2		259,306,134						259,306,134				
2023	3		246,463,476						246,463,476				
2023	4		224,917,537						224,917,537				
2023	5	432,013	207,938,457	481	16.07	481	-		207,938,457				30.0
2023	6	432,545	261,445,436	604	19.65	494	110	635	274,598,741	13,153,305	105	134	30.8
2023	7	431,779	363,001,451	841	26.31	513	327	922	398,153,771	35,152,320	205	256	32.0
2023	8	433,436	379,628,111	876	29.01	485	391	960	416,220,540	36,592,429	199	242	30.2
2023	9	432,442	336,006,315	777	24.80	504	273	828	357,969,790	21,963,475	140	166	31.3
2023	10		221,398,830						221,398,830				
2023	11		209,736,902						209,736,902				
2023	12		259,468,440						259,468,440				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **511**

3

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		288,709						288,709				
2023	2		239,031						239,031				
2023	3		223,901						223,901				
2023	4		208,143						208,143				
2023	5	255	186,060	730	24.36	730	-		186,060				30.0
2023	6	256	229,673	897	29.16	749	148	938	240,123	10,450	105	134	30.8
2023	7	254	303,223	1,194	37.36	778	415	1,297	329,474	26,251	205	256	32.0
2023	8	256	304,808	1,191	39.44	735	455	1,289	329,989	25,181	199	242	30.2
2023	9	253	290,159	1,147	36.60	763	384	1,218	308,182	18,023	140	166	31.3
2023	10		217,458						217,458				
2023	11		265,145						265,145				
2023	12		275,799						275,799				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **521**

4

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		129,018,697						129,018,697				
2023	2		115,937,343						115,937,343				
2023	3		114,065,941						114,065,941				
2023	4		108,765,270						108,765,270				
2023	5	53,904	105,823,912	1,963	65.54	1,963	-		105,823,912				30.0
2023	6	53,851	119,880,000	2,226	72.37	2,016	210	2,284	123,001,738	3,121,738	105	134	30.8
2023	7	53,589	138,174,534	2,578	80.70	2,094	484	2,699	144,628,939	6,454,405	205	256	32.0
2023	8	53,531	140,803,817	2,630	87.12	1,979	652	2,771	148,340,008	7,536,191	199	242	30.2
2023	9	53,535	139,748,524	2,610	83.31	2,054	557	2,714	145,283,446	5,534,922	140	166	31.3
2023	10		113,680,049						113,680,049				
2023	11		114,727,098						114,727,098				
2023	12		124,626,149						124,626,149				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **521**

5

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		1,338,939						1,338,939				
2023	2		1,042,610						1,042,610				
2023	3		1,157,061						1,157,061				
2023	4		1,034,494						1,034,494				
2023	5	56	904,711	16,156	539.37	16,156	-		904,711				30.0
2023	6	60	1,009,042	16,817	546.69	16,592	225	16,880	1,012,773	3,731	105	134	30.8
2023	7	54	1,099,293	20,357	637.11	17,234	3,123	21,134	1,141,248	41,955	205	256	32.0
2023	8	55	1,129,271	20,532	680.09	16,284	4,248	21,450	1,179,759	50,488	199	242	30.2
2023	9	55	1,017,773	18,505	590.58	16,900	1,605	18,803	1,034,162	16,389	140	166	31.3
2023	10		833,627						833,627				
2023	11		919,948						919,948				
2023	12		906,545						906,545				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **523**

4

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		63,887,973						63,887,973				
2023	2		58,059,254						58,059,254				
2023	3		57,210,748						57,210,748				
2023	4		55,693,856						55,693,856				
2023	5	2,759	56,819,324	20,594	687.56	20,594	-		56,819,324				30.0
2023	6	2,771	63,007,443	22,738	739.17	21,151	1,587	23,177	64,222,309	1,214,866	105	134	30.8
2023	7	2,774	70,527,757	25,425	795.70	21,969	3,455	26,284	72,912,297	2,384,540	205	256	32.0
2023	8	2,795	71,208,017	25,477	843.87	20,758	4,719	26,497	74,058,063	2,850,046	199	242	30.2
2023	9	2,771	71,438,564	25,781	822.79	21,544	4,237	26,568	73,619,048	2,180,484	140	166	31.3
2023	10		58,051,836						58,051,836				
2023	11		53,507,780						53,507,780				
2023	12		57,575,056						57,575,056				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **524**

4

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		52,323,378						52,323,378				
2023	2		47,253,991						47,253,991				
2023	3		46,608,591						46,608,591				
2023	4		45,086,831						45,086,831				
2023	5	302	45,228,803	149,764	5000.08	149,764	-		45,228,803				30.0
2023	6	291	47,824,098	164,344	5342.45	153,812	10,532	167,253	48,670,574	846,476	105	134	30.8
2023	7	302	52,169,879	172,748	5406.42	159,764	12,984	175,978	53,145,354	975,475	205	256	32.0
2023	8	294	53,472,373	181,879	6024.38	150,955	30,924	188,561	55,436,907	1,964,534	199	242	30.2
2023	9	298	54,118,388	181,605	5795.91	156,669	24,936	186,236	55,498,429	1,380,041	140	166	31.3
2023	10		43,544,842						43,544,842				
2023	11		40,458,339						40,458,339				
2023	12		42,848,941						42,848,941				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **524**

5

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		12,712,036						12,712,036				
2023	2		11,640,515						11,640,515				
2023	3		11,194,755						11,194,755				
2023	4	26	11,674,560						11,674,560				
2023	5	26	11,045,753	424,837	14183.74	424,837	-		11,045,753				30.0
2023	6	26	12,704,798	488,646	15884.78	436,319	52,327	503,098	13,080,558	375,760	105	134	30.8
2023	7	26	12,529,684	481,911	15082.16	453,204	28,707	489,053	12,715,368	185,684	205	256	32.0
2023	8	25	13,411,344	536,454	17768.97	428,214	108,240	559,842	13,996,058	584,714	199	242	30.2
2023	9	27	14,778,407	547,348	17468.57	444,424	102,925	566,463	15,294,501	516,094	140	166	31.3
2023	10	25	13,391,523						13,391,523				
2023	11	25	11,102,508						11,102,508				
2023	12		11,681,178						11,681,178				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **526**

4

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		37,259,155						37,259,155				
2023	2		33,996,676						33,996,676				
2023	3		33,933,826						33,933,826				
2023	4		36,324,847						36,324,847				
2023	5	161	36,052,563	223,929	7476.17	223,929	-		36,052,563				30.0
2023	6	161	42,280,035	262,609	8536.82	229,981	32,628	271,620	43,730,885	1,450,850	105	134	30.8
2023	7	165	43,679,018	264,721	8284.87	238,881	25,840	271,150	44,739,720	1,060,702	205	256	32.0
2023	8	161	46,803,801	290,707	9629.09	225,709	64,998	304,752	49,065,007	2,261,206	199	242	30.2
2023	9	161	42,518,601	264,091	8428.43	234,253	29,838	269,632	43,410,742	892,141	140	166	31.3
2023	10		39,226,803						39,226,803				
2023	11		35,882,224						35,882,224				
2023	12		36,426,599						36,426,599				

NIPSCO Normalization **Normal Weather** 2004 2023 20 Years

Rate **526**

5

Weather Adjustment Calculation

		1	2	3 = 2/1	4 = 3/12	5 = 4 (May#) *12	6 = 3-5	7 = 5+(6*(11/10))	**8 = 1*7**	**9= 8-2**	10	11	12
		Customers	Actual KWH	Actual KWH/Cus	Actual KWH/Cus/Day	Base KWH/Cus	Temperature Sensitiv KWH/Cus	Normal KWH/Customer	Normal KWH	Weather Adjustment	CDD Actual	CDD Normal	Days
2023	1		16,487,916						16,487,916				
2023	2		15,007,644						15,007,644				
2023	3		15,259,680						15,259,680				
2023	4		15,513,984						15,513,984				
2023	5	18	15,540,078	863,338	28823.67	863,338	-		15,540,078				30.0
2023	6	18	17,141,784	952,321	30957.81	886,671	65,650	970,453	17,468,159	326,375	105	134	30.8
2023	7	18	18,639,078	1,035,504	32407.74	920,985	114,519	1,063,995	19,151,901	512,823	205	256	32.0
2023	8	18	19,183,518	1,065,751	35300.90	870,200	195,551	1,108,006	19,944,102	760,584	199	242	30.2
2023	9	18	18,027,966	1,001,554	31964.48	903,142	98,412	1,019,830	18,356,943	328,977	140	166	31.3
2023	10		16,106,226						16,106,226				
2023	11		14,525,388						14,525,388				
2023	12		13,265,802						13,265,802				