BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE PASSTHROUGH APPLICATION OF DOMINION ENERGY UTAH FOR AN ADJUSTMENT IN RATES AND CHARGES FOR NATURAL GAS SERVICE IN UTAH	Docket No. 17-057-20

DIRECT TESTIMONY OF MICHAEL L. PLATT

FOR DOMINION ENERGY UTAH

January 31, 2018

QGC Exhibit 2.0

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Michael L. Platt. My business address is 1140 West 200 South, Salt Lake City, UT 84104.

Q. By whom are you employed and what is your position?

A. I am employed by Dominion Energy Utah ("Dominion Energy" or "Company") as the Manager of Engineering Systems. I am responsible for the System Planning and Analysis Group, Records Management, Research and Development, and both High Pressure and Intermediate High Pressure ("IHP") geographic information system ("GIS") teams. My qualifications are included in DEU Exhibit 2.1.

Q. Have you testified before the Public Service Commission of Utah ("Commission") before?

A. Yes. I testified in Utah Docket No. 17-057-09. I have also presented at technical conferences and workshops before the Commission.

Q. Attached to your written testimony are DEU Exhibits 2.1 through 2.5. Were these prepared by you or under your direction?

A. Yes.

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to explain the Peak-Hour demand and system requirements on the Dominion Energy system. I will show that Dominion Energy needs to address its Peak-Hour demand shortfall.

II. SYSTEM DESIGN AND THE IMPACT OF PEAK-HOUR SERVICE

Q. Does the Company design the system to meet a Design Peak Day or a Peak Hour?

A. The Company designs its system to meet both Design Peak Day and Peak Hour. Both flow conditions must be accounted for. A Peak Hour occurs every day at a volumetric rate that is related to the daily volume. The Peak Hour of the Design Peak Day is the maximum volumetric flow rate. The system is designed using a dynamic model. This model is used to ensure that the system has adequate pressure to deliver supplies during each moment of the day. This model accounts for the fluctuations in demand that occur throughout the day.

Q. When did the Company begin modeling its system for a Peak Hour?

A. Dominion Energy has always designed its intermediate high pressure system for the Peak Hour. In 2010, Dominion Energy began using an unsteady-state model for its high-pressure system. The unsteady-state model analyzes the Design Peak Day discretely, hour by hour. The steady-state model (which is all we used prior to 2010) is a "snapshot" of the average daily usage, not a "video" showing hourly fluctuations. The unsteady-state model enabled the Company to model hourly flows on its high-pressure system.

Q. Why is it better to design a system based upon a Peak Hour rather than solely for a daily average?

A. Designing for a Design Peak Day has always included designing for the Peak Hour of that Design Peak Day; if we fail to meet our customers' needs during the Peak Hour, we will not be able to maintain adequate system pressures and will lose service to customers.

Q. How does the Design Peak Hour compare to the Design Peak Day?

A. The Peak Hour, as we refer to it, is the instant of the Design Peak Day model at which the flow apexes. A numeric comparison of the Peak Hour to the Design Peak Day will show that the Peak Hour volumetric rate of the Design Peak Day will always, by definition, be

higher than the average for the day. In the 2017-18 Design Peak Day Model, the Peak Hour flow into the entire system is about 17% higher than the daily average (which is the Design Peak Day).

Q. How confident are you that, during a Design-Peak-Day event, the Peak Hour will be at least 17% higher than the Design Peak Day flow?

A. Extremely confident, 92% confident to be exact. I took a sample of nearly 1,000 data points, from August of 2010 to August of 2017, in order to determine the probability of the Peak Hour volume flowing greater than 17% above the average. DEU Exhibit 2.2 shows the number of occurrences of each Peak-Hour flow rate along with the historical probability of Peak Hour occurring at or above 17%. As the graph shows, 92% of the time, the Peak-Hour flow has been 17% or greater than the average daily volume, on a historical basis.

Q. Can you provide evidence that shows that additional supply is necessary to satisfy Peak-Hour demand?

A. Yes. A review of the Company unsteady-state models show that, during the Peak Hour of a Design Peak Day, the Dominion Energy system needs additional firm supply to meet demand or it will experience pressure losses which in turn are likely to cause system outages.

Q. Is additional firm Peak-Hour supply necessary to maintain system reliability?

A. Yes. Many firm sales and transportation customers in numerous cities will lose service on a Design Peak Day without Firm Peaking Service. DEU Exhibit 2.3 contains a list of transportation customers and regulator stations feeding cities that would fall below operational pressures on a Design Peak Day, if additional Peak Hour supply is not

available. Column A identifies the regulator station. Column B identifies the city or customer. Column C shows the minimum required operating pressure. Column D shows what the pressures would be on a Peak Hour if the Company did not have the supply provided by the Firm Peaking Services. Column E shows what the pressures would be with the supply provided by Firm Peaking Services. Column F shows the pressure improvement with the supply provided by the Firm Peaking Service. As DEU Exhibit 2.3 shows, without Firm Peaking Service, or its equivalent, these customers are at risk of losing service. With the addition of Firm Peaking Services, those same locations maintain pressures above the operational minimums.

Q. Have you previously provided similar analyses that shows the loss of pressures you describe above?

A. Yes. In a December 17, 2015, Integrated Resource Plan ("IRP") workshop, I provided the results of our modelling. The model showed that, during the morning hours, customer demand on the system is exceeding the firm supply being provided from the upstream pipelines, causing pressures to drop. When the demand exceeds the supply for too long, pressures on the system drop below the minimum operating pressure of 125 psig.

Q. Why are there concerns when the pressures drop below 125 psig?

A. When the high pressure system reaches the minimum operational pressure of 125 psig, we expect to experience some level of appliance outages. Many other variables affect the probability and severity of an outage. On a one-way-fed system, in which the regulator station feeding the community is near its design capacity, the system will experience outages when the regulator inlet pressures reach 125 psig or below. On a system like Salt Lake's system, during Design Peak Day conditions, if any regulator station inlet pressure

drops below 125 psig, we expect to begin experiencing outages. The lower the pressures drop, the greater the impact we expect to experience. If the pressure at a full size regulator station drops to 45 psig or less, a significant number of outages would result.

Q. Please describe DEU Exhibit 2.4.

A. DEU Exhibit 2.4 shows the model results for the central and northern high pressure system without enough supply to meet Peak Hour demands. Pages 1 through 7 (which were presented in the December 2015 workshop) show that, during a design day, pressures drop below 125 psig because Peak Hour demands are not met by the available supply. Page 1 shows pressures, reflected inside each dot, at 12:00 a.m. At that time, all locations have pressures well above the operational minimum. Page 2 shows how the pressures change at the same locations at 8:00 a.m. Twenty minutes later, as shown on page 3, the pressures have dropped further, and some locations are shown to have fallen below operational minimums. Page 4 shows that, by 8:40 a.m., four locations have fallen below minimum operating pressures. Ten minutes later, as shown on page 5, the pressures have dropped even further, and Logan is shown to have fallen below minimum operating pressures. By 9:00 a.m., as shown on page 6, customers at all but three of the locations have lost or will be losing service. By 9:10 a.m., as shown on page 7, only two locations have pressure sufficient to maintain service. Within 70 minutes, nearly all of the customers along the Wasatch Front are shown to have lost natural gas service. This represents approximately 800,000 customers or about 80% of the Company's system.

Q. Could an interruption of interruptible customers mitigate the pressure loss shown in the model?

A. No. My model assumes that interruptible customers have been interrupted.

Q. Is it reasonable to assume that large firm customers could be interrupted to sufficiently reduce the Peak Hour demand to avoid the pressure loss you have described?

A. No, it is not reasonable. The Company does not believe it is appropriate to interrupt firm customers. The Company has an obligation to serve firm customers on a firm basis. In addition, even if the Company were to interrupt firm customers, it would likely take more than 70 minutes to effect such an interruption. If we consider that even our interruptible customers have two hours to respond to a called interruption, it is unreasonable to assume that a firm customer could completely interrupt their process within 70 minutes. Managing the system by interrupting firm customers would impair the reliability of Dominion Energy's system. Finally, as noted in Mr. William Schwarzenbach's direct testimony, even having large firm customers interrupt service would be impractical and would not be sufficient to solve the Peak-Hour demand need.

Q. Can system demands be met with Firm Peaking Services?

A. Yes. Page 8 of DEU Exhibit 2.4 shows the central and northern systems on a Design Peak Day, assuming the use of Firm Peaking Services. In addition, Exhibit 2.3 shows the improvement in pressures provided to operational pressures throughout the system. As you can see, with Firm Peaking Services, the system pressures are adequate to meet all customer needs.

Q. If the Commission were to determine that Firm Peaking Services were not needed, what will the Company do to meet Design-Peak-Day requirements?

A. Without some action, the Company would not be able to provide reliable service to its sales and transportation customers. Therefore, if the Commission does not approve the

recommended Firm-Peaking Services, Dominion Energy would have to take alternative action. Mr. Schwarzenbach reviewed more expensive, less reliable solutions, and the Company would be required to pursue one of those solutions. The Firm Peaking Services that are required for the 2017-18 heating season total to approximately 340,375 Dth/day. In my professional opinion, failing to obtain an appropriate solution would not be prudent and put the Company and its customers at risk.

Q. Can the Company use linepack to satisfy its Peak Hour needs?

A. No. The Company already uses linepack to meet its current needs, and the available linepack is already factored into my unsteady-state models. Linepack is a measurement of the quantity of gas that is contained within a pipe or gas network at any given time. There are fluctuations in linepack throughout the day, just as there are fluctuations in pressure. While pressure is not linepack, the higher the pressure is in any given line, the higher the linepack, and these measurements correlate. Our models and real data both show that locations in the system approach operational minimums at times, due to demand or other circumstances. This indicates that there isn't enough usable pack in the area to feed the demands.

Q. Could the Company build more linepack into the system as an alternative to purchasing Firm Peaking Services?

A. No, it isn't practical or economical. It would be a paradigm shift in how we have been designing the system. To build more linepack into the system, the Company would need to oversize reinforcements and replacements. The Company currently has approximately 1,700 miles of high pressure pipelines. Building more linepack into the system would require the Company to make large diameter pipeline additions to have a significant

impact on line pack. Adding even 150 miles of 24-inch pipe would cost hundreds of millions of dollars and would not increase linepack enough to account for our Peak Hour needs.

Q. Are Firm Peaking Services necessary and useful to provide firm service in non-design conditions?

A. Yes. Anytime the hourly flow rate into the system exceeds our Required Daily Capacity (RDC) on the upstream pipeline, the addition of Firm Peaking Services allow the Company to ensure that the gas flows on a firm basis, up to the Firm Peaking Service limit. For the purpose of discussion, I have provided DEU Exhibit 2.5 to help explain.[1] In the graph, when the Total Peak Hour Demand (blue curve) exceeds the DEUWI Upstream Transportation Contracts (dotted black line), additional services are necessary. When the Firm Sales Demand exceeds the upstream contracts, additional supply is required. Alternatives for providing this supply are discussed in Mr. Schwarzenbach's direct testimony.

Q. Based on the chart in Exhibit 2.5, it appears that Firm Peaking Services are necessary any time the temperature is 10 degrees or below. Is that correct?

A. Yes. That is correct. As the table shows, this condition occurs at a much higher frequency than a Design Peak Day.

Q. Are there considerations other than DEU Exhibit 2.5 that must be accounted for when determining the appropriate amount of Firm Peaking Service that is necessary?

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1 DEU Exhibit 2.5 provides a reasonable range of temperatures at which peak-hour services would be required based on normal operating conditions.

A. The figures presented in DEU Exhibit 2.5 are simplified for illustration. All location-specific information, transportation customer fluctuations, initial system pressures, and many other details would be necessary for a specific calculation on a particular day. However, the range represented in DEU Exhibit 2.5 shows a reasonable estimate of the temperatures at which Firm Peaking Services would be needed. In addition, there may be and have been instances where our gas control finds it necessary to use these Peak Hour services on a winter day where the temperature is warmer than 10 degrees on average.

Q. Why has prior testimony only discussed the need for Firm Peaking Services on a Design Peak Day?

A. The Company determines the system design and requires services to meet its needs on a Design Peak Day. Until Docket 17-057-09, it was generally understood the Design Peak Day was the test case for all system requirements. Questions and comments during the hearing in Docket 17-057-09 probed other circumstances where Firm Peaking Services might be necessary or useful. However, while the Company witnesses responded to this question by noting some of the circumstances, because that issue had not been raised until the hearing, the Company did not have adequate time to provide complete information regarding all instances where Firm Peaking Services are necessary and useful in non-Design-Peak-Day conditions. As a result, I am providing additional information on this issue in my direct testimony.

Q. How does the Company's Engineering department determine if upstream transportation contracts, services, and planned gas supply are sufficient to meet Design Peak Day requirements?

A. The Company performs an analysis annually as the basis for the Joint Operations

Agreement with Dominion Energy Questar Pipeline ("DEQP"). This analysis, commonly called the JOA analysis, simulates the Design Peak Day with the limitations imposed by all contractual limits on Kern River, DEQP and other upstream pipelines. System pressures from this analysis are also presented in the IRP annually.

Q. What process is followed to ensure that the JOA analysis is accurately predicting the outcome of a Design Peak Day?

A. The analysis involves an iterative process between the Company's System Planning and Analysis team and the DEQP System Planning group. Initially, the Design Peak Day model is tuned such that incoming volumes and pressures do not exceed contractual limits. Model results from the Company's team are then sent to DEQP for analysis. DEQP determines if the pressures and volumes requested at each gate station are achievable and returns their results to the Company. We conclude the analysis when the downstream flow and pressure requirements match the upstream capabilities. At the conclusion, volumes must fall within contractual limitations.

Q. Are there additional considerations you believe should be considered as part of this proceeding?

A. Yes. This service has allowed the Company to provide additional firm service to transportation customers. For example, this year, a transportation customer requested an increase in their firm transportation contract, from 200 Dth/day to 1000 Dth/day. In the unsteady-state Design Peak Day model, the customer could not be served without additional supply to meet the Peak Hour. Without this supply, Peak Hour pressures were about 30 psig at their meter (the system minimum pressure is designed to be no less than 125 psig). With the necessary Peak Hour supply, this customer may increase the firm

contract as proposed with little impact to the system, as the Peak Hour pressures would remain above the system minimum at the customer's location during the 2017-2018 heating season.

Q. Did you exclude the Lake Side Power generation facility ("Lake Side") usage when determining the 340,000 Dth/day of Peak Hour need and, if so, why?

A. Yes. It is assumed that Lake Side's usage is flat. This is consistent with the fact that the Company has the ability to physically control Lake Side's usage at the inlet from FL26.

Q. Does this conclude your testimony?

A. Yes.

State of Utah)
) ss.
County of Salt Lake)

I, Michael L. Platt, being first duly sworn on oath, state that the answers in the foregoing written testimony are true and correct to the best of my knowledge, information and belief. Except as stated in the testimony, the exhibits attached to the testimony were prepared by me or under my direction and supervision, and they are true and correct to the best of my knowledge, information and belief. Any exhibits not prepared by me or under my direction and supervision are true and correct copies of the documents they purport to be.

Michael L. Platt

SUBSCRIBED AND SWORN TO this 31st day of January, 2018.

Notary Public

LEORA N. PRICE
Notary Public State of Utah
My Commission Expires on:
August 19, 2018
Comm. Number: 677685

Qualifications of Michael L. Platt

Current Responsibilities

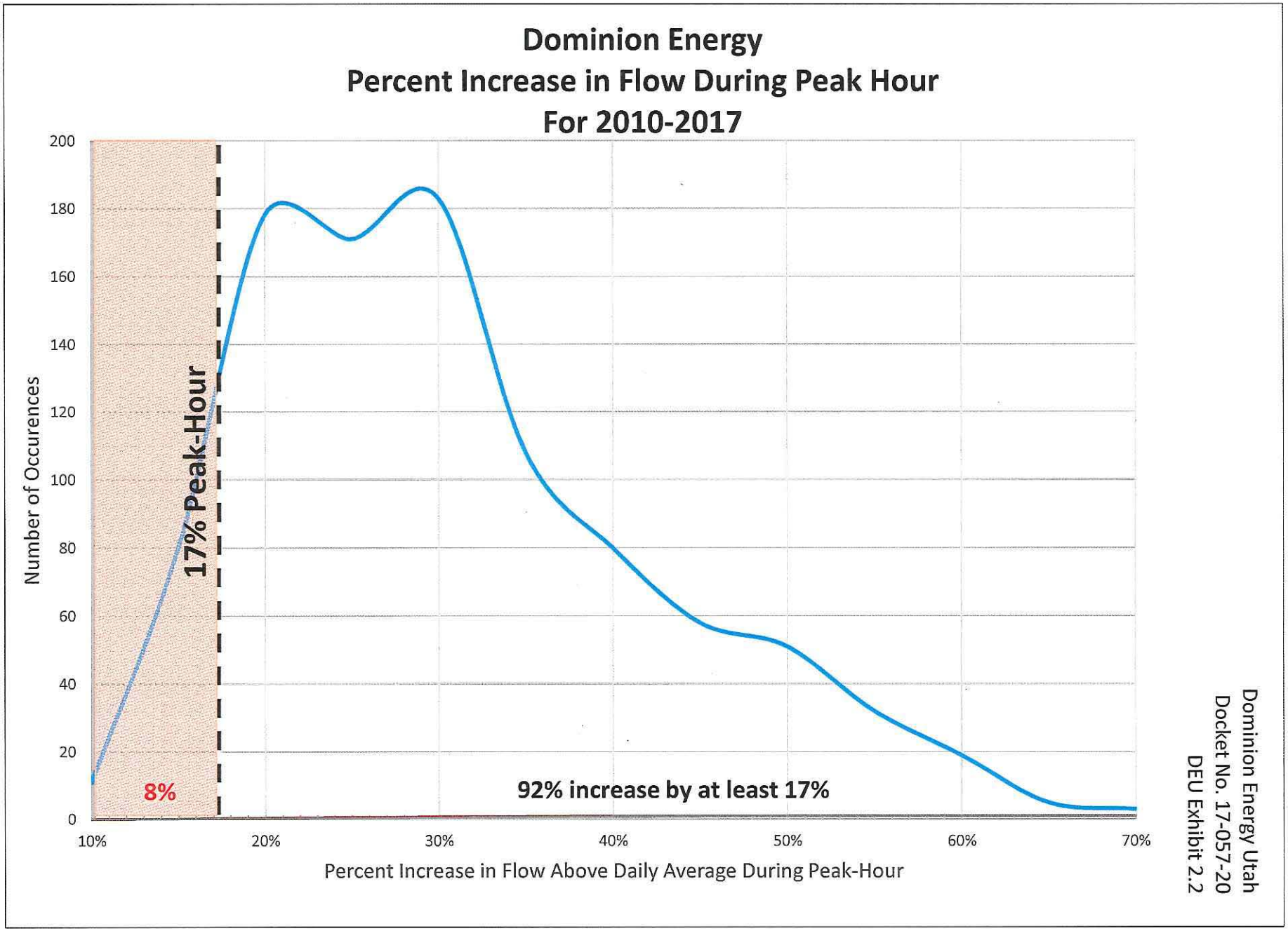
As Manager of Engineering Systems, I am responsible for System Planning and Analysis, Records Management, GIS – High Pressure Mapping and GIS Distribution Mapping. I direct the Company's Engineering On-Call training, ensure that all finished projects are properly documented and mapped. I determine what actions are necessary in order for the Company's system to meet peak-day requirements.

Experience

I was first employed by Questar Gas Company in July 2008 as an Associate Engineer in the System Planning and Analysis group. I built models to predict system conditions at various weather and flow scenarios. I verified the accuracy of these models annually. I have completed a number of studies that have improved the quality of modeling capability or the processes used to model the system. I was responsible for model building, model verification, integrated resource planning models, interruption analysis, high pressure state of the system, contingency analysis, and construction timeline analysis. Some of the special projects that I have had the opportunity to work on include: creating javascript engineering tools, maximum allowable operating pressure reconciliation, creating processes to extract and organize data from the CORE database, installing distribution telemetry, and making telemetry available through internal webmap systems.

Educational Background

I received a Bachelor of Science in Mechanical Engineering from the University of Utah in 2008. I received a Master of Science in Mechanical Engineering from the University of Utah in 2010. I am a Professional Engineer.


Dominion Energy
Percent Increase in Flow During Peak Hour
For 2010-2017
Number of Occurences
200
180
160
140
120
100
80
60
40
20
0
17% Peak-Hour
8%
92% increase by at least 17%
10%
20%
30%
40%
50%
60%
70%
Percent Increase in Flow Above Daily Average During Peak-Hour
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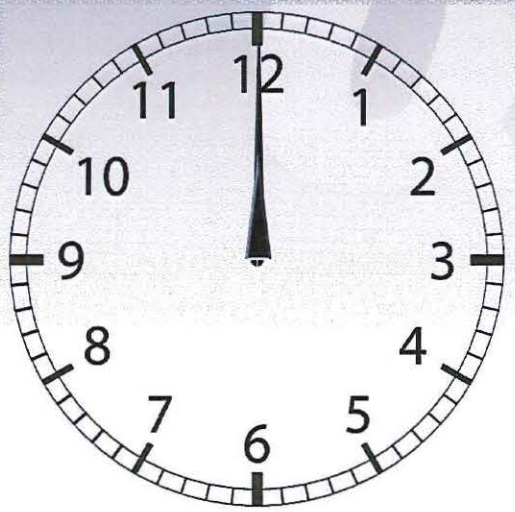
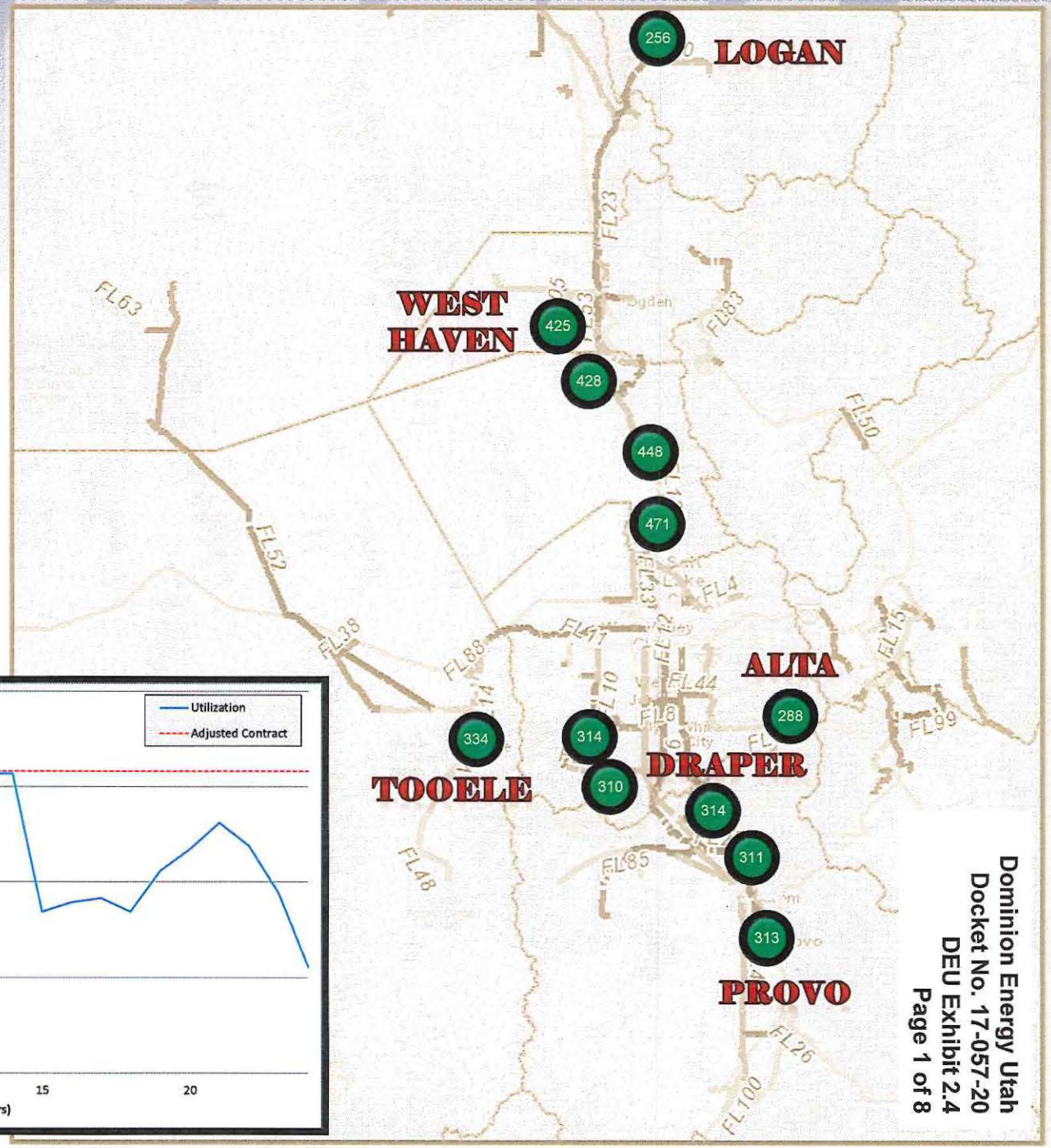
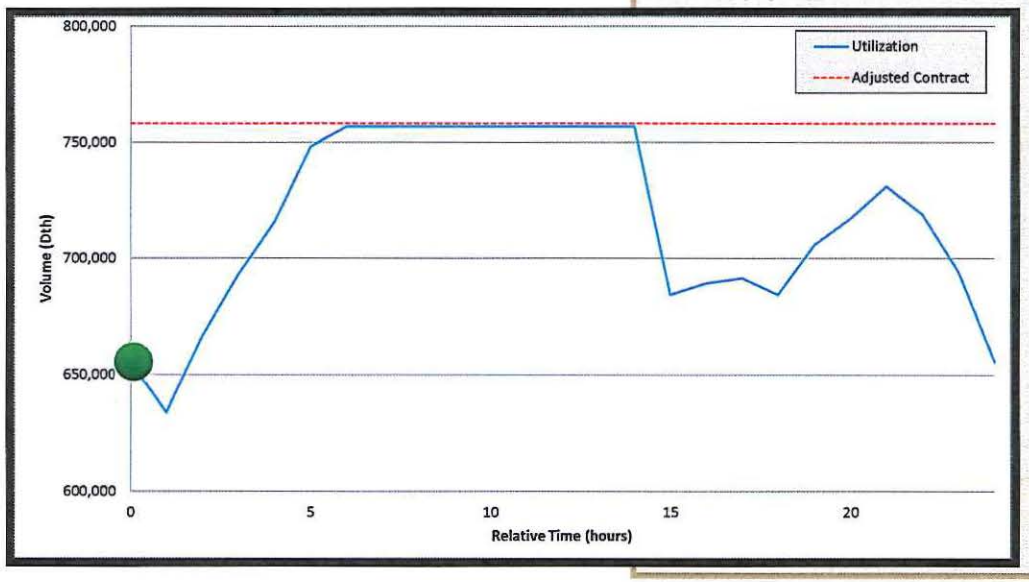
DEU Exhibit 2.2

Dominion Energy
Customers and Reg Stations with Inoperable Pressure
Without Peak-Hour Service
2017 - 2018

	A	B	C	D	E	F
Line	Node	Location	Required Pressure	Model Results without Peak Hour Service	Model Results with Peak Hour Service	Pressure Improvement with Peak Hour Services
1	IN0027	Transportation Customer	125	13	261	248
2	IN0084	Transportation Customer	125	30	263	233
3	WA1388	PLAIN CITY	125	40	265	225
4	WA0884	PLAIN CITY	125	43	265	222
5	WA1041	PLAIN CITY	125	45	265	220
6	WA1506	CLINTON	125	48	264	216
7	WA1130	PLAIN CITY	125	59	269	210
8	WA0504	PLAIN CITY	125	59	269	210
9	WA0513	PLAIN CITY	125	69	271	202
10	WA0614	PLAIN CITY	125	71	272	201
11	WA0508	PLAIN CITY	125	72	273	201
12	WA1507	PLAIN CITY	125	74	273	199
13	WA1561	HOOPER	125	80	275	195
14	WA1356	MARRIOT-SLATERVILLE	125	80	275	195
15	WA0590	WEST JORDAN	125	99	137	38
16	IN0271	Transportation Customer	125	100	154	54
17	WA1373	ALTA	125	101	154	53
18	WA1364	ALTA	125	101	154	53
19	IN0277	Transportation Customer	125	104	335	231
20	WA1001	SANDY	125	107	164	57
21	SY0001	SYRACUSE	125	108	293	185
22	WA1527	ALTA	125	108	164	56
23	WA1488	SANDY	125	109	165	56
24	WA1395	SANDY	125	110	166	56
25	SU0002	SUNSET	125	111	292	181
26	WA0510	MARRIOT-SLATERVILLE	125	111	290	179
27	GD0041	OGDEN	125	111	289	178
28	WA0944	COTTONWOOD HEIGHTS	125	111	167	56
29	WA0739	WEST JORDAN	125	112	146	34
30	SJ0002	SOUTH JORDAN	125	114	146	32
31	GD0040	OGDEN	125	115	292	177
32	WA0589	COTTONWOOD HEIGHTS	125	118	170	52
33	FA0001	FARMINGTON	125	119	323	204
34	WA0827	ROY	125	121	297	176
35	CL0007	CLEARFIELD	125	122	301	179
36	RY0006	ROY	125	123	298	175
37	WA0048	WEST HAVEN	125	123	297	174
38	WA0658	FARR WEST	125	123	296	173
39	WA0949	COTTONWOOD HEIGHTS	125	123	176	53
40	WA1547	COTTONWOOD HEIGHTS	125	124	177	53
41	RY0007	ROY	125	125	299	174
42	WA0134	WASHINGTON TERRACE	125	125	299	174
43	WA1510	HARRISVILLE	125	125	298	173
44	WA0366	MARRIOT-SLATERVILLE	125	125	298	173
45	WA0311	OGDEN	125	125	298	173
46	GD0028	OGDEN	125	125	298	173
47	WA0049	OGDEN	125	125	298	173
48	WA1347	NORTH OGDEN	125	125	289	164
49	IN0509	Transportation Customer	300	240	373	133







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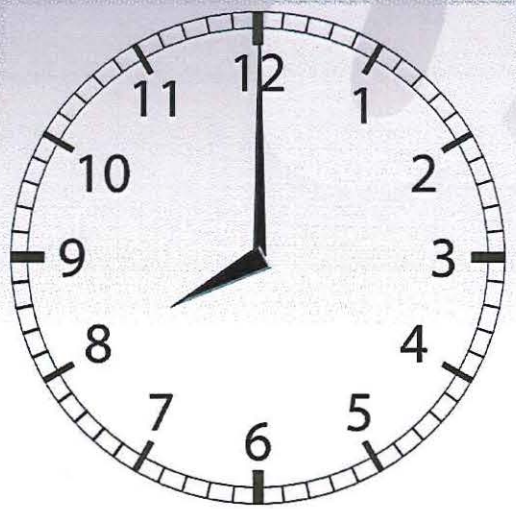

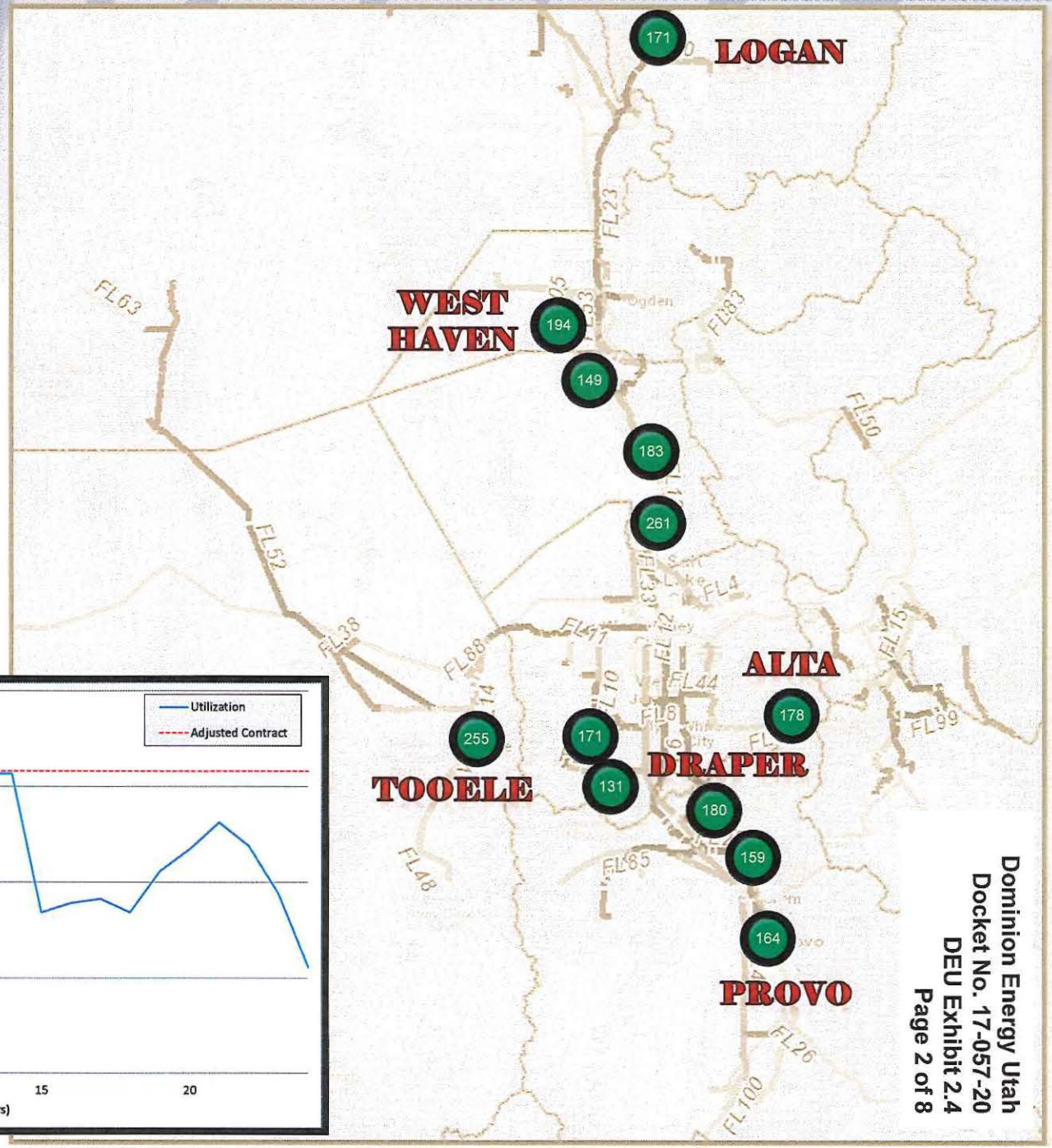

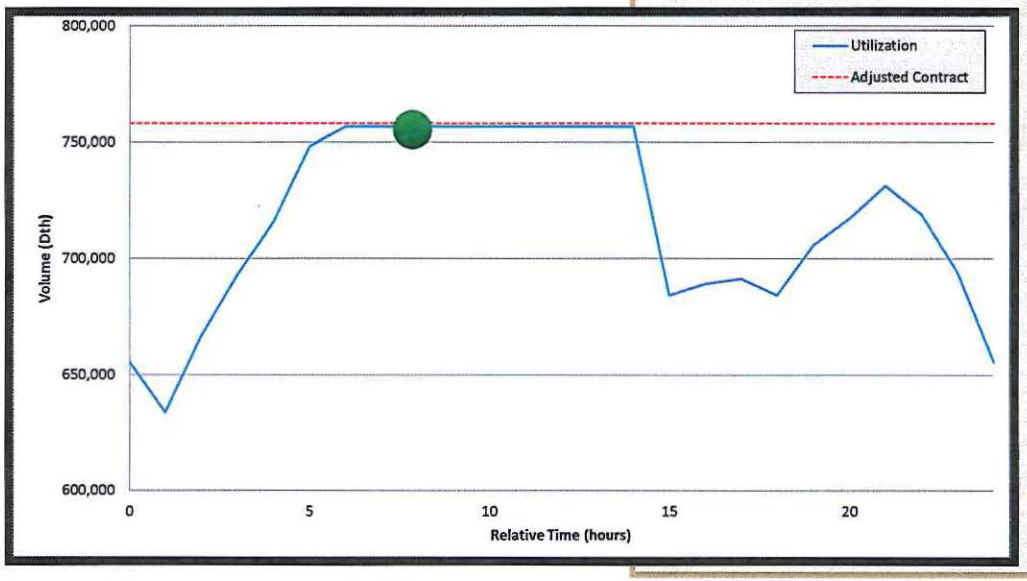

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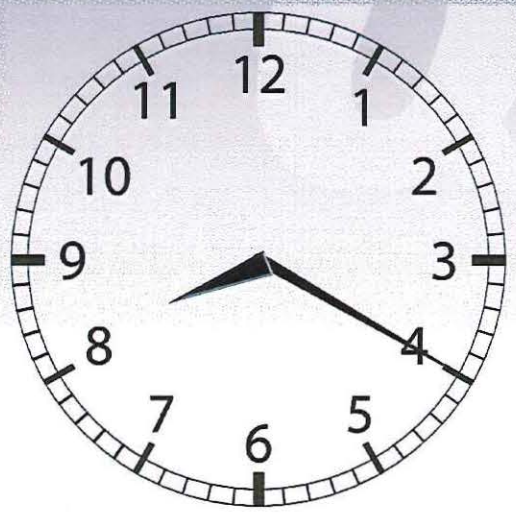

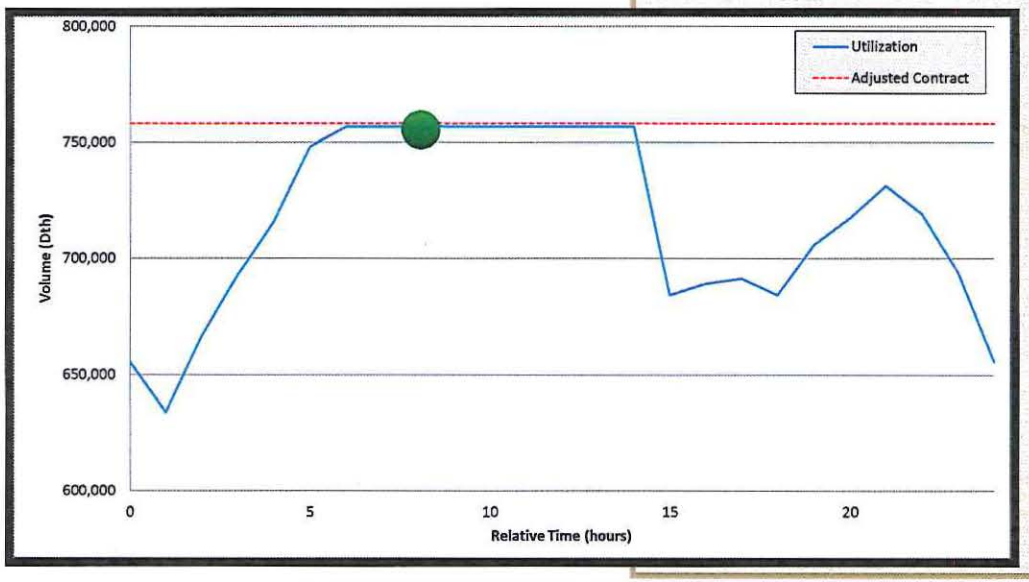

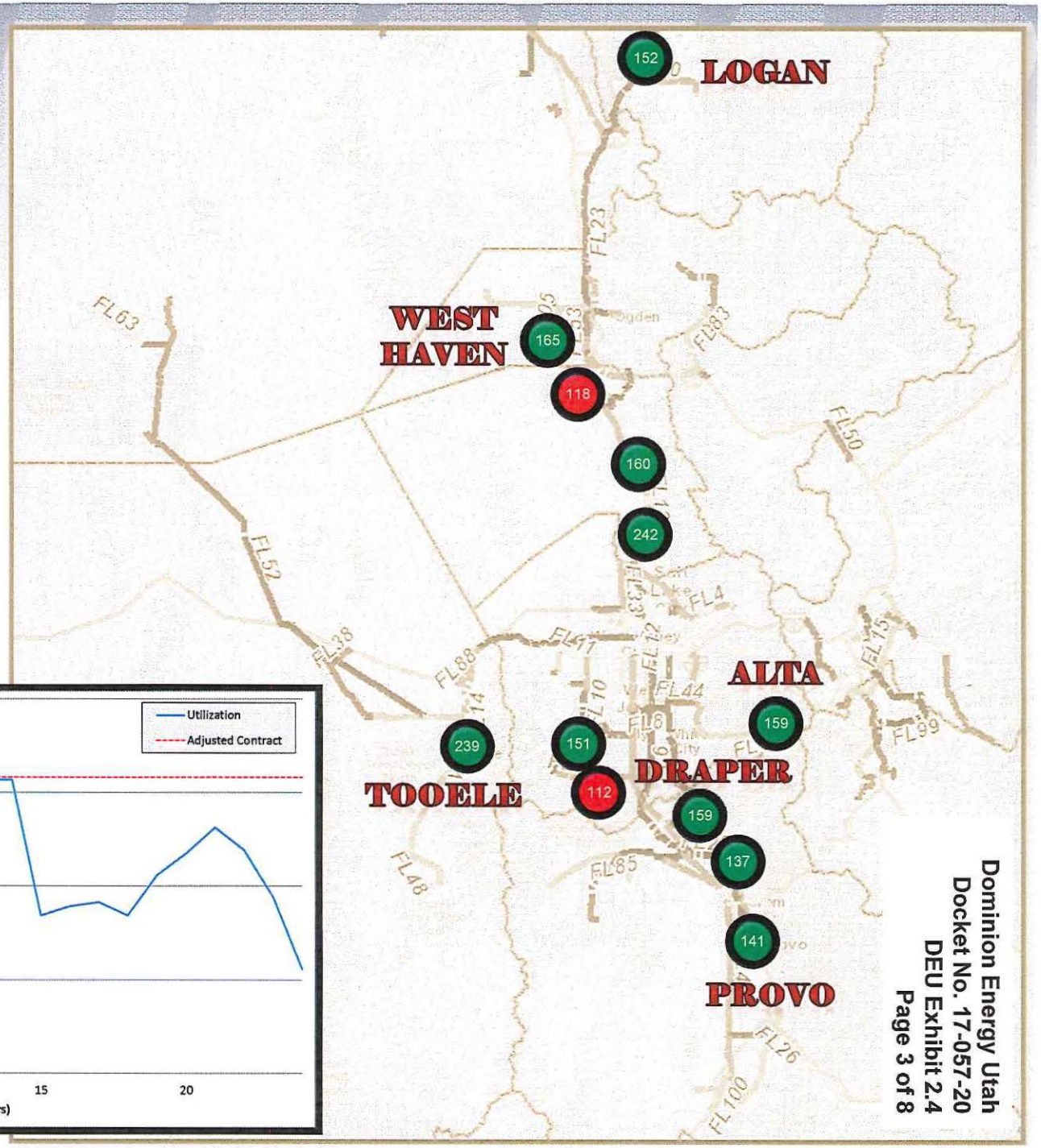

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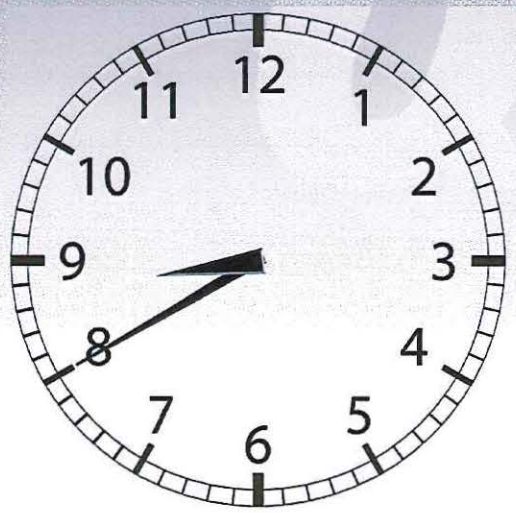

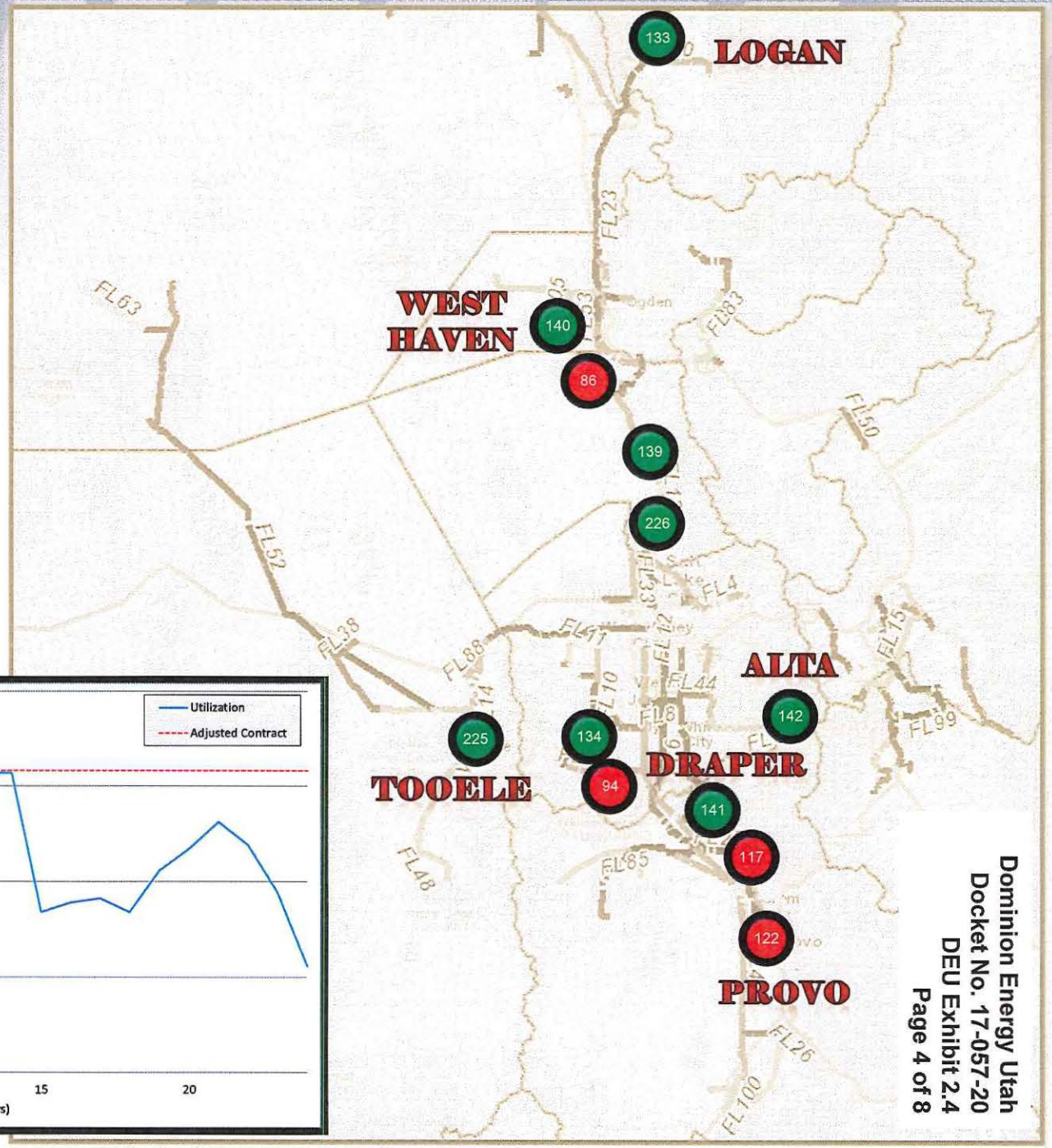

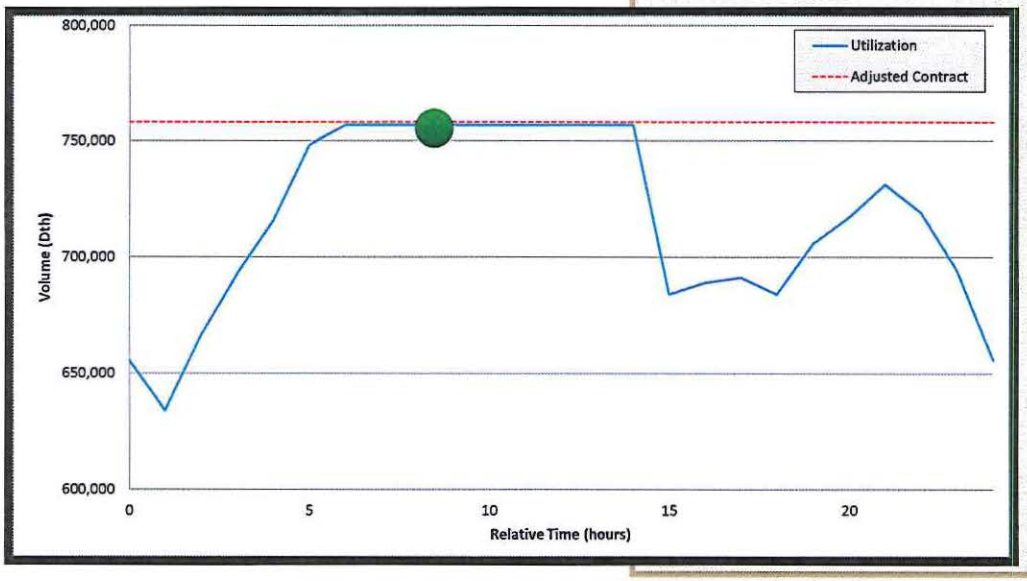

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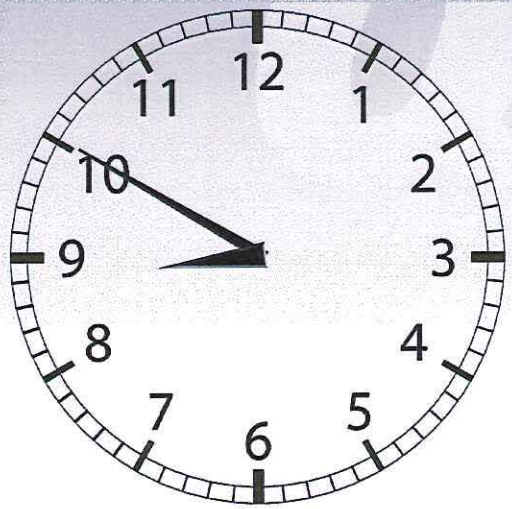

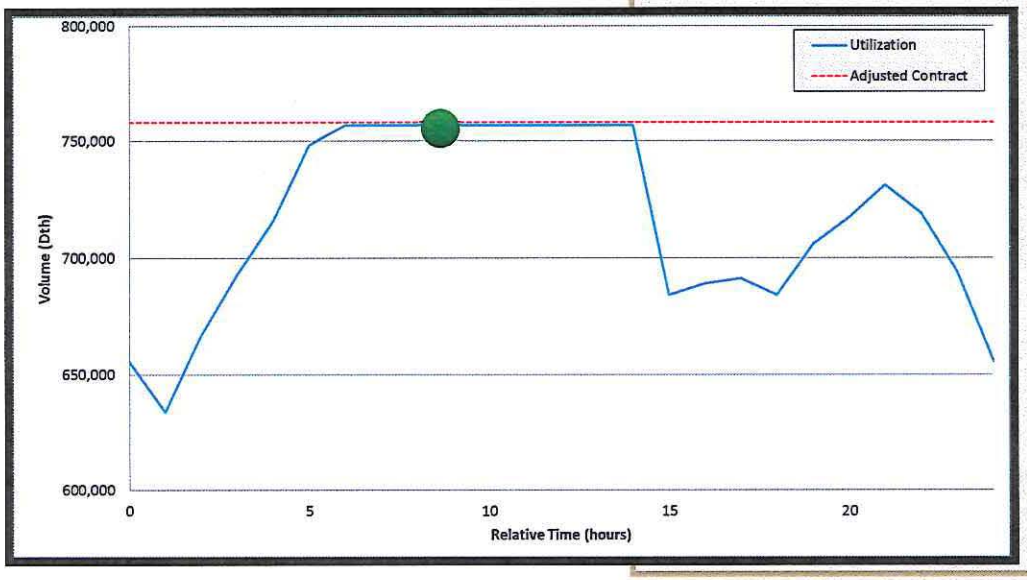

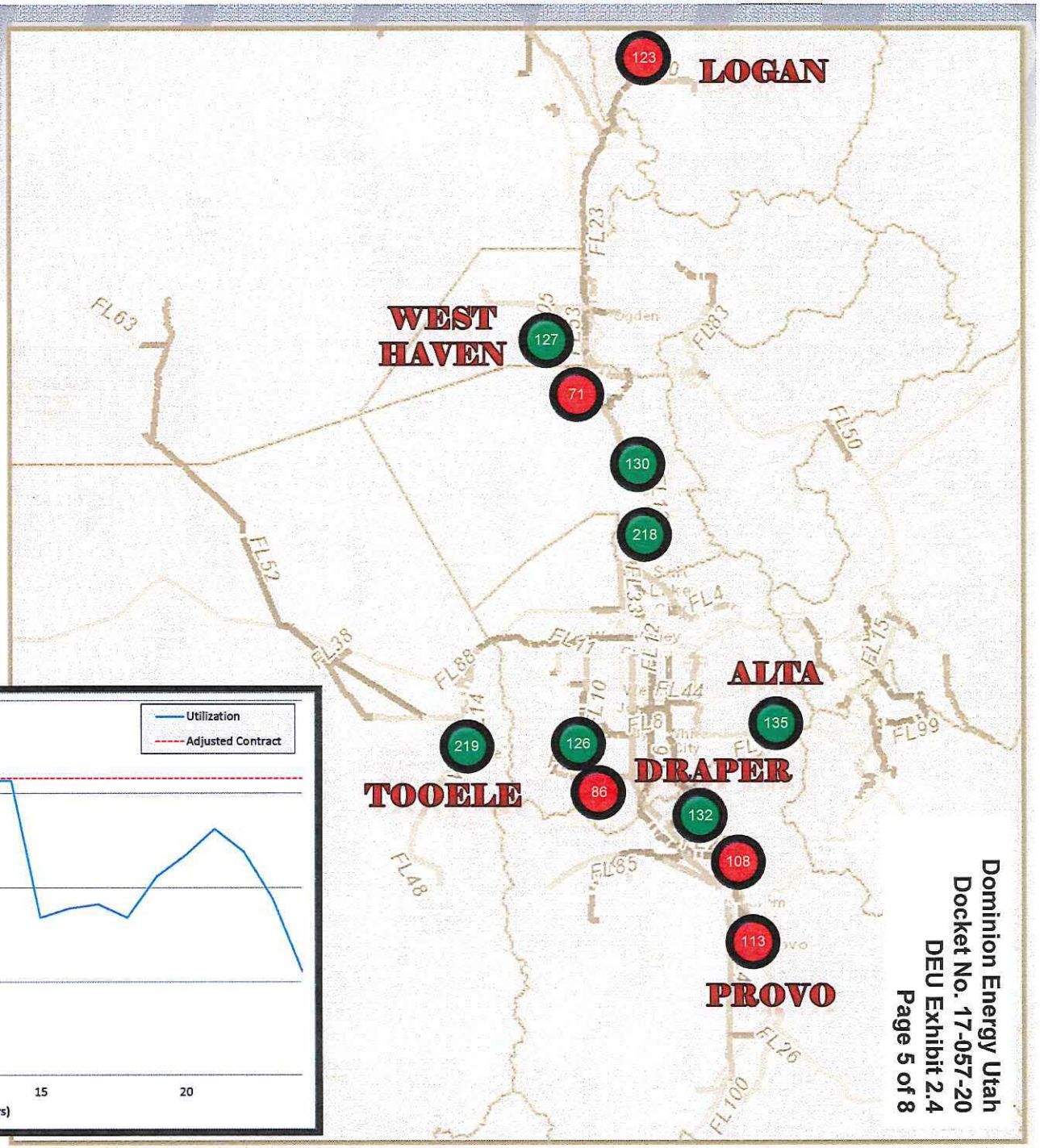

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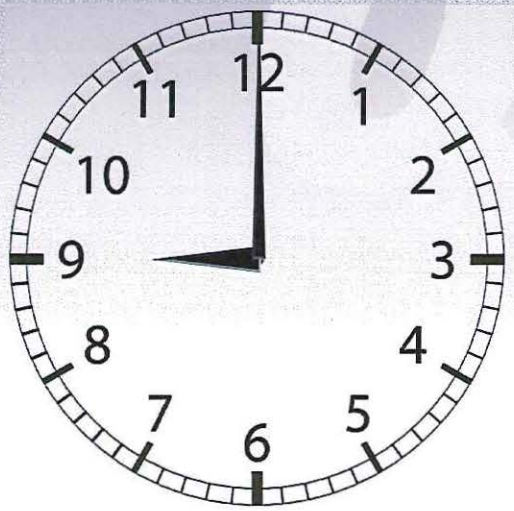

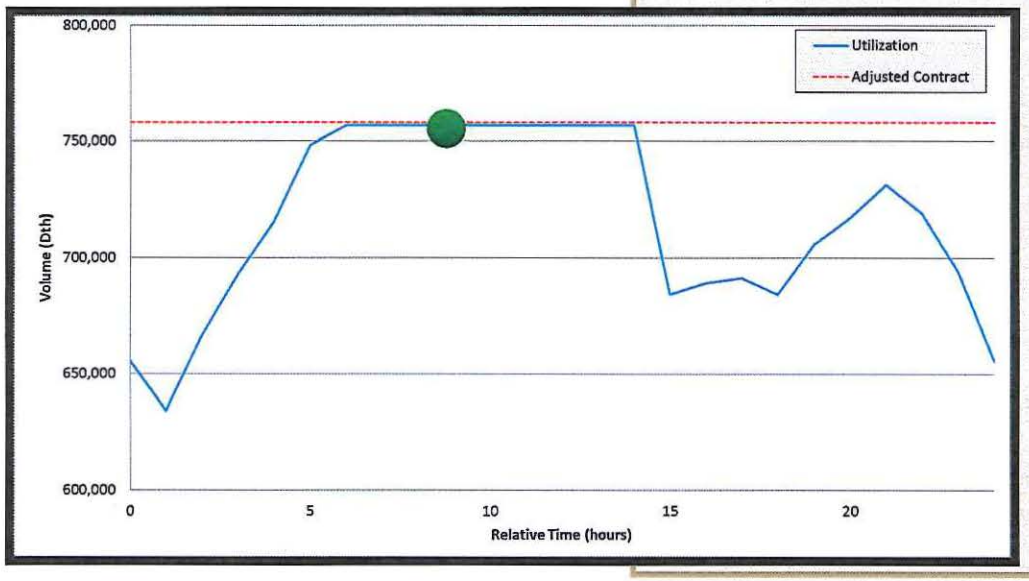

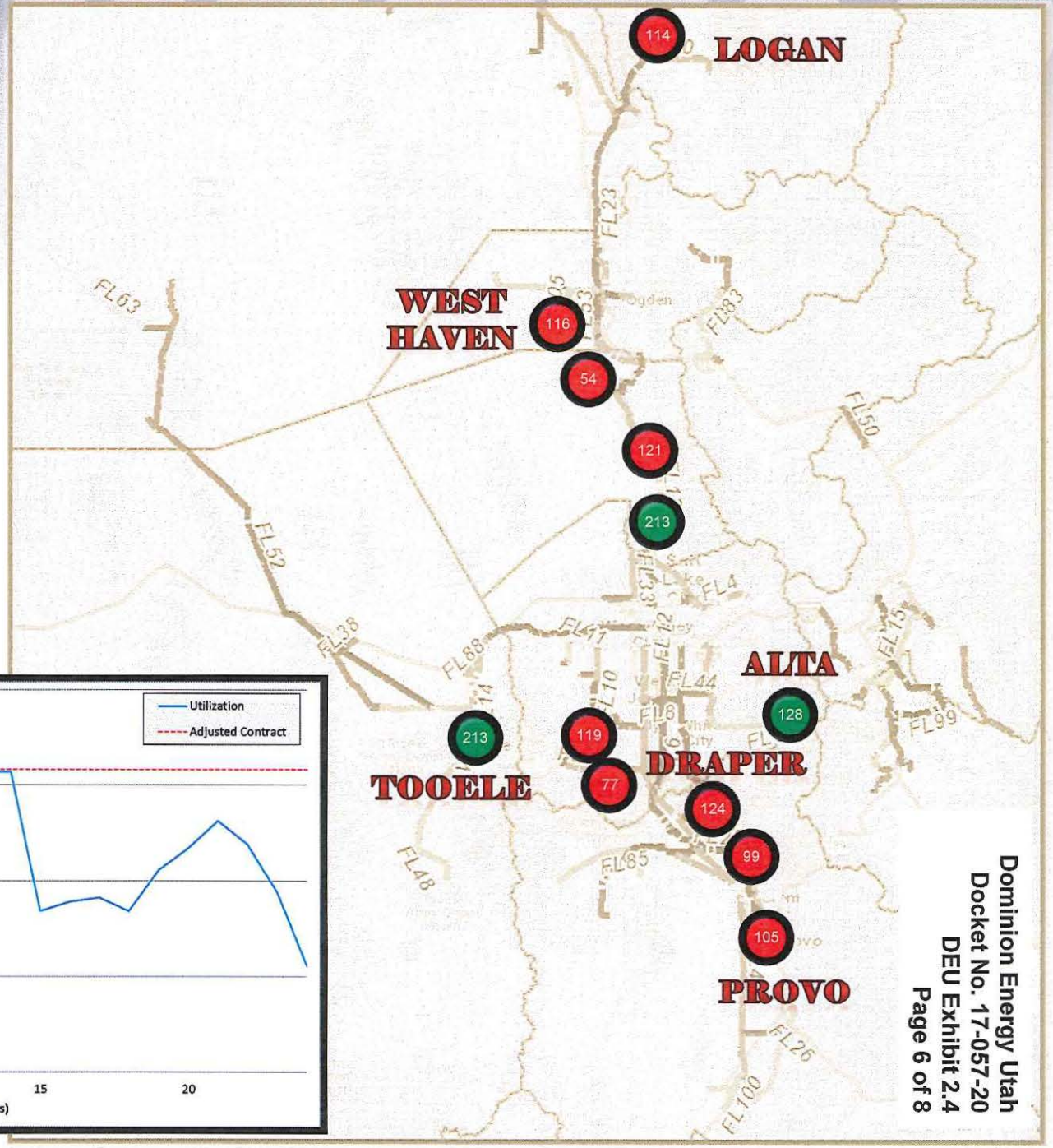

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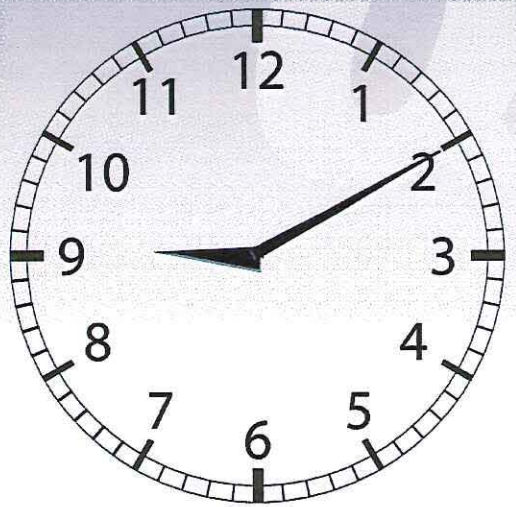

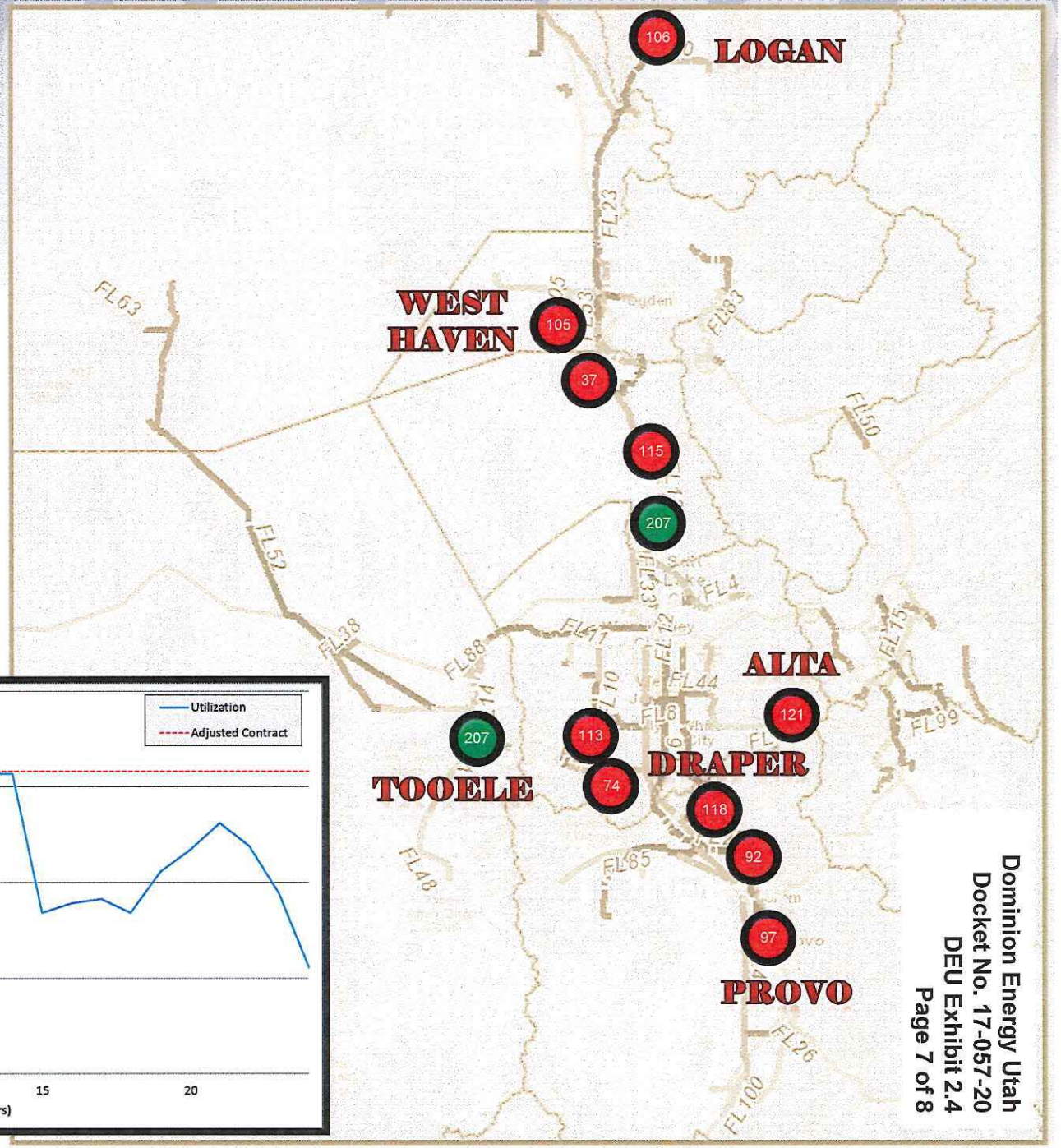

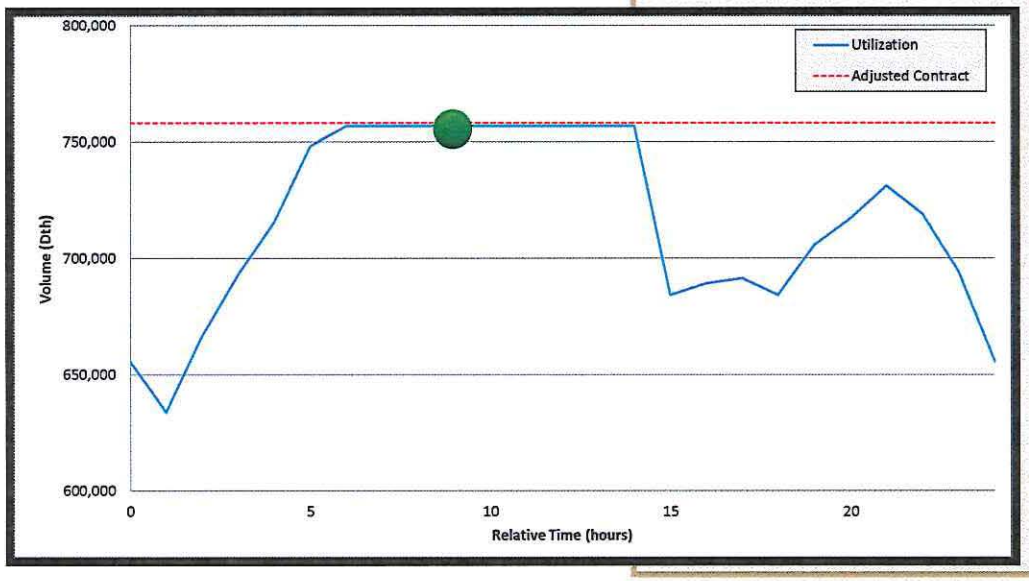

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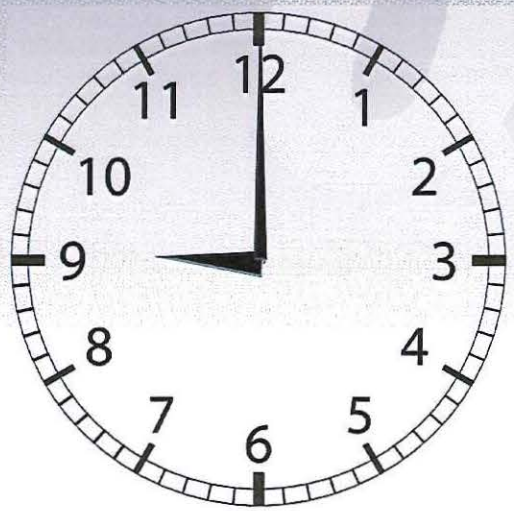
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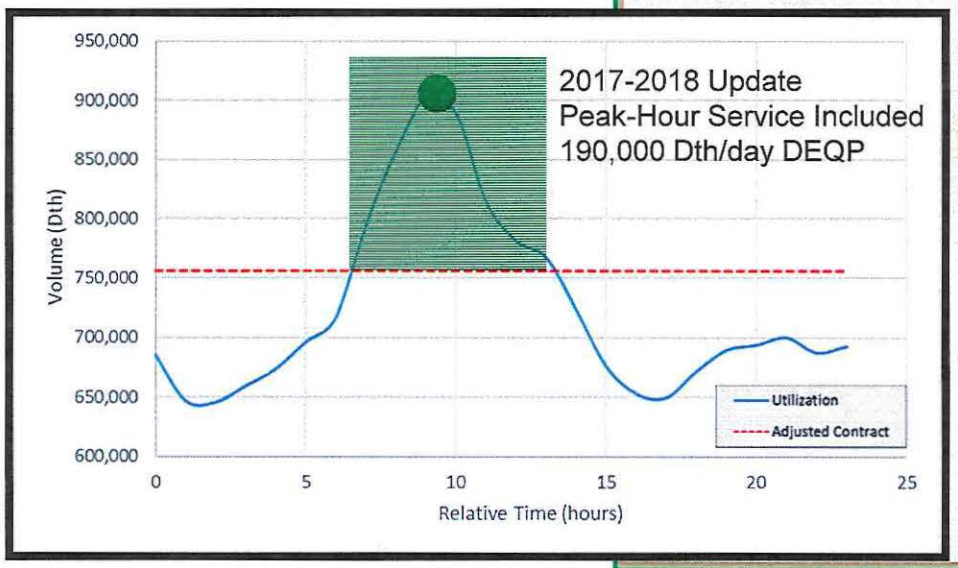
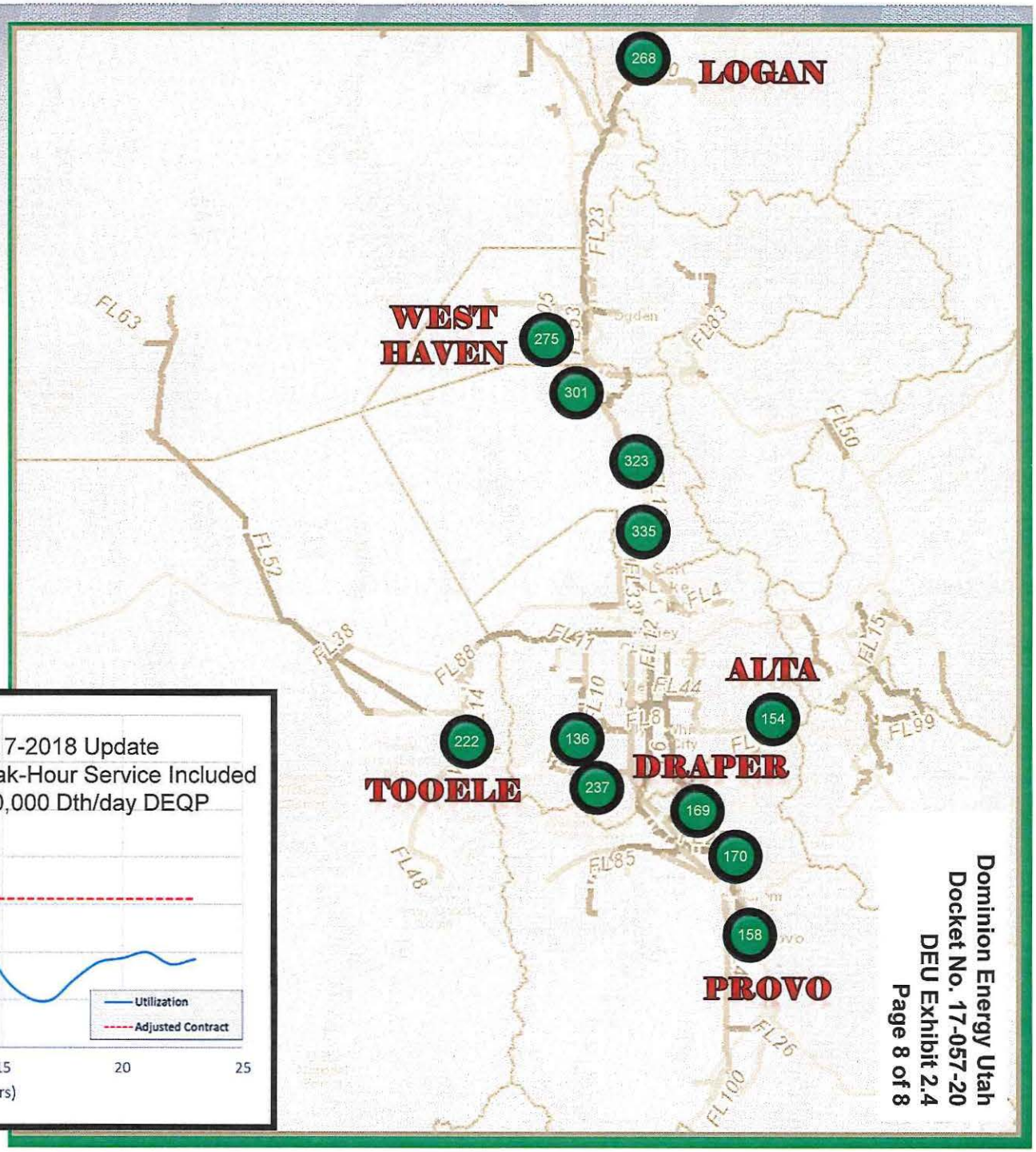
11


2017-2018 Update
Peak-Hour Service Included
190,000 Dth/day DEQP
Volume (Dth)
950,000
900,000
850,000
800,000
750,000
700,000
650,000
600,000
0
5
10
15
20
25
Relative Time (hours)
Utilization
Adjusted Contract


268
LOGAN
WEST HAVEN
275
301
323
335
ALTA
154
222
136
237
TOOELE
DRAPER
169
170
158
PROVO
FL63
FL23
FL83
FL50
FL52
FL38
FL88
FL44
FL48
FL85
FL26
FL100
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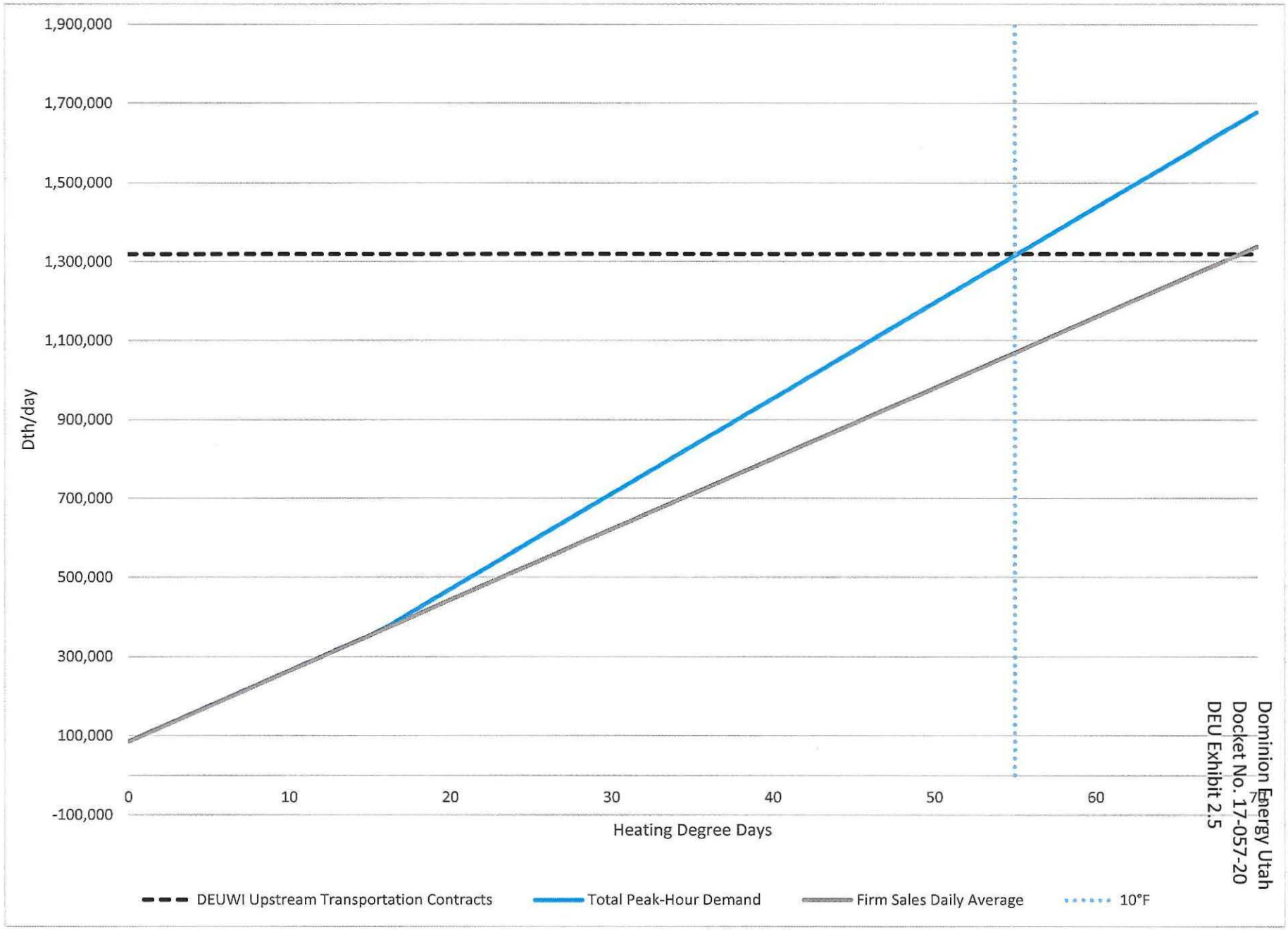
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1,700,000
1,500,000
1,300,000
1,100,000
900,000
700,000
500,000
300,000
100,000
-100,000
Dth/day
0
10
20
30
40
50
60
Heating Degree Days
DEUWI Upstream Transportation Contracts
Total Peak-Hour Demand
Firm Sales Daily Average
10°F
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