



LOS ALAMOS

# County of Los Alamos

## Minutes

### Board of Public Utilities

1000 Central Avenue  
Los Alamos, NM 87544

*Cornell Wright, Chair; Stephen McLin, Vice-chair;  
Eric Stromberg, Steve Tobin and Carrie Walker Members  
Philo Shelton, Ex Officio Member  
Steven Lynne, Ex Officio Member  
James Robinson, Council Liaison*

Wednesday, September 15, 2021

5:30 PM

Remote Zoom Meeting:  
<https://us06web.zoom.us/j/86549770504>

#### REGULAR SESSION

### 1. CALL TO ORDER

The regular meeting of the Incorporated County of Los Alamos Board of Public Utilities was held on Wednesday, September 15, 2021 via Zoom video conferencing platform. Board Chair Cornell Wright called the meeting to order at 5:30 p.m. BPU members, staff and the public participated remotely. This social distancing was to comply with the recommendations of the Centers for Disease Control (CDC) to prevent the spread of COVID-19. Members of the public were notified of the ability to live-stream the meeting online and submit public comment during the meeting. The following board members were in attendance:

Present 7 - Chair Wright, Vice Chair McLin, Board Member Stromberg, Board Member Tobin, Board Member Walker, Board Member Shelton and Board Member Lynne

### 1.A. Statement Regarding Closed Session

\*\*\*\*\*

Mr. Wright moved that the Board approve the following statement for inclusion in the minutes: "The matters discussed in the closed session held on August 27, 2021 that began at 12:00 p.m. were limited only to the topics specified in the notice of the closed session, and no action was taken on any matter in the closed session." The motion passed by the following vote:

\*\*\*\*\*

Yes: 5 - Members McLin, Stromberg, Tobin, Walker and Wright

### 2. PUBLIC COMMENT

Chair Wright opened the floor for public comment on items on the Consent Agenda and for those not otherwise included on the agenda. There was no public comment.

### 3. APPROVAL OF AGENDA

\*\*\*\*\*

Member Walker moved that the agenda be approved as amended and that item 6.D. be removed from the CONSENT agenda and reviewed as the first item under item 6. BUSINESS. The motion passed by the following vote:

\*\*\*\*\*

Yes: 5 - Members McLin, Stromberg, Tobin, Walker and Wright

#### **4. BOARD BUSINESS**

##### **4.A. Chair's Report**

1). Chair Wright announced that BPU members were all invited to the Boards & Commissions Luncheon on September 23. He plans to attend and represent the BPU. The "luncheon" will be conducted over Zoom.

2). Chair Wright asked board members to review the final draft of the PowerPoint slides that he will present to County Council on September 21. A copy of the slides were provided in the meeting packet.

##### **4.B. Board Member Reports**

Member Tobin reviewed his PowerPoint presentation which was entitled ***"Facilitating a Deeper Discussion: Levelized Cost of Electric Energy, RFP Results for Xcel Energy in Colorado, Duty Cycle, Voltage in the Context of Transmission, Cost per MW."***

A copy of the slides were included in the meeting packet and these were the areas highlighted:

- 1). Energy economics
- 2). APR1000 vs SMR comparison, economics
- 3). Impact of voltage and regulatory boundaries relative to where our energy comes from
- 4). Brief discussion focused on duty cycle in context of energy options

Board members and staff discussed his presentation. Chair Wright thanked him for his informative presentation.

##### **4.C. Utilities Manager's Report**

Mr. Shelton distributed a copy of his written report which is **attached** to the minutes. He provided summarized comments and responded to board member inquiries as appropriate.

##### **4.D. County Manager's Report**

Mr. Lynne reported on the following items:

- 1). Required weekly COVID testing is going well.
- 2). There is an internal discussion regarding a possible vaccination requirement and the complexities of mandating the vaccine.

##### **4.E. Council Liaison's Report**

Mr. Robinson highlighted these upcoming County Council items:

- 1). Regional Capital Fund
- 2). County Manager Goals
- 3). LED Light Replacements

- 4). NNSA Field Officer report
- 5). EM Update on Middle DP Road
- 6). Chair Wright's presentation to Council
- 7). Downtown Master Plan for Los Alamos & White Rock
- 8). Joint Use Gym at Middle School

#### **4.F. Environmental Sustainability Board Liaison's Report**

Mr. Loechell was absent and did not provide a written report.

#### **4.G. General Board Business**

There was none.

#### **4.H. Approval of Board Expenses**

There were none.

#### **4.I. Preview of Upcoming Agenda Items**

There were no additional items for the tickler.

### **5. PUBLIC HEARING(S)**

There were none

### **6. CONSENT AGENDA**

\*\*\*\*\*

**Mr. McLin moved that the Board of Public Utilities approve the items on the Consent Agenda as amended and that the motions contained in the staff reports be included in the minutes for the record. The motion passed by the following vote:**

\*\*\*\*\*

**Yes: 5 - Members McLin, Stromberg, Tobin, Walker and Wright**

#### **6.A. [14739-21](#) Approval of Board of Public Utilities Meeting Minutes**

**I move that the Board of Public Utilities approve the meeting minutes as presented:**

#### **6.B. [RE0469-21](#) Approval of Incorporated County of Los Alamos Resolution No. 21-23, a Resolution Removing Uncollectible Utility Accounts from the Incorporated County of Los Alamos Accounts Receivables List for - Fiscal Year 2016 & Fiscal Year 2017**

**I move that the Board of Public Utilities endorse Incorporated County of Los Alamos Resolution No. 21-23; A Resolution Removing Uncollectible Utility Accounts from the Incorporated County of Los Alamos Accounts Receivables List for - Fiscal Year 2016 and Fiscal Year 2017, and forward to the Council with a recommendation for approval.**

#### **6.C. [RE0475-21](#) Incorporated County of Los Alamos Resolution No. 21-25; A Resolution**

Authorizing the County Council Chair or Los Alamos County Utilities Manager to Approve Submission of Completed Applications and Necessary Documents for 2022 Applications to the Water Trust Board for Funding Non-Potable Water System Projects

**I move that the Board of Public Utilities endorse Resolution 21-25; A Resolution Authorizing the County Council Chair or Los Alamos County Utilities Manager to Approve Submission of Completed Applications and Necessary Documents for 2022 Applications to the Water Trust Board for Funding Non-Potable Water System Projects, and forward to Council for approval.**

- 6.E. [AGR0784-21](#) Approval of Amendment No. 2 to Services Agreement No. AGR17-914 with Alpha Southwest, Inc. in the amount of \$649,886.00 for the Purpose of Inspection, Repair, and Ancillary Services on County Well and Booster Pumps.

**I move that the Board of Public Utilities approve Amendment No. 2 to Services Agreement No. AGR17-914 with Alpha Southwest, Inc. in the amount of \$649,886.00, for a revised total agreement amount of \$1,100,000.00, plus applicable gross receipts tax, and to extend the contract term two years for the purpose of Inspection, Repair, and Ancillary Services on County Well and Booster Pumps, and forward to Council for approval.**

- 6.F. [AGR0785-21](#) Ratification of Expenses for Emergency Replacement of Motor for Otowi Well #4

**I move that the Board of Public Utilities Approve Expenses for Emergency Replacement of Motor for Otowi Well #4 in an Amount Not to Exceed, \$130,000, plus applicable Gross Receipts Tax.**

- 6.G. [AGR0786-21](#) Approval of Task Order No. 97 Under Services Agreement No. AGR16-044 with Parker Construction, LLC for Replacement of Sewer Lines in Sombrillo Court

**I move that the Board of Public Utilities approve Task Order No. 97 Under Services Agreement No. AGR16-044 with Paul Parker Construction, LLC in the amount of \$58,370.02, which amount includes Gross Receipts Tax, and a Contingency in the amount of \$15,000.00, for a total of \$73,370.02 for Replacement of Sewer Lines in Sombrillo Court.**

## **7. BUSINESS**

- 6.D. [AGR0782-21](#) Approval of Amendment No. 1 to Professional Services Agreement No. AGR16-701 with Tyler Technologies, Inc. in the amount of \$160,965.00, for a Total Agreement Amount Not-to-Exceed \$3,593,323.00, plus Applicable Gross Receipts Tax, to purchase "Tyler Notify" and "MyCivic311™ Bundle."

Mr. Shelton presented. He stated that he did listen to the August 18th meeting and he recapped the discussion. He stated that the price came down a few thousand dollars. And he explained that this expense was a FY22 budget option that Council approved and will be funded out of the general fund. It requires BPU endorsement because the Customer Care Center Representatives will be the primary users of the software. Following is a summary of prior discussion:

Ms. Pippa Freyer, Business and ERP Manager presented to the BPU on August 18, 2021. Mr. Steven Lynne, County Manager also responded to BPU member questions and provided clarifying information. Since Utilities Manager, Philo Shelton return travel from was delayed, the BPU chose to table this item until the next regular meeting. Also, the BPU requested some additional information that is contained in Attachment G - Tyler PowerPoint Presentation. County Council approved in FY2021 budget option D-61 within the Administrative Services Department-Information Management Division for 311/Customer Relations Management software at a budget amount of \$250,000. Over the past year, a countywide committee was formed and reviewed several software services that offered 311/Customer Relations Management functions. Given the County uses Tyler for Work Orders and EnerGov for Building Permits and Code Enforcement, the committee recommended pursuing the "Tyler Notify" and "MyCivic311™ Bundle" to have the best software integration into the County's existing software services. In 2016 Tyler was awarded the contract for the County's new Enterprise Resource Planning (ERP) services and this will be the first amendment to this professional services agreement.

A video was broadcast during the meeting that provided a customer perspective of the MyCivic software. Mr. Shelton reviewed the documents provided in the meeting packet. He and Ms Freyer also discussed the implementation plan, answered questions and provided clarifying information as appropriate.

\*\*\*\*\*

**Mr. Wright moved that Board of Public Utilities endorse Amendment No. 1 to Professional Services Agreement No. AGR16-701 with Tyler Technologies, Inc. in the amount of \$160,965.00, for a Total Agreement Amount Not-to-Exceed \$3,593,323.00, plus Applicable Gross Receipts Tax, for "Tyler Notify" and "MyCivic311™ Bundle" as drafted and attached, but may be subject to minor modifications, only if the final form is approved by the County Attorney and then forwarded to County Council with a recommendation for approval. The motion passed by the following vote:**

\*\*\*\*\*

**Yes: 4 - Members McLin, Stromberg, Tobin and Wright**

**No: 1 - Member Walker**

**7.A. [14666-21](#)**

**UAMPS Smart Energy Rebate Programs**

Mr. Cummins, Deputy Utility Manager - Power Production introduced Ms. MacKenzie Monthey from UAMPS. A copy of her PowerPoint presentation was included in the meeting packet. She provided more detail on the UAMPS Smart Energy Rebate Programs which include:

- \* Home Energy Savings Program
- \* Cool Cash Program
- \* See "Ya" Later Refrigerator Program
- \* Commercial Lighting Program

Future Rebate Programs include:

- \* EV Charging Stations
- \* SMART Tankless Water Heater
- \* WEMO Plugs

The board discussed the information and asked clarifying details as appropriate.

**7.B. [14753-21](#)**

**Approval of Department of Public Utilities Mission, Vision and Values,**

## Strategic Goals and Objectives

Mr. Shelton presented this item. The following is the substance of the item being considered: The Utilities Manager is expected to annually develop strategic objectives and long-term goals and present them to the Board for approval. At a special meeting on September 7th, the Board was asked to provide input to incorporate into the Department's planning efforts to ensure alignment of focus areas, strategic objectives and goals while considering County Council's priorities in their 2021 Strategic Leadership Plan. The changes suggested by the Board were included in the agenda packet for approval. DPU senior staff will hold their annual strategic planning meeting on September 30th. The Board's direction and input will be used for the Department's action planning and budget preparations for FY2023.

The Board discussed this item and requested clarification where necessary. Mr.. Walker opened the floor for public comments about this item. Members of the public gave the following summarized comments:

- 1). Mr. Michael Dempsey, 300 Connie Ave, White Rock: Spoke about heat pumps not working in this area. The BPU needs to consider all aspects including environment impact. The Board and Mr. Shelton and his staff are doing a great job. His detailed comments are available in the meeting recording.
- 2). Ms. Katie Leonard, 3092 Woodland Rd: She stated that it is worth the BPU looking into UAMPS Rebate Program; this incentive program would be helpful for many residents in Los Alamos. Environmental sustainability is essential; keep this at the forefront of the BPU's goals. Her detailed comments are available in the meeting recording.

The board discussed recommendations by Mr. Wright, Mr. McLin, and Mr. Stromberg regarding Goal 1 and placement of the new goal identified during the Strategic Planning workshop on September 7th: ***"Educate Board Members on markets, contracts, and production options for electricity and solar."***

The following actions were identified for follow-up:

- 1). Move new goal from 3.2.1. to Financial Performance as item 2.5.

\*\*\*\*\*

**Mr. Wright moved that the Board of Public Utilities approve the Mission, Vision and Values statements and the FY2023 Strategic Goals and Objectives as presented and modified by moving goal 3.2.1 to 2.5. The motion passed by the following vote:**

\*\*\*\*\*

**Yes: 5 - Members McLin, Stromberg, Tobin, Walker and Wright**

## **8. STATUS REPORTS**

### **8.A. [14747-21](#) Monthly Status Reports**

The following informational status reports were provided to the Board in the agenda packet for review and discussion:

- 1). Electric Reliability Report - ~~the incorrect report was attached to the meeting packet.~~  
~~The correct report is attached to the minutes for the record.~~
- 2). Accounts Receivables Report - Mr. McLin suggested breaking out commercial and residential customers to show the effect of COVID.
- 3). Safety/Risk Report

### **8.B. [14535-21](#) Department of Public Utilities Quarterly Report - FY21/Q4**

(prepared by Julie Williams-Hill, Public Relations Manager)

Mr. Shelton reviewed the Quarterly report document that Ms. Williams-Hill published. A copy was included in the meeting packet. The Board discussed this item and requested clarification where necessary.

14884-21

### Quarterly Conservation Program Update

Deputy Utility Manager-Engineering, Mr. James Alarid presented this item. Mr. Alarid reported on recent joint DPU/PEEC Activities during the last three months:

- 1). In July ScienceFest was in-person. DPU organized the third annual electric car show. DPU-Engineering provided 200 wind turbine kits and 100 solar car kits for the Discover boxes distributed to kids.
- 2). PEEC held a summer family evening on Water Wise Gardening. DPU put together some water conservation kits that were distributed to families in attendance.
- 3). PEEC is in the classrooms again. They have held Water Conservation presentations to various grades. Emphasis will now switch to Energy Conservation as the weather gets colder. The Board discussed this item and requested clarification where necessary.

## 9. PUBLIC COMMENT

Chair Wright opened the floor for public comment on any item. Members of the public provided the following summarized comments:

- 1). Mr. Michael Dempsey, 300 Connie Avenue, White Rock: Expressed his appreciation for the board and concerns for the future. His detailed remarks are available in the meeting recording.

## 10. ADJOURNMENT

Chair Wright adjourned the meeting at 8:35 p.m.

\*\*\*\*\*

### APPROVAL

Cornell Wright, Jr

Board of Public Utilities Chair Name



Board of Public Utilities Chair Signature

October 20, 2021

Date Approved by the Board

## ATTACHMENTS

- A. Utilities Manager Report
- B. Electric Reliability Report (corrected)

**Utility Manager's Report  
September 15, 2021**

1. The County has an indoor mask mandate and has implemented a weekly testing regime for unvaccinated employees to help slow the spread of COVID-19. The GWS crew who is our largest crew is moving back to A and B schedules which staggers work start times to help reduce close contact exposures.
2. Held a BPU Strategic Planning Session on Tuesday, September 7<sup>th</sup> and Senior Management's full day Strategic Planning is scheduled for September 30<sup>th</sup>. Also, in October I will be attending the UAMPS annual board member strategic planning meeting. Topics I plan to introduce are to continue to push for the proposed legislation call the Nuclear Energy Leadership Act (This will enable DOE to enter long term power purchase agreements.), continue push for increasing subscription in the CFPP, and offer Zoom options on trainings UAMPS offers.
3. The hearings for a Joint Motion for Joiner to Stipulation regarding the PNM/Avangrid merger case (PRC Case Number 20-00222-UT) are completed. Staff has worked with Richard Virtue and M-S-R Staff on a position paper that was filed after the hearing, and we are currently working on the final Brief in Chief. The stipulation is requesting an option for full demolition of the SJGS be considered including using whole life cost analysis in its evaluation.
4. Westmoreland who supplies coal to the SJGS has had issues with their long wall due to encountering a significant void in the coal seam. They have been injecting epoxy and working to reposition shields to get the long wall functioning again and they anticipate mining coal again next week. Today, there are 38-days of coal remaining on the ground available to continue the SJGS operation.
5. The ownership group with the San Juan Generating Station have prepared and presented a draft a term sheet to Farmington and Enchant for their consideration. Farmington and Enchant have scheduled a half day meeting for September 24<sup>th</sup> to discuss these terms with the full ownership group that includes both the current participants and exiters in the project.
6. The AMI project installer is returning next month after the 133 commercial gas meter end points are delivered. To date, the AMI contractor completed 7,101 gas endpoints, 6,859 water endpoints and 7,404 electric endpoints. GWS Staff have been installing the commercial water meter replacements and obsolete gas meters as these materials are delivered. 47 letters will be issued tomorrow to customers with electric meter obstructions to correct these issues over the next 30 days as DPU Rules and Regulations require. These



obstructions vary, but most are caused by new stucco siding where it embedded the electric meter ring clamp, and the meter cannot be removed.

7. The LANL Technical Working Group met to review the remedial measures performed on MDA-L to remove volatile organic compounds such as TCA and TCE that were stored in drums and buried in drilled out tuft columns. Today, N3B is monitoring the vapor plume and can reactive the Soil Vapor Extraction System should these vapors increase in concentration due to a drum leaking.
8. The Office Renovation is complete, and Staff moved back in the office on September 2<sup>nd</sup>.
9. The White Rock Water Resource Recovery Plant has been placed out to bid. Board and Council will review and approve the bid at their October meetings.
10. Attended additional meetings regarding the American Rescue Plan Act (ARPA) Funds. Water and Sewer projects developed after March 1, 2021, and projects cleared by NMED qualify for use of these funds. On August 31, County Council approved DPU requesting 25% to 30% of the County's \$3.8 Million allocation in ARPA funds for use on water and sewer projects. This direction by Council will result in approximately \$1million in relief to DPU's rate payers. Should the White Rock Wastewater Plant replacement bids come in high, staff will propose using these funds to cover any budget shortfalls.
11. Attended several meetings on developing The County's Infrastructure and Capital Improvement Plan (ICIP) and recommending the County's top five priority projects for the ICIP list. The ICIP will be forwarded to the state for its use with state grant project eligibility, and this complete list includes all of DPU's 10-yr CIP projects. The ICIP top five priority projects are used with NM Legislation for potentially funding projects with the legislature's annual discretionary funds. State Route 4 Waterline Replacement was recommended as the first project in priority given our NMDOT partner and fourth was DP Road Infrastructure and Road Improvements.
12. Held a POST 2025 ECA meeting and learned DOE now has a renewable energy goal of 100% renewable by 2035 under the Biden Administration. While five years sooner than the County's Carbon Neutral goal by 2040, it helps to be closer in alignment with our goals as we explore replacement electric generating resources over the next decade. Also, DOE is moving forward with building 8 MW of solar generation on a LANL site. The discussions were productive and more definitive goals will come out of IRP update that is jointly funded.
13. Other project meetings include a kick-off meeting with the consultant performing the customer satisfaction survey, Middle DP Road Cleanup meeting to discuss removal of legacy

waste around the DP Road lift station, and a meeting on renewing the air monitoring license agreement.

14. Held a meeting with Tesuque Pueblo on the Potable Water Line for the Ski Hill. The Pueblo's concern primarily are any disturbance of burial grounds and artifacts. The Ski Area offered to have a site monitor should burial grounds or artifacts be encountered when excavating.

# Los Alamos County Utilities



## **Electric Distribution Reliability**

September 15, 2021

Alan Horton  
Associate Engineer

**Prepared by Alan Horton  
Associate Engineer L.A.C.U.**

							Customers	Combined Customer		
Date	Call Rcd.	Circuit	Cause	Start Time	End Time	Duration	Affected (Meters)	Outage Durations	Total Outage H:M:S	Running SAIDI
9/4/2020	Utilities	16	UNKNOWN	16:00	17:00	1:00	11	11:00:00	11:00:00	0:00:04
9/4/2020	Utilities	WR1	UNKNOWN	17:00	18:00	1:00	2	2:00:00	13:00:00	0:00:05
9/5/2020	Utilities	13	UNKNOWN	18:00	19:00	1:00	1	1:00:00	14:00:00	0:00:06
10/2/2020	Utilities	15	ANIMAL	1:00	3:30	2:30	50	125:00:00	139:00:00	0:00:55
10/9/2020	Utilities	15	ANIMAL	22:15	23:15	1:00	25	25:00:00	164:00:00	0:01:05
10/12/2020	Utilities	15	URD Failure	7:00	8:15	1:15	25	31:15:00	195:15:00	0:01:18
10/27/2020	Utilities	17	Weather	5:00	6:30	1:30	70	105:00:00	300:15:00	0:02:00
10/27/2020	Utilities	17	URD Failure	9:00	19:00	10:00	10	100:00:00	400:15:00	0:02:39
11/8/2020	Utilities	WR1	OH Failure	9:35	13:40	4:05	1	4:05:00	404:20:00	0:02:41
11/23/2020	Utilities	WR1	Weather	18:30	20:00	1:30	528	792:00:00	1196:20:00	0:07:56
11/23/2020	Utilities	WR1	Weather	20:00	20:50	0:50	1586	1321:40:00	2518:00:00	0:16:42
11/23/2020	Utilities	13	Weather	18:30	21:30	3:00	4	12:00:00	2530:00:00	0:16:47
11/27/2020	Utilities	WR1	URD Failure	1:29	4:15	2:46	20	55:20:00	2585:20:00	0:17:09
12/19/2020	Utilities	14	URD Failure	17:00	18:10	1:10	1	1:10:00	2586:30:00	0:17:09
12/27/2020	Utilities	15	UNKNOWN	1:00	2:30	1:30	20	30:00:00	2616:30:00	0:17:21
1/15/2021	Utilities	13	UNKNOWN	13:20	14:15	0:55	36	33:00:00	2649:30:00	0:17:35
2/2/2021	Utilities	15	ANIMAL	6:30	7:15	0:45	200	150:00:00	2799:30:00	0:18:34
2/4/2021	Utilities	16	URD Failure	0:00	5:00	5:00	69	345:00:00	3144:30:00	0:20:52
2/5/2021	Utilites	EA-4	OH Failure	21:45	22:30	0:45	10	7:30:00	3152:00:00	0:20:55
2/25/2021	Utilites	14	URD Failure	8:30	11:30	3:00	1	3:00:00	3155:00:00	0:20:56
4/21/2021	Utilites	14	ANIMAL	21:23	22:38	1:15	539	673:45:00	3828:45:00	0:25:24
5/16/2021	Utilites	WR1	UNKNOWN	10:30	12:00	1:30	5	7:30:00	3836:15:00	0:25:27
5/18/2021	Utilites	14	URD Failure	16:00	19:00	3:00	2	6:00:00	3842:15:00	0:25:29
5/22/2021	Utilites	EA-4	Weather	19:30	20:30	1:00	30	30:00:00	3872:15:00	0:25:41
5/26/2021	Utilites	16	URD Failure	16:45	22:20	5:35	100	558:20:00	4430:35:00	0:29:23
5/27/2021	Utilites	WR1	Weather	14:15	15:38	1:23	1586	2193:58:00	6624:33:00	0:43:57
6/5/2021	Utilites	15	ANIMAL	23:30	0:00	0:30	270	135:00:00	6759:33:00	0:44:50
6/5/2021	Utilites	15	ANIMAL	0:00	0:30	0:30	270	135:00:00	6894:33:00	0:45:44
6/17/2021	Utilites	16	URD Failure	18:35	21:30	2:55	3	8:45:00	6903:18:00	0:45:48
6/17/2021	Utilites	WR1	URD Failure	23:45	0:00	0:15	50	12:30:00	6915:48:00	0:45:53
6/17/2021	Utilites	WR1	URD Failure	0:00	2:30	2:30	50	125:00:00	7040:48:00	0:46:42
7/6/2021	Utilites	WR2	Unknown	10:45	11:45	1:00	25	25:00:00	7065:48:00	0:46:52
7/10/2021	Utilites	WR1	TREE	22:30	0:00	1:30	10	15:00:00	7080:48:00	0:46:58
7/10/2021	Utilites	14	Unknown	11:30	15:00	14:30	3	43:30:00	7124:18:00	0:47:16
7/17/2021	Utilites	WR2	Unknown	12:30	14:30	2:00	16	32:00:00	7156:18:00	0:47:28
7/18/2021	Utilites	13	URD Failure	22:30	0:00	1:30	13	19:30:00	7175:48:00	0:47:36
7/19/2021	Utilites	13	URD Failure	0:00	5:00	5:00	13	65:00:00	7240:48:00	0:48:02
7/22/2021	Utilites	13	URD Failure	18:30	19:10	0:40	5	3:20:00	7244:08:00	0:48:03
7/30/2021	Utilites	WR1	OH Failure	16:50	19:15	2:25	1586	3832:50:00	11076:58:00	1:13:29
8/25/2021	Utilites	WR1	URD Failure	16:30	18:30	2:00	20	40:00:00	11116:58:00	1:13:45

[illegible]

<b>Twelve Month History</b>	<b>August 2021</b>	
<b>Total # Accounts</b>	<b>9045</b>	
<b>Total # Interruptions</b>	<b>40</b>	
<b>Sum Customer Interruption Durations</b>	<b>11116:58:00</b>	<b>hours:min:sec</b>
<b># Customers Interrupted</b>	<b>7366.0</b>	
<b>SAIFI (APPA AVG. = 1.0)</b>	<b>0.80</b>	<b>int./cust.</b>
<b>SAIDI (APPA AVG. = 1:00)</b>	<b>1.13</b>	<b>hours:min</b>
<b>CAIDI</b>	<b>1.31</b>	<b>hours:min/INT</b>
<b>ASAI</b>	<b>99.9994%</b>	<b>% available</b>

- **SAIFI - System Average Interruption Frequency Index**  
A measure of interruptions per customer (Per Year)

$$\text{SAIFI} = \frac{(\text{Total number of customer interruptions})}{(\text{Total number of customers served})}$$

- **SAIDI – System Average Interruption Duration Index**  
A measure of outage time per customer if all customers were out at the same time (hours per year)

$$\text{SAIDI} = \frac{(\text{Sum of all customer outage durations})}{(\text{Total number of customers served})}$$

- **CAIDI – Customer Average Interruption Duration Index**  
A measure of the average outage duration per customer (hours per interruption)

$$\text{CAIDI} = \frac{(\text{Sum of all customer outage durations})}{(\text{Total number of customer interruptions})} = \frac{\text{SAIDI}}{\text{SAIFI}}$$

- **ASAI – Average System Availability Index**  
A measure of the average service availability (Per unit)

$$\text{ASAI} = \frac{(\text{Service hours available})}{(\text{Customer demand hours})} = \frac{8760 - \text{SAIDI}}{8760}$$

