BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

IN THE MATTER OF IDAHO POWER COMPANY'S, PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.	**Docket: PCN 5** **Testimony** **Sam Myers**

Date: April 12, 2023

Sam Myers, Intervenor

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30 Year Severe Weather Recap

Wind Events

1. January 7-8, 1990 - Wind Event. A storm blew through Northeast Oregon with winds approaching 80 mph that toppled thousands of trees and blew the roofs off of structures. Business, schools, and roads were closed due to the wind. The wind storm began the evening of Jan. 7, toppling trees and downing power lines across the region. At the height of the storm the entire Umatilla Electric Cooperative's customer service area, from Meacham to Boardman, was without power in some areas for two or three days as crews from local and outside agencies struggled to repair power lines, poles, and transformers. Even two-way radios weren't working for part of the day, hampering cleanup efforts. Eighteen roads were closed in the area due to downed trees and blown detritus, including highway 204 near tollgate where winds estimated at 100 mph blew down the equivalent of 10 Million board feet of lumber during the storm. Crews with chainsaws began cleaning the "timber carnage" of an estimated 750 to 1,000 evergreens from the highway Jan 8th. One crew working east from Umatilla County while another forged west from Elgin.
2. July 9, 1995 - Hail Storm. 7. Severe Thunderstorm of July 9, 1995 in North Central Oregon**.** National Weather Service description as follows: "A supercell thunderstorm that developed near Redmond traveled nearly 200 miles before dissipating. It produced baseball sized hail in cities from Condon to Hermiston. Nearly every vehicle in Hermiston was damaged by hail. The local watermelon crop, on the verge of harvest, was a complete loss. The storm spawned flash floods, damaging winds, and even a brief tornado. The National Weather Service's new Doppler radar tracked the storm and allowed forecasters to provide ample warning. There were no fatalities, but damages to crops, structures, and property were in the tens of millions of dollars."

3. March 2, 1999 - High Wind Event. During the spring of 1999 we had a wind event that blew off the roof of a building on our farm(see picture below). The contractor that was repairing this building commented that the winds reached 100mph+ based on the damage he saw.

4. Dec 19th, 2012 - High Wind Event. Weather Tower recorded a speed of 79.2 mph(2 Sec Average).
5. Sept 15th, 2013 - Hail & Wind Event Link. Hail and wind caused power poles to fall over between Heppner, Or and Hermiston, Or. More data available upon request
6. Sept 29th, 2013 - High Wind Event. Weather Tower recorded a speed of 67.8 mph(2 Sec Average).
7. Dec 11, 2014 - High Wind Event. Weather Tower recorded a speed of 88.9 mph(2 Sec Average).

This weather data showcases local climate conditions. These weather events reveal a stunning wind load that would be placed upon the B2H line. These weather events could potentially cause line or tower failure due to the under engineered transmission line. The most critical dynamic with this data set is the relatively narrow date range from 1990 to 2014. The events: #1 and #4 could be characterized as downbursts while the other events are generally a result of intense localized thermal activity that frequently accompany a thunderstorm or a squall line. These winds are labeled as High-Intensity Winds(HIW) as described in the excerpt below(Exhibit 2.2)

<u>ASCE High-Intensity Winds</u>

In ASCE Manual of Practice No. 74, 4th edition page 49(see below).

2.2 HIGH-INTENSITY WINDS

Tornadoes and downbursts are the high-intensity winds (HIWs) discussed in this section. HIWs are generally the result of intense, localized thermal activity that frequently accompanies a thunderstorm or squall line. These HIWs are commonly narrow-front winds with speeds greater than the sustained, broad-front, synoptic winds described in Section 2.1. HIWs do not follow the pattern and characteristics of extreme winds from which the mathematics of gust response factors in Section 2.1 were developed.

Analyses of line failures in several countries have identified HIW events as the leading cause of transmission line failures. It is possible to apply rational measures to transmission line design to increase the reliability of transmission lines impacted by the majority of HIWs in the absence of windborne debris.

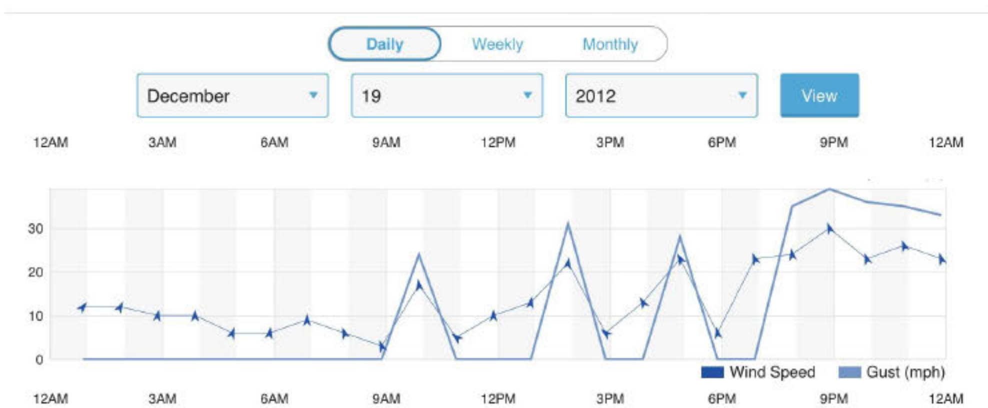
2.2.1 Downbursts

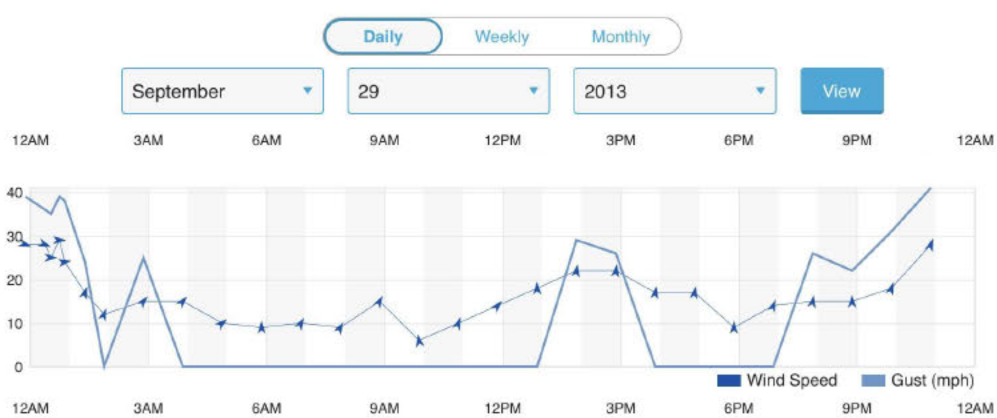
2.2.1.1 Background A downburst is defined as an intense downdraft of air that induces high-velocity winds in all directions when striking the ground. Fujita (1985) defined a downburst as a mass of cold and moist air that drops suddenly from the thunderstorm cloud base, impinging on the ground surface and then transferring horizontally. The practical diameter

This excerpt from the ASCE Manual of Practice No. 74 describes these HIWs as having commonly narrow front winds with speeds greater than the sustained, broad-front, synoptic winds described in Section 2.1. HIWs do not follow the pattern and characteristics of extreme winds from which the mathematics of gust response factors in Section 2.1 were developed. The HIWs are described as the leading cause of transmission line failure in many countries. It is important to also understand that these events can be addressed by applying measures to increase transmission line reliability where the transmission line will be impacted by these HIWs. Those additional measures include using larger MRI year standards. In this case going to a 300 year MRI.

<u>Morrow County Weather Variances</u>

Looking at our recorded wind speed event dates and comparing those dates to winds recorded to Pendleton, Oregon's weather station(30 miles ENE from our location) you can see a stark difference between the two locations. For our most intense wind events you can see they don't experience the same intensity of wind speeds as experienced on our farm. On these occasions we are experiencing mostly double the wind speeds as the recorded speeds observed at the weather station. This confirms our first hand experience in dramatic fashion. IPC has not recognized this climatic phenomenon. The continued neglect of this data can produce deadly consequences to those in our community. Tower failure and catastrophic fires must be avoided at all costs. Collected from: https://www.wunderground.com/weather/us/or/pendleton





Wind Events and MRI

Upon further investigation it should be noted the BPA(Bonneville Power Administration) uses both available localized wind data and other wind sources along with ASCE standards to design transmission lines. Idaho Power refuses to acknowledge any wind data that we have presented and has chosen to discredit and deny the value of this localized wind data which could be very useful. I understand that engineers have to base their calculations off of the ASCE but I would also like to note as someone who has been in this region for 60+ years that the chosen 100 year MRIs are low and will be exceeded more often than what IPC claims.

With our relevant wind data coupled with the ASCE design requirements I believe the 100 year MRI of 85 mph is low and does not reflect the wind speeds that we are experiencing. The ASCE standards are inherently incorrect because we are experiencing 80 plus mph winds frequently over 30 years. IPC has argued that we are only reading instantaneous wind readings not the 3 second wind speed readings. After looking into the wind metering tower design we found that the metering tower had a maximum wind speed reading average of 2 seconds, not instantaneous. This reaffirms the legitimacy of the wind data that was collected over 8 years. It is best practice to err on the side of safety where IPC seems to be gravitating to minimum standards at this point and the ASCE standards allow them to use lower design standards. It must be said here that the ASCE wind charts are not locally accurate and are low for this region. That is why the Oregon Building codes reflect a more accurate presentation of wind speeds. We strongly recommend using a 300 year MRI of 93 mph as a design wind speed. Even the ASCE manual 74 page 22 section 2.1.3 entitled "Basic Wind Speed'" states the following; "selection of an MRI of a value other than 100 years may be desirable for certain applications" this recommendation is for unusual wind conditions. I believe we experience these kinds of wind conditions and fortunately the ASCE has now provided additional design actions to meet the climatic events we experience. It should be noted that numerous additions to this ASCE manual 74, 4th edition, reveal the industry is moving towards increasing loadings in order to maintain reliability and safety. Increasing to this level more accurately provides a starting point for tower/line loading and would better represent the area and cause the overall tower design target of 10,000 years MRI to increase the tower design parameters. I would like to refer to the table below as an exhibit underscoring the enhanced reliability of a higher 300 year MRI. Simply put, the enhanced reliability of selecting a 300 year MRI reduces the chances of the transmission line experiencing loads in excess of design standards by significant amounts.

Table 1-1. Exceedance Probability for Various MRIs.

Typical conditions	MRI (years)	Probability the MRI load is exceeded in any one year (%)	Probability the MRI load is exceeded at least once in 50 years (%)	Probability the MRI load is exceeded at least once in 100 years (%)	Location of wind and ice maps shown in ASCE MOP 74: Wind	Location of wind and ice maps shown in ASCE MOP 74: Ice
Temporary or emergency restoration, service checks[a]	10	10	99	99+	[e]	—
Temporary or emergency restoration, service checks[a]	25	4	87	98	[e]	—
Historically used MRI[c]	50	2	64	87	Appendix L	Appendix L
Recommended MRI	100	1	39	63	Chapter 2	Chapter 2
Enhanced reliability	200	0.50	22	39	—	—
Enhanced reliability	300	0.30	15	28	Appendix L	Appendix L
Enhanced reliability	400	0.25	12	22	—	—
Enhanced reliability	500	0.20	10	18	—	[d]
Enhanced reliability	700	0.14	7	13	[b]	—

[a]Service checks include clearance checks, blowout checks, insulator uplift, and deflections.

[b]ASCE 7-16, Chapter 26.

[c]Previous editions of this manual provided wind speeds associated with a 50-year MRI for a majority of the continental United States, with MRIs of the hurricane-prone regions in the range of 50 to 90 years. See Section 1.5.1 and Chapter 2 for further explanation.

[d]ASCE 7-16, Chapter 10.

[e]ASCE 7-16, Appendix C Commentary.

Please take note in the same chart from columns entitled; Probability the MRI load will be exceeded at least once in 50 years drops from 39% to 15%. Even more importantly the next column entitled; "Probability the MRI load is exceeded at least once in 100 years" dropped from 63% to 28%. These are significant safety considerations. These enhanced reliability standards equate to fewer tower failures or connector failures. Again the failures of any kind can turn into wildfires destroying crops, structures and livelihoods.

Outages

The following exhibits underscore the very real dangers of transmission line failures resulting in outages and/or fires.

Report to the Oregon Utility Commission
Electric Service Reliability - Major Event Report

Event Date:	August 25, 2013
Date Submitted:	September 26, 2013
Reliability Reporting Region(s):	*Central Oregon* region
Exclude from Reporting Status:	Yes
Report Prepared by:	Diane DeNuccio
Report Approved by:	Heide Caswell

Event Description

On August 25, 2013, a brief but violent storm brought heavy rain, wind and lightning through Pacific Power's Central Oregon reliability region, causing numerous outages but most significantly a loss of transmission to two substations serving the company's customers in Bend/Redmond and Madras operating areas.

	Central OR
Sustained Interruptions	33
Customers Sustained	4,666
Customer Minutes Lost	1,418,614
CAIDI[1]	304

Restoration

Restoration personnel worked round the clock. Patrolmen worked to get the transmission line restored while crews worked to restore other outages due to wire down, blown fuses and transformers.

This report pulled from the Oregon PUC website describes the broken outage/repair of a transmission line. Note that the cause was a brief but violent storm. The location is significant because central Oregon is often the birthplace of severe storms that travel to Gilliam and Morrow counties.

Transmission Line Fires

Both the below incident reports are from a 500 kv line in north central Oregon, the tower had faulty equipment which ignited a fire under the transmission line. These incidents serve to underscore that 500 kv lines are not fool-proof. 500 kv lines do have faults and consequential fires resulting from those failures.

Incident Report - 03/22/2023

Incident Report #22292

SHERMAN COUNTY SHERIFF'S OFFICE
SHERIFF BRAD LOHREY
500 COURT STREET / P.O. BOX 424
MORO, OR. 97039
PHONE: (541) 565-3622
FAX: (541) 565-3046

Event Info

Date Reported	Time Reported	Time Dispatched	Time Arrived	Time Completed
08/02/2022	16:00	00:00	00:00	00:00

Addr. of Occ.	City	District	Grid	Sub-Grid	How Reported
GERKING CANYON	COUNTY	Sherman County	County	Residential	911

Dispatch Disposition	Disposition Tags
CLR	CLOSED PENDING FURTHER INFO

Synopsis
On 08-02-22 at about 1600 hours I responded to a fire on Gerking Canyon, just above Rufus. Investigation found that the fire was likely caused by a BPA power line. The fire started directly below the line in a remote area. A broken insulator was located. Firefighters also mentioned a birds nest being spotted.

Agency 1	Initial Investigator
SHERMAN COUNTY SHERIFFS OFFICE	BURGETT, JAMES

Classification

Class	Subclass
FIRE	Brush, Grass Fire

Auto Weapon Indicator
No

Case Management

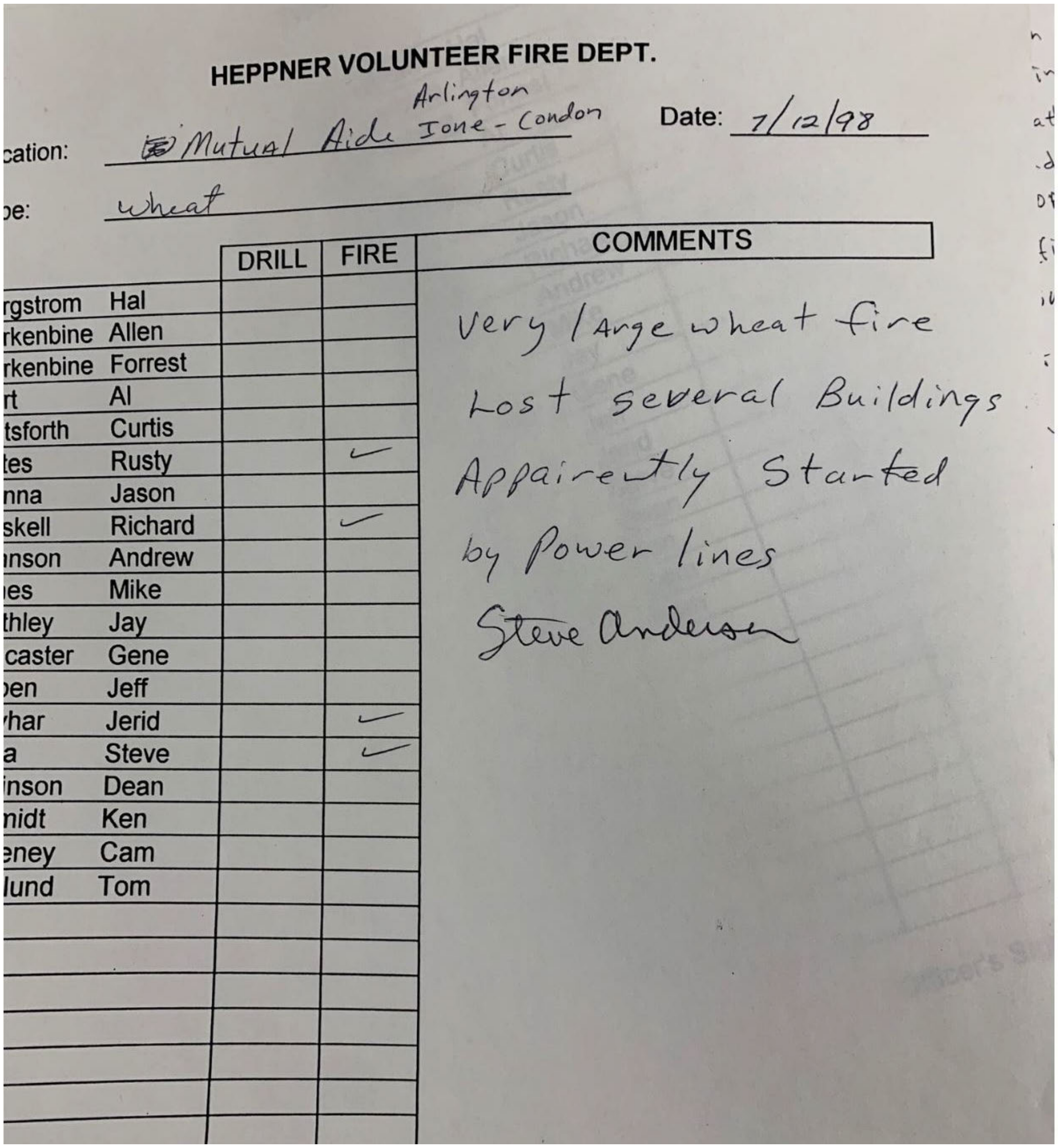
Initial Investigator	Report Status	Approved By	Date Approved
BURGETT, JAMES	Approved	LOHREY, BRAD	08/03/2022 16:29

Approval History

Status	Approved By	Date
Approved	LOHREY, BRAD	08/03/2022 16:29

Investigative History

Investigator	Team Name	Date
BURGETT, JAMES	PATROL	08/03/2022 07:59



HEPPNER VOLUNTEER FIRE DEPT.

cation: Mutual Aide Arlington Ione - Condon

Date: 7/12/98

pe: wheat

		DRILL	FIRE	COMMENTS
rgstrom	Hal			Very large wheat fire Lost several Buildings Appairently Started by Power lines Steve Anderson
rkenbine	Allen			
rkenbine	Forrest			
rt	Al			
tsforth	Curtis			
tes	Rusty		✓	
nna	Jason			
skell	Richard		✓	
inson	Andrew			
ies	Mike			
thley	Jay			
caster	Gene			
pen	Jeff			
/har	Jerid		✓	
a	Steve		✓	
inson	Dean			
nidt	Ken			
eney	Cam			
lund	Tom			

The above fire incident report underscores the catastrophic potential of fires ignited from 500 kv lines. This fire destroyed crops and structures including grain bins etc. This catastrophic event is exactly what I'm concerned about. Poor design coupled with valuable crop land and structures must be given the utmost respect. We can not live through more of these kinds of events, simply put there is no reason to place people's lives at risk at this level.

Conclusion

All the technical capacities, procedures and expertise currently exist to design and operate a project like B2H that never encounters failures like these. Morrow County does not have trees to impact the lines, the single biggest risk is for extreme winds and High-Intensity Winds from severe storms. These loadings can be factored into the design to handle any of these storms, it's only a matter of IPC adding them into the design.

I hereby declare that the above statements are true to the best of my knowledge and belief, and I understand that they are made for the use as evidence in administrative court proceedings and are subject to penalty for perjury.

Sincerely,

/s/ Sam Myers

Sam Myers ,