

Rebuttal Testimony and Schedules
Mark W. Kolb

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE
MINNESOTA PUBLIC UTILITIES COMMISSION
STATE OF MINNESOTA**

IN THE MATTER OF AN APPLICATION MPUC Docket Nos. E002/GR-12-961
OF NORTHERN STATES POWER E002/GR-13-868
COMPANY FOR AUTHORITY TO
INCREASE RATES FOR ELECTRIC
SERVICE IN THE STATE OF MINNESOTA

IN THE MATTER OF THE REVIEW OF E999/AA-13-599
THE ANNUAL AUTOMATIC E999/AA-14-579
ADJUSTMENT REPORTS FOR ALL E999/AA-16-523
ELECTRIC UTILITIES E999/AA-17-492
 E999/AA-18-373

OAH Docket No. 65-2500-38476

REBUTTAL TESTIMONY OF

MARK W. KOLB

On Behalf of

NORTHERN STATES POWER COMPANY

September 22, 2023

Exhibit___(MWK-2)

Systems Operations

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1 **I. INTRODUCTION**

2
3 Q. PLEASE STATE YOUR NAME AND EMPLOYER.

4 A. My name is Mark W. Kolb. I retired from Northern States Power Company –
5 Minnesota, d/b/a Xcel Energy in 2018.
6

7 Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?

8 A. Yes. On June 16, 2023, I filed my Direct Testimony on behalf of Northern
9 States Power Company (Xcel Energy or the Company), describing the overall
10 operations, maintenance, and inspection decisions made during my decades as
11 a system engineer for the Sherburne County Generating Plant (Sherco) Unit 3
12 turbine-generator train, the available internal and external resources leveraged
13 by me and the other engineers to properly plan and care for the Unit, and the
14 basis on which the Company made various decisions affecting Unit 3’s low-
15 pressure turbines. My testimony also detailed how I and the Company acted
16 reasonably in our operations and maintenance of Sherco Unit 3 as that relates
17 to the November 2011 event (Event) involving the failure of one part of one of
18 Unit 3’s low pressure turbines, based on all information provided by experts
19 like the Original Equipment Manufacturer (OEM) and based on the Company’s
20 efforts to pursue up-to-date information from industry resources.
21

22 Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

23 A. My Rebuttal Testimony responds to testimony filed by Mr. Richard Polich of
24 GDS Associates, Inc. on behalf of the Minnesota Department of Commerce
25 (Department), specifically as it relates to the Company’s operation and
26 maintenance practices at Sherco Unit 3 prior to the Event, as well as the state
27 of manufacturer guidance and industry knowledge at that time.

1 **II. RESPONSE TO WITNESS RICHARD POLICH**

2
3 Q. WHAT OVERARCHING OBSERVATIONS DO YOU HAVE REGARDING MR. POLICH’S
4 TESTIMONY?

5 A. I share the concerns that Company witnesses Herbert J. Sirois and Timothy P.
6 Murray identified regarding: (1) Mr. Polich’s lack of experience related to
7 planning and executing steam turbine generator work; (2) Mr. Polich’s
8 misunderstanding or misrepresentation of the applicable OEM
9 recommendations and guidance; and (3) Mr. Polich’s broad generalizations in
10 his Direct Testimony that demonstrate that he does not understand the
11 complexities of the Sherco 3 turbine wheel finger dovetails and the associated
12 maintenance/inspection practices for this specific attachment configuration.
13 Simply put, Mr. Polich’s Direct Testimony reveals that he does not appear to
14 be familiar with prudent utility practice regarding steam turbine inspections, and
15 Mr. Murray and Mr. Sirois will more fully address Mr. Polich’s misstatements,
16 misunderstandings, or misrepresentations on these matters.

17
18 Q. HOW DO YOU RESPOND TO MR. POLICH’S STATEMENT THAT THE COMPANY
19 “KNOWINGLY AND UNREASONABLY RISKED DELAYING INSPECTIONS OF THE
20 SHERCO 3 STEAM TURBINE . . . EVEN THOUGH [IT] KNEW THAT THIS DELAY
21 INCREASED THE RISK OF FAILURE”?¹

22 A. I completely disagree with this unfounded allegation as it is both untrue and
23 insulting. As an experienced systems engineer, I was well aware of the safety
24 hazards associated with the low-pressure turbines existing at the Sherco plant.
25 It was well understood in the industry that a catastrophic failure, such as the

¹ Polich Direct, p. 6.

1 liberation of the turbine blades, could result in injury or death to plant
2 personnel—along with total destruction of the unit. Simply put, we were very
3 aware of the safety implications associated with operating the equipment and
4 our *primary* concern was the safety of the people working around the units. With
5 regard to the Sherco Unit 3 specifically, we had plant personnel stationed in
6 close proximity to the turbine 24 hours a day. Further, because Unit 3 was
7 considered a “showcase” unit for the Company, we gave numerous tours of the
8 unit. In other words, we constantly had people (plant personnel and non-plant
9 personnel) around the low-pressure turbine, and I take great offense at the
10 suggestion that we “knowingly and unreasonably” put those people—or such a
11 critical asset—in jeopardy.

12
13 To the contrary, we made prudent, considered, and well-reasoned maintenance
14 and inspection decisions related to the Sherco 3 unit that reflected: (1) existing
15 guidance from the OEM, General Electric (GE); (2) general industry practices
16 at that time; (3) our own internal experiences with Unit 3 and units across our
17 entire fleet; (4) careful evaluation of numerous data points that were monitored
18 and evaluated by the team dedicated to Unit 3; and (5) input from our
19 designated GE representatives related to overhaul/inspection planning. The
20 implied suggestion that we “cut corners” with regard to the maintenance of
21 such a critical unit is simply unfounded. I take great pride in the experienced
22 team of plant personnel that carefully monitored and evaluated data and
23 operations, researched, planned, and executed the maintenance
24 overhauls/inspections for Unit 3. The Company operated and maintained Unit
25 3 in reasonable manner that was consistent with industry practices and
26 knowledge existing at the time.

1 Q. WHAT ELSE IS PROBLEMATIC WITH REGARD TO MR. POLICH’S OPINIONS?
2 A. Mr. Polich either disregards or misunderstands a utility’s reliance on the OEM,
3 in this case GE, to provide relevant information pertaining to specific units that
4 will inform maintenance planning. Xcel Energy is in the business of producing
5 power and, to that end, operates and maintains large utility-size steam turbine
6 generators. Xcel Energy, however, is not a steam turbine manufacturer and does
7 not have access to the manufacturer’s fleet data across the world; hence, the
8 significance of OEM guidance. If we received Technical Information Letters
9 (TIL) or other written recommendations from GE (or the applicable
10 manufacturer), as the systems engineer I would then have the foundation to
11 recommend specific maintenance work—and the budget associated with that
12 work. As an example, this is why I kept asking our designated GE
13 representatives in 2008 if they were going to issue an updated TIL to reflect the
14 emerging concerns that GE had shared with operators (including Xcel Energy)
15 during a 2001 conference in Atlanta regarding stress corrosion cracking in the
16 *tangential* dovetails in both once-through boilers and drum-boiler units. Notably,
17 as addressed in Mr. Murray’s Rebuttal Testimony, even in the absence of written
18 GE guidance that specifically applied to the Sherco Units, the Company
19 nevertheless began implementing the informal recommendation for phased
20 array ultrasonic testing on all tangential entry attachments during subsequent
21 major overhauls/inspections of the Sherco units. This is an example of how the
22 Company endeavored to stay apprised of industry standards and—working in
23 coordination with GE’s designated representatives—made informed, reasoned,
24 and appropriate maintenance decisions based on available information.

1 Q. DOES MR. POLICH’S TESTIMONY REGARDING INSPECTION-FREQUENCY
2 INTERVALS CONSIDER ALL AVAILABLE GE GUIDANCE AVAILABLE TO THE
3 COMPANY PRIOR TO THE EVENT?

4 A. No. Mr. Polich failed to identify or address GE’s updated inspection
5 recommendations, which were issued in 2007: General Electric Knowledge
6 bulletin (GEK) 111680.² Tellingly, GEK 111680 directly contradicts Mr.
7 Polich’s opinion that “GE recommends three-to-five year service interval[sic]
8 for major turbine inspections.”³ GE’s *actual* guidance recommends a 6-year or
9 longer major maintenance overhaul inspection interval, recognizing that
10 inspection intervals could be extended beyond 6 years depending on the
11 operator’s assessment of the unit.⁴ This is consistent with the industry trending
12 towards longer inspection intervals, which was also reflected in a 2006
13 PowerPoint presentation that GE gave to Xcel Energy key personnel (including
14 myself) that confirmed, in writing, that the industry trend for major inspection
15 intervals had increased from “5 to 7 years” to “10-12” years.⁵

16

17 In sum, GE’s own guidance (both formal—*i.e.*, GEK 111680—and informal—
18 *i.e.*, the 2006 GE PowerPoint presentation) directly refutes Mr. Polich’s
19 insistence that major turbine inspections should take place every 3 to 5 years.

20

21 Q. HOW DO YOU RESPOND TO MR. POLICH’S SUGGESTION THAT “XCEL HAD
22 SIGNIFICANT INFORMATION AVAILABLE FROM SOURCES OUTSIDE OF GE THAT

² Sirois Rebuttal, Exhibit___(HJS-2), Schedule 4.

³ Polich Direct, p. 39.

⁴ Sirois Rebuttal, Exhibit___(HJS-2), Schedule 4 at 15.

⁵ Murray Rebuttal, Exhibit___(TPM-2), Schedule 2, p. 34.

1 PROVIDED EVIDENCE THAT THE SHERCO 3 TURBINE WAS HIGHLY SUSCEPTIBLE
2 TO STRESS CORROSION CRACKING (POLICH DIRECT, P. 29.)?

3 A. This is addressed by both Mr. Sirois and Mr. Murray in their Rebuttal
4 Testimony, and I concur that *general* knowledge of the potential for stress
5 corrosion cracking is not a substitute for *specific* knowledge as it relates to a
6 specific steam turbine design. Prior to the 2011 failure event, there was no
7 industry guidance or general industry knowledge that the Unit 3 turbine rotor
8 wheel *finger* dovetails were highly susceptible to stress corrosion cracking
9 (compared to the emerging issues associated with stress corrosion cracking with
10 *tangential entry* dovetails). Tellingly, Mr. Polich fails to identify any evidence to
11 the contrary. And the Unit 3 failure on November 19, 2011 was the *first* utility
12 steam turbine generator in a large plant with a drum boiler to fail catastrophically
13 when the L-1 blades liberated due to latent stress corrosion cracking in the
14 turbine wheel finger dovetails. Unfortunately, much of what is now known in
15 the industry about stress corrosion cracking in turbine wheel *finger* dovetails is a
16 result of this Event. Mr. Polich is wrong that Xcel Energy (and the industry
17 generally) knew that the L-1 turbine rotor wheel finger dovetails were
18 susceptible to stress corrosion cracking prior to the Event. And Mr. Polich is
19 also wrong that industry guidance at the time of the Event would have directed
20 the Company to remove the blades to perform a magnetic particle inspection
21 of the finger dovetails in the absence of abnormal events or operational
22 anomalies.

23
24 Q. PLEASE SUMMARIZE YOUR TESTIMONY.

25 A. Other Company experts and witnesses more fully address Mr. Polich's
26 misstatements, misunderstandings, or misrepresentations as they relate to the
27 operation and maintenance of Unit 3 prior to the Event and industry guidance

1 and knowledge existing at the time of the Event (further discussed by Mr. Sirois
2 and Mr. Murray) and water and steam chemistry at a large fossil plant (further
3 discussed by Company witness Mr. David G. Daniels). My testimony expands
4 on Mr. Murray's Rebuttal Testimony and confirms that we would never
5 knowingly and unreasonably put plant personnel—or such a critical asset—in
6 jeopardy. To the contrary, we made prudent, considered, and well-reasoned
7 maintenance and inspection decisions related to Unit 3. Further, the Company
8 stayed apprised of industry standards and emerging issues and worked closely
9 with GE's designated representatives to prudently operate and maintain Sherco
10 Unit 3.

11
12 Mr. Polich's Direct Testimony demonstrates that he fails to understand the state
13 of manufacturer guidance and industry knowledge existing prior to the Event.
14 Mr. Polich's maintenance/inspection recommendations (*i.e.*, major inspections
15 should take place every 3 to 5 years) are well outside the range of reasonable
16 utility practice—as evidenced by GE's formal (*i.e.*, GEK 111680) and informal
17 (*i.e.*, the 2006 GE PowerPoint) guidance.

18
19 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

20 A. Yes, it does.