

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNION ELECTRIC COMPANY
Petitioner

v.

BIRCHTECH CORP.
(f/k/a MIDWEST ENERGY EMISSIONS CORP.)
Patent Owner

Case IPR2025-01117
Patent 10,596,517

**PATENT OWNER'S SUR-REPLY TO PETITIONER'S REPLY TO
PATENT OWNER'S PRELIMINARY RESPONSE**

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Exhibit List	
Exhibit	Description
2003	Original Complaint for Patent Infringement, <i>Midwest Energy Emissions Corp., et al. v. Vistra Energy Corp., et al.</i> , C.A. 1:19-cv-01334, ECF No. 1 (D. Del. July 17, 2019)
2004	Transcript of Jury Trial, <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , C.A. 1:19-cv-01334 (D. Del.) (Feb. 26, 2024–March 1, 2024)
2005	Non-Final Judgment Following Jury Verdict, <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , C.A. 1:19-cv-01334, ECF No. 697 (D. Del. March 8, 2024)
2006	Case Management Order, <i>In re: Midwest Energy Emissions Corp. Pat. Litig.</i> , No. 4:24-md-03132-SHL-WPK, ECF No. 60 (S.D. Iowa March 7, 2025)
2007	Complaint for Patent Infringement, <i>Midwest Energy Emissions Corp. v. Ameren Corp., et al.</i> , 4:24-cv-00980, ECF No. 1 (E.D. Mo. July 17, 2024)
2008	Plaintiff ME2C’s Brief in Support of Its Motion for Preliminary Injunction, <i>Midwest Energy Emissions Corp. v. Berkshire Hathaway Energy Company, et al.</i> , 4:24-cv-00243-SHL-WPK, ECF No. 58-1 (S.D. Iowa Oct. 11, 2024)
2009	Defendants’ Brief in Support of Their Resistance to Plaintiff’s Motion for Preliminary Injunction, <i>Midwest Energy Emissions Corp. v. Berkshire Hathaway Energy Company, et al.</i> , 4:24-cv-00243-SHL-WPK, ECF No. 125 (S.D. Iowa Dec. 16, 2024) (Redacted)
2010	Plaintiff ME2C’s Reply Brief in Support of Its Motion for Preliminary Injunction, <i>Midwest Energy Emissions Corp. v. Berkshire Hathaway Energy Company, et al.</i> , 4:24-cv-00243-SHL-WPK, ECF No. 139 (S.D. Iowa Dec. 23, 2024) (Redacted)
2011	First Amended Complaint for Patent Infringement, <i>Midwest Energy Emissions Corp., et al. v. Vistra Energy Corp., et al.</i> , C.A. 1:19-cv-01334, ECF No. 130 (D. Del. July 15, 2020)
2012	Third Amended Complaint for Patent Infringement, <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , C.A.

	1:19-cv-01334, ECF No. 326 (D. Del. Oct. 7, 2021)
2013	Order Denying Motions to Stay and Motion to Compel, <i>In re: Midwest Energy Emissions Corp. Pat. Litig.</i> , No. 4:24-md-03132-SHL-WPK, ECF No. 131 (S.D. Iowa May 22, 2025)
2014	Amended and Restated Refined Coal Sales Agreement (Labadie Energy Center) between Larkwood Energy, LLC, and Union Electric Company, d/b/a Ameren Missouri, dated March 11, 2014 (SEALED)
2015	Refined Coal Sales Agreement (Rush Island Project Generation Facility) between Buffington Partners, LLC, and Union Electric Company, d/b/a Ameren Missouri, dated November 4, 2011 (SEALED)
2016	Memorandum Opinion, <i>Midwest Energy Emissions Corp., et al. v. Arthur J. Gallagher & Co., et al.</i> , C.A. 1:19-cv-01334, ECF No. 791 (D. Del. Sept. 25, 2025)
2017	Declaration of Inventor John Pavlish, dated July 27, 2020
2018	EPA Clean Air Act Overview, https://www.epa.gov/clean-air-act-overview/1990-clean-air-act-amendment-summary-title-iii
2019	EPA, Mercury and Air Toxics Standards, https://www.epa.gov/mats/cleaner-power-plants
2020	EPA, “Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units—Final Report to Congress”
2021	Pilot- and Full-Scale Demonstration of Advanced Mercury Control Technologies for Lignite-Fired Power Plants, Quarterly Report (for the Period October 1, 2003 – December 31, 2003), dated February 2004
2022	Pilot- and Full-Scale Demonstration of Advanced Mercury Control Technologies for Lignite-Fired Power Plants, Final Report, dated February 2005
2023	DOE, Success Story for Sorbent Enhancement Additives
2024	Declaration of Thomas Erickson including PTC logbook entries
2025	Mercury Control Technologies for Electric Utilities Burning Subbituminous Coals, Final Report (For the period January 1, 2004 through June 30, 2005), dated October 2005

2026	Center for Air Toxic Metals (CATM), 2003 Research Ideas, dated August 30, 2002
2027	Document Metadata for Center for Air Toxic Metals (CATM), 2003 Research Ideas
2028	EPA, Mercury Study Report to Congress Vol. I (1997)
2029	EERC internal presentation, “Description of Test Facilities Particulate Test Combustor”
2030	EERC internal presentation, “Mercury Control Technologies for Electric Utilities Burning Lignite Coals, Introduction to Project” (12/4/2001)
2031	EERC internal presentation, “Mercury Control Technologies for Electric Utilities Burning Lignite Coals Project Kickoff Meeting” part 1 (2/28/2002)
2032	EERC internal presentation, “Mercury Control Technologies for Electric Utilities Burning Lignite Coals Project Kickoff Meeting” part 2 (2/28/2002)
2033	EERC internal presentation, “Mercury Control Technologies for Electric Utilities Burning Lignite Coals, Project Review Meeting” (2/25/2003)
2034	“JV TASK 45 – MERCURY CONTROL TECHNOLOGIES FOR ELECTRIC UTILITIES BURNING LIGNITE COAL, PHASE I BENCH- AND PILOT-SCALE TESTING Final Report” (Oct. 2003) (the “Oct. 2003 Report”)
2035	Metadata for Notes on Center for Air Toxic Metals (CATM) 2003 Research Ideas
2036	United States Patent No. 10,343,114
2037	File History, U.S. Patent No. 10,343,114 (U.S. App. No. 15/978,760)
2038	J. D. Kilgroe, C. B. Sedman, R. K. Srivastava, J. V. Ryan, C. W. Lee, S. A. Thorneloe, <i>Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Report</i> , U.S. Environmental Protection Agency, Office of Research and Development, EPA-600/R-01-109, April 2002.

On October 9, 2025, Petitioner was authorized to file a Reply to Patent Owner's Preliminary Response with a filing date of October 22, 2025, and Patent Owner was authorized to file this Sur-Reply with a filing deadline of November 5, 2025. Ex. 3101. On October 22, Petitioner filed its Authorized Reply. IPR2025-01117, Paper 18 (Oct. 22, 2025). On October 31, 2025, before Patent Owner's Authorized Sur-Reply came due, the Director denied institution in this IPR in a Notice of Decisions on Institution. IPR2025-01117, Paper 19 (Oct. 31, 2025).

Patent Owner disagrees with the arguments made by Petitioner in its Authorized Reply and would request an opportunity to respond to those arguments if the Board believes that is necessary. However, because institution has been denied and this proceeding terminated, Patent Owner understands that no further briefing is required.

Dated: November 5, 2025

Respectfully submitted,

Birchtech Corp.

/Hamad M. Hamad/

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CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6(e)(4)

It is hereby certified that on this 5th day of November, 2025, a copy of the foregoing document was served via electronic mail, as consented to by Petitioners upon the following counsel of record:

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