UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ENERGY SOLUTION, LTD.,
SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

MOLECULAR REBAR DESIGN LLC,
Patent Owner.

Case IPR2024-01013[1]
Patent 10,153,483

PETITIONER'S UPDATED EXHIBIT LIST

[1] Samsung Electronics Corporation, Ltd. and Samsung Electronics America, Inc. were joined as petitioners in this proceeding based on a petition and motion for joinder filed in IPR2025-00359, which was granted.

LIST OF EXHIBITS

LGES-1001	U.S. Patent No. 10,153,483 ("the '483 Patent")
LGES-1002	Excerpts from Prosecution History of the '483 Patent ("the Prosecution History")
LGES-1003	Declaration of Dr. Yu Zhu
LGES-1004	U.S. Patent Pub. No. 2004/0160156 ("Ohata")
LGES-1005	"Multi-walled carbon nanotubes functionalized by carboxylic groups: Activation of TiO_2 (anatase) and phosphate olivines ($LiMnPO_4$; $LiFePO_4$) for electrochemical Li-storage." Ladislav Kavan et al. Journal of Power Sources 195 (2010) 5360-5369 ("Kavan")
LGES-1006	Chinese Patent Pub. No. CN 101364643A
LGES-1007	Certified English Translation of CN 101364643 (LGES-1006) and Translator's Declaration ("Gong")
LGES-1008	Chinese Patent Pub. No. CN 102456881A
LGES-1009	Certified English Translation of CN 102456881A (LGES-1008) and Translator's Declaration ("Liu")
LGES-1010	Chinese Patent Pub. No. CN 101714627A
LGES-1011	Certified English Translation of CN 101714627A (LGES-1010) and Translator's Declaration ("Cheng")
LGES-1012	Int'l Patent Pub. No. WO 2011056290 ("Peng")
LGES-1013	U.S. Patent No. 10,608,282 ("the '282 Patent")
LGES-1014	"Surface modified multi-walled carbon nanotubes in CNT/epoxy-

composites," Florian H. Gojny, Jacek Nastalczyk, Zbigniew Roslaniec, Karl Schulte. Chemical Physics Letters 370 (2003) 820–824 ("Gojny")

LGES-1015 "Sonochemical Oxidation of Multiwalled Carbon Nanotubes," Yangchuan Xing, Liang Li, Charles C. Chusuei, and Robert V. Hull. Langmuir 2005, 21, 4185-4190 ("Xing")

LGES-1016 U.S. Patent Pub. No. 2010/0124713 ("Farrugia")

LGES-1017 "Chemical oxidation of multiwalled carbon nanotubes," V. Datsyuk et al. Carbon 46 (2008) 833-840 ("Datsyuk")

LGES-1018 U.S. Provisional Application No. 61/500,560 ("'560 Application")

LGES-1019 to LGES-1023 RESERVED

LGES-1024 U.S. Patent Pub No. 2009/0035469 ("Sue")

LGES-1025 U.S. Patent No. 8,241,794 ("Sheem")

LGES-1026 U.S. Patent Pub. No. 2011/0159366A1 ("Nakura")

LGES-1027 "A Lithium-Ion Cell Based on a Sodium Insertion Material." J. Barker et al., Electrochemical and Solid-State Letters, 9 (4) A190-A192 (2006) ("Barker")

LGES-1028 "A multifunctional 3.5 V iron-based phosphate cathode for rechargeable batteries," Nature Materials 6 (2007), 749-753 ("Nazar 2007")

LGES-1029 "Crystal Structure and Electrochemical Properties of A_2MPO_4F Fluorophsphates (A = Na, Li; M = Fe, Mn, Co, Ni)," Brian L. Ellis et al., Chem. Mater, 2010, 22, 1059-1070 ("Nazar 2010")

LGES-1030 "Attachment of Metal Oxide Nanoparticles on Carbon Nanotubes with Different Oxidation Levels," C.T. Hsieh et al. Advanced Materials Research, Vols. 55-57, pp. 545-548 ("Hsieh")

LGES-1031 "Incorporation of MWCNTs into leaf-like CuO nanoplates for superior reversible Li-ion storage," J.Y. Xiang et al., Electrochemistry Communications 12 (2010) 1103-1107 ("Xiang")

LGES-1032 "Surface and structural characterization of multi-walled carbon nanotubes following different oxidative treatments," Kevin A. Wepasnick et al., Carbon 49 (2011) 24-36 ("Wepasnick")

LGES-1033 Wikipedia: The Free Encyclopedia, "Chemical bond" at https://en.wikipedia.org/wiki/Chemical_bond, last accessed 6/7/2024

LGES-1034 U.S. Patent Pub. No. 2006/0269842 ("Ichinose")

LGES-1035 "Functionalization of Single-Walled Carbon Nanotubes," A. Hirsch, *Angew. Chem. Int. Ed.* 2002, 41, No. 11, 1853-1859 ("Hirsch")

LGES-1036 to LGES-1040 RESERVED

LGES-1041 "Hydrothermal synthesis of lithium iron phosphate," J. Chen, M. Whittingham. Electrochemistry Communications 8 (2006) 855-858 ("Chen")

LGES-1042 "The preparation and electrochemical performances of $LiFePO_4$-multiwalled nanotubes composite cathode materials for lithium ion batteries," Y. Feng. Materials Chemistry and Physics 121 (2010) 302-307 ("Feng")

LGES-1043 to LGES-1049	RESERVED
LGES-1050	*Molecular Rebar Design, LLC, and Black Diamond Structures, LLC v. LG Energy Solution, Ltd.*, Plaintiffs' Disclosure of Asserted Claims and Infringement, 2:24-cv-00107-JRG
LGES-1051	Declaration of June Ann Munford (Kavan)
LGES-1052	RESERVED
LGES-1053	*Molecular Rebar Design, LLC, et al. v. LG Energy Solution, Ltd.*, Sample Docket Control Order, 2:24-cv-00107-JRG
LGES-1054	Deposition Transcript of Dr. Deborah Chung in IPR2024-01006, dated July 1, 2025
LGES-1055	Deposition Transcript of Dr. Deborah Chung in IPR2024-01005, dated June 25, 2025
LGES-1056	Supplemental Declaration of Dr. Yu Zhu
LGES-1057	Patent Owner's Response in IPR2024-01005
LGES-1058	Deposition Transcript of Dr. Deborah Chung in IPR2024-01013, dated July 2, 2025.
LGES-1059	"Increase the Mechanical Performance of Polyvinylidene Fluoride (PVDF)." M. Hou. Cheng. Advanced Materials Research Vols. 393-395 (2012).
LGES-1060	Patent Owner's Response in IPR2024-01012 ('282 Patent)
LGES-1061	U.S. Patent Pub. No. 2007/0060708 ("Wang")
LGES-1062	"Alternative solvents for Lithium-Nickel-Cobalt-Manganese-Oxide electrode fabrication for lithium-ion-cells." F. Heim et al.

	Journal of Power Sources 558 (2023) 232546 ("Heim")
LGES-1063	US Patent No. 8,540,902 ("Xing")
LGES-1064	Petitioner's Demonstratives

Respectfully submitted,

Dated: September 12, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) et seq. and 42.105(b), the undersigned certifies that on September 12, 2025, a complete and entire copy of this Petitioner's Updated Exhibit List and Exhibit 1064 were provided by email to the Patent Owner by serving the correspondence address of record as follows:

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