US 20220360088A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0360088 A1**

Jorgenson et al. (43) **Pub. Date: Nov. 10, 2022**

(54) **ELECTRICAL POWER GENERATING SYSTEM**

(71) Applicant: **BWR Innovations LLC**, Fargo, ND (US)

(72) Inventors: **Joel A. Jorgenson**, Fargo, ND (US); **Thomas S. Wohl**, West Fargo, ND (US); **Brian C. Messerschmidt**, Glyndon, MN (US); **Adam C. Jorgenson**, West Fargo, ND (US)

(21) Appl. No.: **17/872,193**

(22) Filed: **Jul. 25, 2022**

Related U.S. Application Data

(63) Continuation of application No. 17/325,713, filed on May 20, 2021, now Pat. No. 11,398,733, which is a continuation of application No. 16/745,448, filed on Jan. 17, 2020, now Pat. No. 11,018,508.

Publication Classification

(51) **Int. Cl.**

H02J 3/38	(2006.01)
H02J 7/00	(2006.01)
H02J 13/00	(2006.01)
H01M 8/04537	(2006.01)
H01M 8/04858	(2006.01)

(52) **U.S. Cl.**

CPC ***H02J 3/381*** (2013.01); ***H02J 7/0068*** (2013.01); ***H02J 13/00006*** (2020.01); ***H01M 8/04567*** (2013.01); ***H01M 8/04888*** (2013.01); ***H02J 13/00002*** (2020.01); *H02J 2300/30* (2020.01)

(57) **ABSTRACT**

An electrical power generating system for providing auxiliary or backup power to a load bus. The system may be used indoors, and generally includes a fuel cell unit comprising a first DC output, an electrical storage unit comprising a DC input coupled to the first DC output of the fuel cell, the electrical storage unit further comprising a second DC output. An inverter coupled to the second DC output receives power, the inverter comprising a first AC output. The system includes a contactor connected between the first AC output and an AC load bus. The AC load bus comprises an AC voltage, and a controller comprising inputs is adapted to sense a phase, a frequency, and a magnitude of the first AC output and the AC voltage and close the contactor when they substantially match.