US 20220360087A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0360087 A1**

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

(54) **GRID-TIE SYSTEM FOR AC GENERATORS**

(71) Applicant: **XFlow Energy Company**, Seattle, WA (US)

(72) Inventors: **Ian D. Brownstein**, Seattle, WA (US); **Benjamin W. Strom**, Seattle, WA (US); **Jason A. Mavis**, Seattle, WA (US)

(73) Assignee: **XFlow Energy Company**, Seattle, WA (US)

(21) Appl. No.: **17/735,499**

(22) Filed: **May 3, 2022**

Related U.S. Application Data

(60) Provisional application No. 63/183,842, filed on May 4, 2021.

Publication Classification

(51) **Int. Cl.**

H02J 3/38	(2006.01)
H02J 3/32	(2006.01)
H02M 7/48	(2006.01)

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

CPC ***H02J 3/381*** (2013.01); ***H02J 3/32*** (2013.01); ***H02M 7/4807*** (2013.01); *H02J 2300/24* (2020.01); *H02J 2300/28* (2020.01)

(57) **ABSTRACT**

An exemplary renewable-energy system including a back end system coupled to an isolated DC power source and a generator powered by a renewable energy source and including first circuitry configured to convert first AC power from the generator to DC power and to provide the DC power to a DC power bus, the first circuitry further configured to initiate operation using power from the isolated DC power source. The example system further includes a front end system comprising an inverter coupled to an isolated DC power source generator. The inverter includes a ground isolation monitor interrupter (IMI) circuit coupled to the DC power bus and configured to receive the DC power and convert the DC power to second AC power for provision to a power grid. The isolated power source generator ground-isolates third AC power of the power grid for conversion to DC power for the isolated DC power source.