



US 20220360089A1

(19) **United States**(12) **Patent Application Publication**  
**Gonzales et al.**(10) **Pub. No.: US 2022/0360089 A1**(43) **Pub. Date: Nov. 10, 2022**(54) **METHOD FOR CONTROLLING AN  
ELECTRICAL TRANSMISSION NETWORK****Publication Classification**(51) **Int. Cl.****H02J 5/00** (2006.01)**H02J 3/36** (2006.01)**H02J 3/48** (2006.01)**H02J 3/38** (2006.01)**G05B 19/042** (2006.01)(52) **U.S. Cl.****CPC H02J 5/00** (2013.01); **H02J 3/36** (2013.01);**H02J 3/48** (2013.01); **H02J 3/381** (2013.01);**G05B 19/042** (2013.01); **G05B 2219/2639**  
(2013.01)(71) Applicants: **Supergrid Institute**, Villeurbanne (FR);  
**Centralesupelec**, Gis-Sur-Yvette (FR);  
**Centre National De La Recherche  
Scientifique**, Paris (FR); **Universite  
Paris-Saclay**, Saint Aubin (FR)(72) Inventors: **Juan Carlos Gonzales**, Lyon (FR);  
**Valentin Costan**, Lyon (FR); **Gilney  
Damm**, Lyon (FR); **Abdelkrim  
Benchabib**, Lyon (FR); **Françoise  
Lamnabhi-Lagarrigue**, Lyon (FR);  
**Bruno Luscan**, Lyon (FR)

(57)

**ABSTRACT**(21) Appl. No.: **17/621,579**(22) PCT Filed: **Jun. 25, 2020**(86) PCT No.: **PCT/EP2020/067921**

§ 371 (c)(1),

(2) Date: **Dec. 21, 2021**(30) **Foreign Application Priority Data**

Jun. 26, 2019 (FR) ..... FR1906969

A method for controlling an electrical transmission network including a plurality of DC high-voltage lines and at least three AC/DC converters identified by a respective index  $i$ . For each of the converters having index  $i$ , the method includes recovering the setpoint active power value  $P_{dci}$  applied thereto, and recovering instantaneous voltage value  $V_i$  and voltage angle value  $\theta_i$  of the buses having index  $i$  and modifying the setpoint active power  $P_{dci}$  of each of the converters having index  $i$  by a value including a term  $\Delta P_{dcsi}$  as a function of a sum of deviations of voltage angles multiplied by contribution adjustment parameters.

