

(12) PATENT APPLICATION PUBLICATION

(21) Application No. 202241074036 A

(19) INDIA

(22) Date of filing of Application : 20/12/2022

(43) Publication Date : 30/12/2022

(54) Title of the invention : **Deregulated Hydrothermal System with Dual Mode Controller and Diverse Source of Generation**

(51) International classification : H02J0003240000, H02J0003180000, G05B0013040000, H04W0088060000, G05B0005010000
(86) International Application No : PCT//
Filing Date : 01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number : NA
Filing Date : NA
(62) Divisional to Application Number : NA
Filing Date : NA

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(57) Abstract :

This invention presents an accomplishment of Load Frequency Control (LFC) under deregulated environment using Imperialistic Competition Algorithm (ICA) based Dual Mode Controller (DMC). The Capacitive Energy Storage (CES) and Static Synchronous Series Compensator (SSSC) have been successfully used to improve the performance of the system dynamics. The optimization techniques extremely help to the design a gain of the Dual Mode Controller and also overcome the drawbacks identified by the conventional controllers. The traditional Load Frequency Control system is adapted to get into interpretation of bilateral contract on the system. The performance index is calculated by using integral of square of error technique to optimize the controllers of the Load Frequency Control system. The simulation analysis reveals that due to the presence of the Imperialistic Competition Algorithm based Dual Mode Controller, the performance of the system improves in terms of peak time, settling time and overshoot and also performance index is lesser than the system without Imperialistic Competition Algorithm based Dual Mode Controller following a load disturbance in either of the areas.

No. of Pages : 6 No. of Claims : 2