

## عنوان مقاله:

Model-Free DPC of Grid Connected Converters Under the Weak Grid Condition

## محل انتشار:

نهمین کنفرانس انرژی های تجدیدپذیر و تولید پراکنده ایران (سال: 1400)

تعداد صفحات اصل مقاله: 5

## نویسندگان:

Pooriya Jamallo - *Advanced Motion Systems Research Lab, School of Electrical and Computer Engineering, Collage of engineering University of Tehran, Tehran, Iran*

Sadegh Vaez-Zadeh - *Advanced Motion Systems Research Lab and The Center of Excellence on Applied Electromagnetic Systems, School of Electrical and Computer Engineering, College of Engineering, University of Tehran, Tehran, Iran*

Alireza Jabbarnejad - *Advanced Motion Systems Research Lab, School of Electrical and Computer Engineering, Collage of engineering University of Tehran, Tehran, Iran*

## خلاصه مقاله:

When a converter is connected to a weak grid, the system may become instable. In particular, a weak grid can lead to voltage fluctuations at the point of common coupling (PCC) and consequently causes converter instability. Thus, maintaining the stability of such systems is an important concern for the power industry. In this paper, impacts of system parameters on the stability of voltage source converters are studied using a small-signal model. This model is directly extracted from a look-up switching table and enables the stability analysis of concurrent variations in the system parameters. This work also shows that a decrease in the grid inductance does not necessarily improve the stability of grid connected converters as the system stability is a function of both grid inductance and impedance. Also, an increase in the filter inductance to improve the total harmonic distortion (THD) of grid current may deteriorate the system stability. Therefore, stability studies must be conducted upon the provision of such means for decreasing the THD. These findings are verified through extensive simulation

## کلمات کلیدی:

Grid connected converters, weak grids, direct power control, small-signal model, state-space model, stability analysis

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1465028>

