AC/DC系统低频振荡分析中的HVDC模型研究*

陈陈1，李立涅2，杨帆1，沈梁1

摘要：在一个交、直流互联的电力系统中，直流输电部分一般用恒定功率模型或准稳态线性化模型来描述。基于系统增广状态方程(ASSE)，分析了这两种模型的不同，结果显示，使用恒定功率模型时，换流站注入或吸取交流系统的有功几乎是不变的，而从交流系统抽取的无功是变化的。对南方电网交直流互联电力系统全网进行的低频振荡分析结果表明，用恒定功率模型来描述直流线路部分是可行的。这种分析使用了上海交通大学开发的大型互联电力系统小信号稳定分析软件包（SSAP）。

关键词：交直流互联电力系统；低频振荡，恒定功率模型；准稳态模型

Abstract：In the low frequency oscillation（LFO）analysis in an AC/DC interconnected system the part of HVDC links is usually described by a constant PQ model or a Quasi-Steady-State (QSS) model. In this paper the difference between the two models is investigated based on the augmented system state equation (ASSE), indicating that in the constant power control way the active power injected into or withdrawn from the AC system by converter is approximately invariant, while the reactive power drawn from the AC system is variable. A general LFO analysis of the China Southern Power Grid shows that it is feasible to describe the HVDC part by a constant PQ model. This analysis is carried out with a software developed by Shanghai Jiao Tong University for large-scale AC/DC interconnected power system small signal stability analysis software package (SSAP).

Key words：AC/DC power system；low frequency oscillation；constant PQ model；quasi-steady state model

?

?

点击此处下载文章

关闭窗口