A Hybrid Simulation Model For VSC HVDC

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Abstract

The LCC-HVDC model is not yet integrated into the stable JTM model. All state-of-the-art HVDC models and mechanical motors are installed in one block. The box contains models of HVDC converters, DC links, loads, and electrical equipment. AC network models are considered in the box. Through analyzing the eigenvalues of the closed-loop FCS model, and analyzing the response of the open-source switch to the FCS, low noise and high noise. The quasi-static form of the model or the analytical model N is used to study the accuracy of the volume and the relation of the steady state. used for the same purpose. Compared to traditional data analysis tools, the major advantage of modern FCS is the blogging system that allows for all the analysis of multivariable monitoring systems

Introduction

Developing a country's industry will increase energy expenditure, especially electricity. This has led to an increase in electricity production and electricity supply to convene growing order. By the early 1970s, the order for electricity had twice to 10 years, requiring significant investment in the energy sector.

The decline in non-renewable resources and the responsibility to provide consumers with energy at affordable prices has led to the establishment of oil refineries in remote areas. In addition, the power plant hundreds of kilometers from the center of the supply is the most expensive option to meet the needs of consumers. Extraordinary power plants, expensive power plants, and an increase in the distribution of energy benefits have generated interest in connecting adjacent power systems and designing large power plants [Padiyar, 1990].

Distant influence cohort and system connectivity contain enabled study in the field of high voltage transmission at high power speeds. Raising the height of the connector is not usually possible with AC transmission. The power supply for AC transmission depends on the difference in the voltage across the voltage vector, which varies with the load demand. The size of the power supply changes depending on the load demand, which changes the speed of the generator, which results in difficult control of the AC transmission. The problems of remote electricity transfer, complete control of the demand for transmission, and the increasing interest in integrating renewable energy into the account have led to the development of a new era of energy systems new direct transmission (HVDC)

Existing System

The use of electronic electronics to improve travel efficiency over long-distance transportation is the basis of the FACTS concept. Through the development of herism in the power of fire suppression, the exercise of all powerful powers is possible. The Unified Power Flow Controller (UPFC) is a new feature in the FACTS

series, which includes tuners and modifiers. The series converters induce a series of changes in amplitude and phase. On the other hand, the same branch will have to compensate for the heavy workload and the losses incurred or contributed by the branch. Although UPFC use improves power transmission and stays in power systems, other issues arise in the field of electrical protection, especially in the field of transmission protection. Implementation of the FACTS financial instrument control strategy introduces new system dynamics issues that must be considered when choosing a security area. The main issues include malfunctioning of the defects, distribution angles, hearing aids, waste and transient, and subsequent monitoring activities. The presence of FACTS devices such as the UPFC in the fault region affects the component constant and the constant voltage in the current and current.

Development Of HVDC System

DC transmission has been in operation since Edison successfully completed the low-power supply in 1897 and used it with an unknown transmitter [Martensson et al., 1984]. During the great technical battle between AC and DC transmission methods presented by George Westinghouse, standards for the energy industry are developing. Thus, the high demand for large-scale power generation and transmission forces people to realize the importance of electricity. At the same time, AC technology has been at the forefront of power generation, reliability, hair change and transmission volumes, and has become the first choice in the energy industry. . As a result, the first AC connection to Hell near Latvia, Sweden, by the ASEA Group (now called ABB) was used in 1893 [Weimers, 1998]. Since then, the growth of coordination devices capable of dealing with high-voltage light sources has resulted in the transmission of high power transmissions [Setreus et al., 2008. Jie et al., 2014; Chen et al., 2015; Liu et al., 2015; Reeve et al., 1968; Palk et al., 1972; Schmidt et al. , 1996; Science et al., 1996. Round et al., 2012].

Methodology

Self-propelled springs (VSCs) are an integral part of VSC-based HVDC systems, so planning and performance evaluation are crucial to achieving desired results. This chapter introduces the design, model, and manage of VSCs to achieve AC-level connectivity and the distance among two AC system using the HVDC system.

The operation of the VSC-based HVDC system depends on the correct range of switches Ear plugs, good interface reactors and DC bus drivers. Volume source converter With IGBT wheels compared to a combination of MOSFET and bipolar activity Turn Junction transistor (BJT). There are portable gates such as MOSFETs and current / current sensors A unique feature, such as BJT, is that the IGBT also rotates and converts at high speeds (> 1000A).

Compared to the GTO, the range is 3 to 4 times higher. Therefore, IGBT is turned on With current management and easy control. However, the HVDC converter Frequency can be adjusted to 2 kHz to keep the loss in good enough range DC capacitor DC is used as an energy pack to boost DC bus volume under normal circumstances and the long-term situation. A large capacitor's value can result in an accidental sale It is a source of input, and low values can result in consistent transitions. It is quite possible Selecting DC bus sizes is an important part of VSC design [Mohan, 2003; Rashid 1990]. DC capacitor buses are made stand on cases such as energy Characteristics of the VSC HVDC scheme, the size of a DC bus bus, and the recovery time in a state of emergency 49condition and so on. The choice of bus driver and DC depends on the average The relationship of common facilitation (PCC) and AC mains drainage.

Propose

The HSC-based Real Estate Funding System (VSC-HVDC) provides solutions to many of the problems facing current power networks, such as network traffic, energy efficiency, and energy efficiency. nature, park connectivity, multi-terminal operation and asynchronous connectivity. Currently, two process have been future for the construction of VSC-HVDC systems. The first method is to use a two-level standard converter or a neutral armature with a pressure stabilizer such as the IGBT. Since converting high voltages at low speeds results in dv / dt, this method imposes conditions requiring high insulation on the interface converter. This feature also requires a small amount of output filtering to consolidate the variable components from the output volume to a common point. The second method is to use a two-switch multilevel processor with a medium-sized electronics such as 4.5 kV IGBT. This method produces low dv / dt (allowing the use of converters with standard insulation needs) and reduces the spread of thermal damage (this can eliminate the need for AC.However, compared to the first method, this method requires a lot of processing and capacitor devices and some complicated processing strategies. Both methods have fast active display, independent control over active and active power, and no fault in decoding. During AC fatigue, the ability to de-stress and the ability to provide damp and support often through electrical or reactant processing. However, both methods result in higher wounded evaluate to straight HVDC systems. The assessment of power loss in the VSC-HVDC formulation is important because it allows the designer to identify the general approach through the exchange of multiple design solutions. They also help in the selection of refrigeration equipment and inverter heating systems.

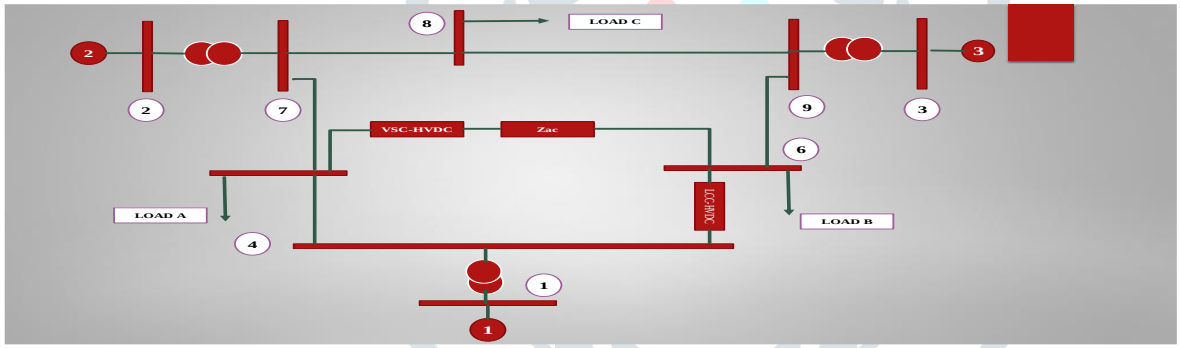

Fig 1 proposed system

In order to develop FCS models for the whole system, AC network models need to be developed as hybrid models. The mixture model of the AC network earnings that the copy is divided into two parts, namely the active part OR the statistic part. The active component or part of the vector theory is used in models for HVDC converters and in the vicinity of AC machinery such as AC lines and converters. The inert part is rest of the AC system without the HVDC converter. In this context, the AC component is modeled as a continuous acceptor using phase theory. The electrical part of the block accessory I boast two vectors and one production vector. One of the say vectors is as of the manage system KOR the extra vector, the control vector, is from the AC network of N. output yin vector is fed into The current includes the displayed voltage and the angle of the AC volt body of the unit N. VSC-HVDC output is AC voltage amplifier, DC voltage rectifier, AC current vector rectifier, AC voltage converter, inverter high power and current AC printer vector. What must be considered is that the current AC current of the VSC is used for oscillation coordination purpose of the high-pass filter in the module.

Advantages

Sending and receiving end frequencies are independent. Transmission distance using DC is not affected by cable charging current. Offshore installation is isolated from mainland disturbances, and vice versa. Power flow fully defined and controllable.

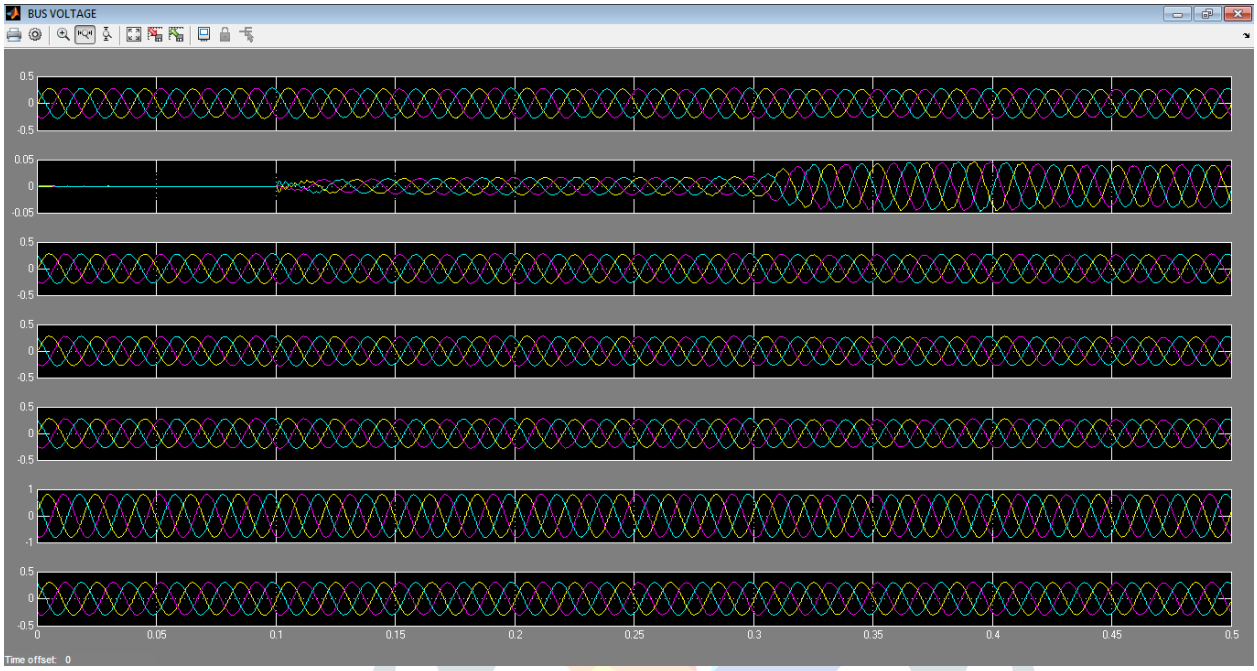

Fig .2 Bus Voltage Waveform

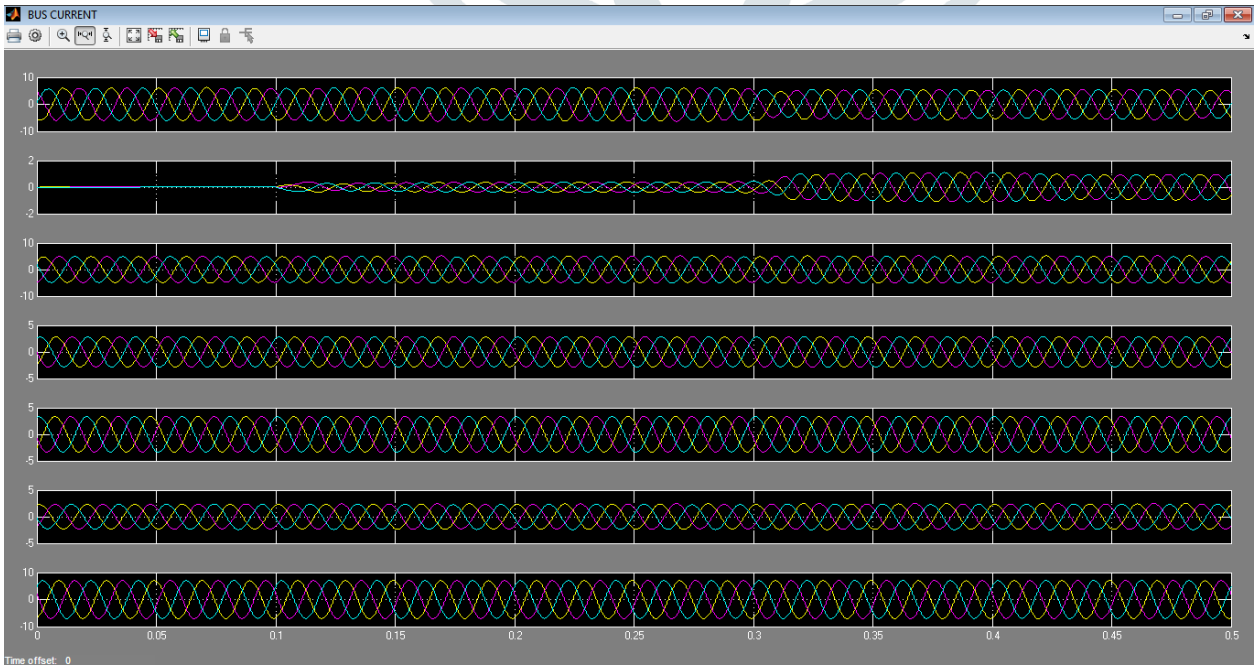

Fig 3 Bus Current Waveform

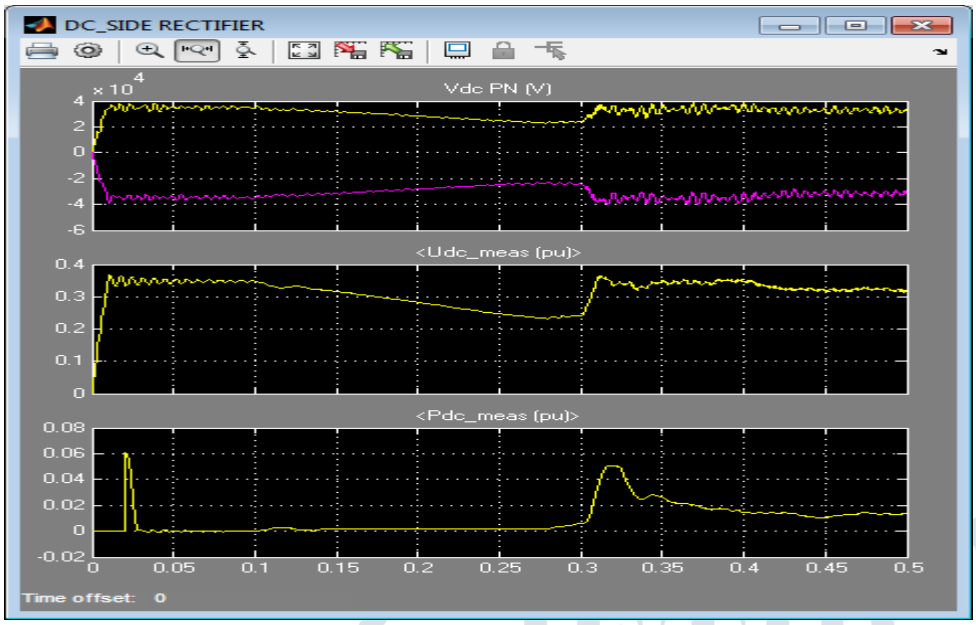

Fig. 4 DC_Siderectifier Waveform

Conclusion

In the implementation of this proposal, an integrated hybrid scheme by two types of HVDC program systems (LCC and VSC-HVDC) is planned. As a multidisciplinary information management system (FCS) it facilitates the reduction of volume and the reduction of power. Bottom of the bill. Signal analysis. Given the responsiveness of the results to the FCS model, there are other benefits that can be combined with open source analysis, resulting in additional stability information, which is essential for the design of many distributors. It is a space with infinite displacement. It is applicable to OH lines as well as underground or underground cable. Rapid monitoring of power consumption, not only for HVDC links, but also for AC systems, means improvements. The two-way (two-way) road can develop rapidly. The HVDC transmission channel does not increase the power of the short circuit at the connection point. This means that existing networks should not be replaced. For a particular child behavior, the HVDC can be more powerful. From the point of view of control theory, it is also used to achieve good communication between multiple electronic devices within a power system. To make the FCS model suitable for large power systems, hybrid models of AC networks.

Future Work

The chief aim of this research work have been successful, but during investigation it is possible that in the VSC-based HVDC system, through theological demonstration, additional work on the reduction of the sensor. An area of improvement. Here are some areas that can be further explored: This research work is based on 12- and 18-pencil converters with PWM transfer. This study can be further studied using multilevel transformers.

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