

Global and China Superconducting
Fault Current Limiter (SFCL)
Industry Report, 2010-2011

May 2011





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This report

- Analyzes the oversea and Chinese R&D of SFCL industry.
- ◆ Focuses on the market analysis including market size and bottleneck of SFCL industry.
- Highlights the operation of foreign and Chinese manufacturers of SFCL.

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Abstract

Along with the debut of filament AC superconducting wire in early 1980s, many countries have successively carried the research on superconducting fault current limiter (SFCL) and made substantial progress.

The superconducting technology is currently amid R&D, and a majority of superconducting products have not employed commercial production yet; nevertheless, the international community universally holds that high-temperature SFCL will be the leading product with massively applied superconducting technology and pioneer the industrialization. The industrial output value of global superconducting power technology will arrive at US\$240 billion in 2020, according to the prediction of international superconducting industrial community.

On a global scale, there are few enterprises that have mastered SFCL technology and managed the small volume production; ABB and Siemens can deal with the small volume production of SFCL. The USA is comparatively enthusiastic about SFCL and it enjoys global leading technologies. U.S. Department of Energy has listed SFCL as the vital equipment for smart grid construction and sponsored three R&D projects of high-temperature SFCL.

In China, only the SFCLs researched and developed by Institute of Electrical Engineering, Chinese Academy of Sciences (IEECAS), Beijing Innopower Superconductor Cable Co. Ltd., and Tianjin Baili Electromechanical Holding Group Co., Ltd. have successfully achieved the on-grid operation.

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The SFCL jointly developed by Beijing Innopower Superconductor Cable Co. Ltd. and Tianjin Baili Electromechanical Holding Group Co., Ltd. boasts the commercialization conditions, with the maximum voltage of 220KV, and the R&D of 500KV SFCL has presently been put on the agenda. Chinese superconducting technology has been in the leading position in the world, and the industrialization conditions of SFCL have also been available, the Chinese market therefore will embrace the large-scale startup.

Regarding the market demand, the 220KV SFCL will see the largest demand in Chinese market with the market share of 70% in the future, while 35KV and 110KV ones will hold approximately 15%. Beijing Innopower Superconductor Cable Co. Ltd. and Tianjin Baili Electromechanical Holding Group Co., Ltd. have been technically leading and they will benefit from the application of SFCL in smart grid to the maximum extent.

Key SFCL Projects Worldwide

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Lead Company	Country/Year	Туре	Data
ACCEL/NexansSC	D/2004	Resistive	12KV,600A
CAS	China/2005	Diode bridge	10.5KV,1.5KA
CESIRICERCA	Italy/2005	Resistive	3.2KV,220A
Siemens/AMSC	D/USA/2007	Resistive	7.5KV,300A
LSIS	Korea/2007	Hybrid	24KV,630A
Hyundai/AMSC	Korea/2007	Resistive	13.2KV,630A
KEPRI	Korea/2007	Res,-hybrid	22.9KV,630A
Innopower	China/2008	DC biased iron core	35KV,90MVA
Toshiba	Japan/2008	Resistive	6.6KV,72A
Nexans SC	D/2009	Resistive	12KV,100A
Zenergy Power	USA/2009	DC biased iron core	12KV,1.2KA
Zenergy Power	USA/2010	DC biased iron core	12KV,1.2KA
Nexans SC	D/2009	Resistive	12KV,800A
Nexans SC	D/2011	Resistive	12KV,800A
Innopower	China/2010	DC biased iron core	220KV,300MVA
RSE	Italy/2010	Resistive	9KV,250A
RSE	Italy/2012	Resistive	9KV,1KA
KEPRI	Korea/2010	Resistive	22.9KV,3KA
AMSC/Siemens	USA/D/2012	Resistive	115KV,1.2KA
Zenergy Power	USA/2012	DC biased iron core	138KV
Nexans SC	EU/2010	Resistive	24KV,1005A

Source: ResearchInChina



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