



## Preparation of Abstract for IERE TIS-Asia Meeting 2014

### **The State-of-the-Art Technology of IHI's USC Boiler and Next Target**

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#### Abstract

As coal is more abundant in many parts of the world, coal prices are less volatile and more stable than natural gas prices. But coal-firing emits CO<sub>2</sub> more than natural gas firing. Reduction of CO<sub>2</sub> emissions by coal-fired power plant is hence needed for globally. The efficiency of the power plant is the key value, which affects both the fuel costs and amount of CO<sub>2</sub> emitted to the environment.

Ultra Supercritical (USC) steam power plants meet notably the requirements for high efficiency as the state-of-the-art technology. After the delivery of first USC Boiler in 1993 in Japan, IHI has continued the development of application for higher steam conditions and for more optimized design and technologies of USC Boilers. This presentation shows IHI's reliable USC Boiler technologies and experiences including recent USC project in Germany.

For further improvement of the thermal efficiency and reduction of CO<sub>2</sub> emissions in coal-fired power systems, IHI has been developing A-USC boiler technology, steam conditions of which has been raised from 600°C to 700°C in the conventional USC technology based on the IHI's rich experience in USC boiler projects worldwide.

IHI has previously conducted welding and creep tests on candidate materials of Ni-base alloy and Fe-Ni base alloy, and healthy weldment has been obtained from the tests. Moreover, basic properties of mother materials of developing materials have been acquired.

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