A Large-scale Heat Storage in Coal Fired Steam Power Plants

BACKGROUND

Few coal power plants today are designed solely for base load. Instead, the typical capacity factor is about 60% as there is a lower demand for electricity at night and on weekends, which means that over 40% of the time, the full output of the power plant is not needed. Also the old inefficient plants are bringing more and more concerns about the polluting CO2 and other emissions.

INVENTION

This invention described a unique heat storage system that allows the stored heat to be recovered at the same temperature and used to generate electricity when needed. This system is simple, efficient and cheap.

APPLICATIONS

Supply load-following capability, with storage and additional steam turbines.

ADVANTAGES

- High thermal efficiency of over 95%.
- Increase the capacity factor. Full usage of the facility.
- Cheap. To store 1kWh/day, 1.3 cent for storage and 15-20 cents for traditional storages.
- Easy field construction. Factory-designed modular equipment can be shipped by truck and assembled on location.
- Environmental friendly.

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