



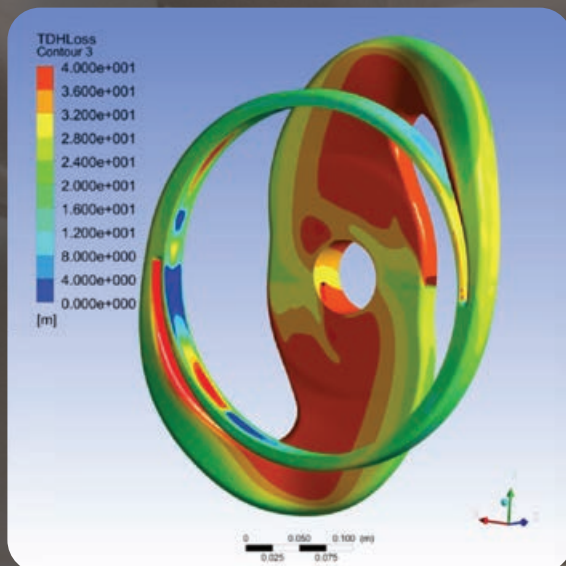
# Boiler Feedwater Pump Upgrade Program

Increasing efficiency. Reducing operating costs.

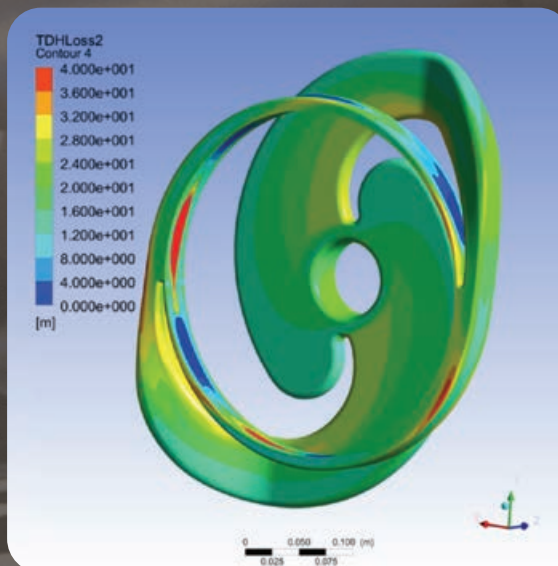


*Experience In Motion*

## Improve overall plant performance, reliability and efficiency



*Original design*



*New design*

The main boiler feedwater pump is one of the highest internal energy-consuming components in a thermal power plant, sometimes using up to 1–3% of a plant's total energy output.

Given boiler feedwater pumps' impact on a power plant's overall energy consumption, Flowserve created its Boiler Feedwater Pump Upgrade program for plant managers, reliability engineers and other plant operators who want to upgrade their traditional pumps to improve efficiency and reduce costs.

By upgrading traditional boiler feedwater pumps with new hydraulically optimized components, power plants can expect:

**Increased efficiency.** A more efficient internal engineering design can improve a boiler feedwater pump's efficiency by as much as 4%.

**Substantial operating cost reduction.** A 4% efficiency gain can reduce operating costs by \$300 000 to \$400 000 per year.

**More power production.** A more efficient boiler feed water pump reduces the amount of fuel required to produce power, increasing production for external sale.

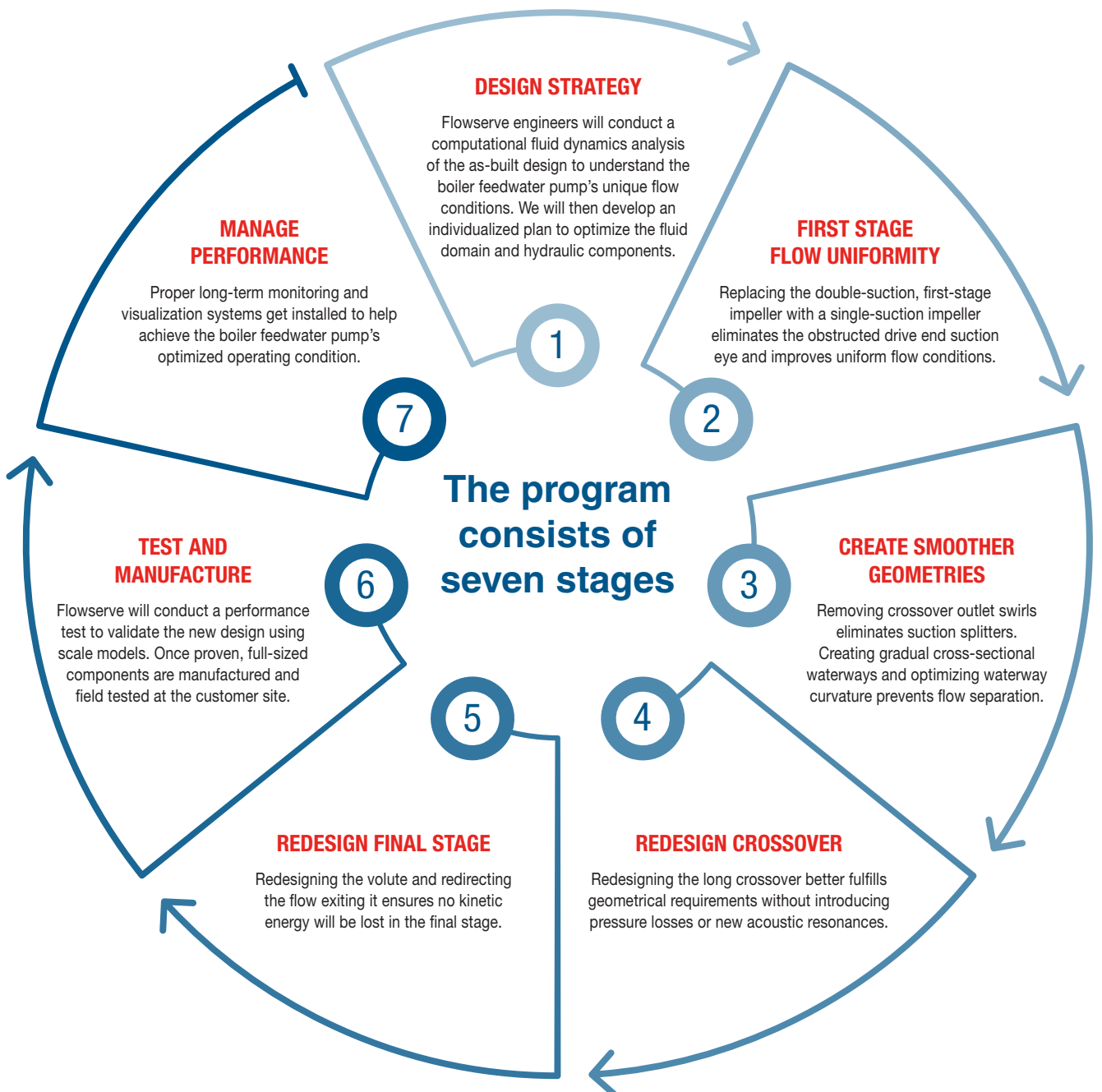
**Upgrades that pay for themselves.** A typical thermal power plant can recapture its upgrade costs in as little as 18 months.

**No additional downtime.** Because pump components are redesigned virtually using computational fluid dynamics, they can be manufactured to specification and installed during normally scheduled maintenance periods.

# Tailored to your specific application

Subscribers to the Boiler Feedwater Pump Upgrade program will receive several benefits. Flowserve will redesign each pump stage, replace traditional components with more efficient alternatives to lower parasitic power consumption, and improve overall plant performance.

Because each thermal power plant is different, Flowserve will conduct a computational fluid dynamics analysis, which evaluates velocity, temperature, pressure and density requirements. Flowserve will then use this information to optimize the new internal component design for the plant's specific operating environment.





## Ready to start improving overall plant performance, reliability and efficiency?

After getting some necessary pump design data, we'll then discuss your specific operating system and any potential constraints.

Using this information, we'll develop an engineering and economic analysis to highlight how upgrading to hydraulically optimized boiler feedwater pump components can deliver cost savings and operational enhancements.

Contact your local Flowserve representative to schedule a consultation.



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