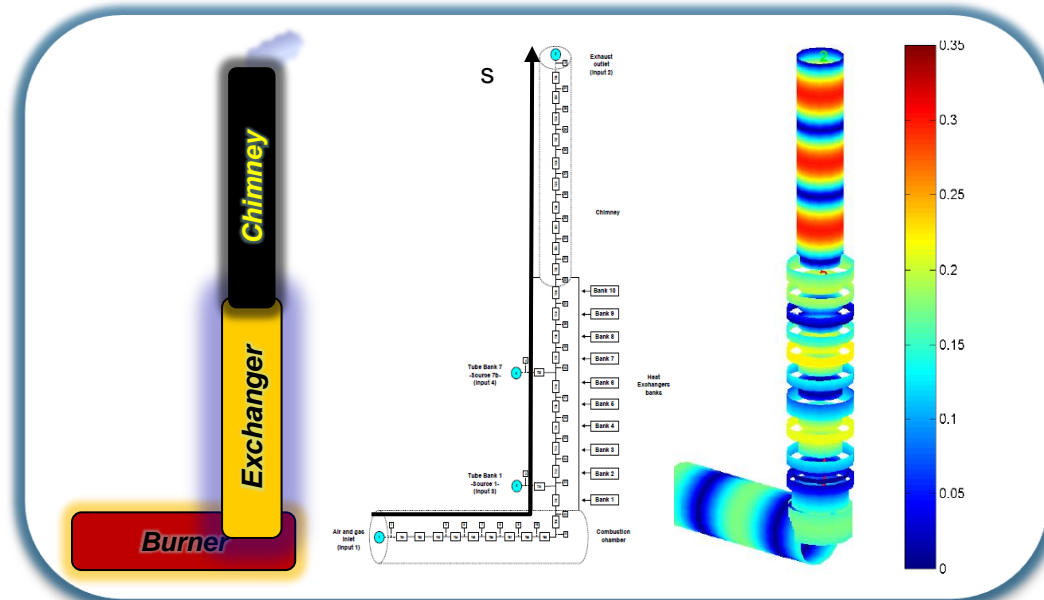


## ACUSYS® - ACUSCOMP™ DYNAMIC SIMULATION SERVICE

# ACOUSTIC SIMULATION OF A RESONATING BOILER



# Understanding the problem

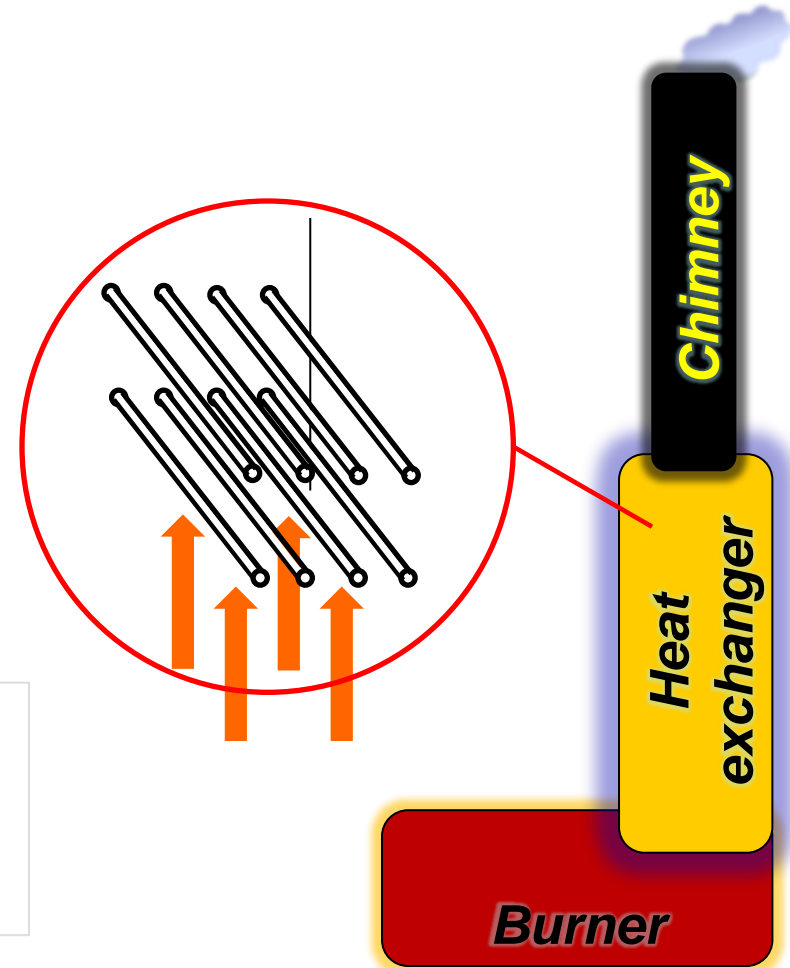
## *Plant evidence*

Longitudinal mechanical vibrations of high amplitude on a steam generator.

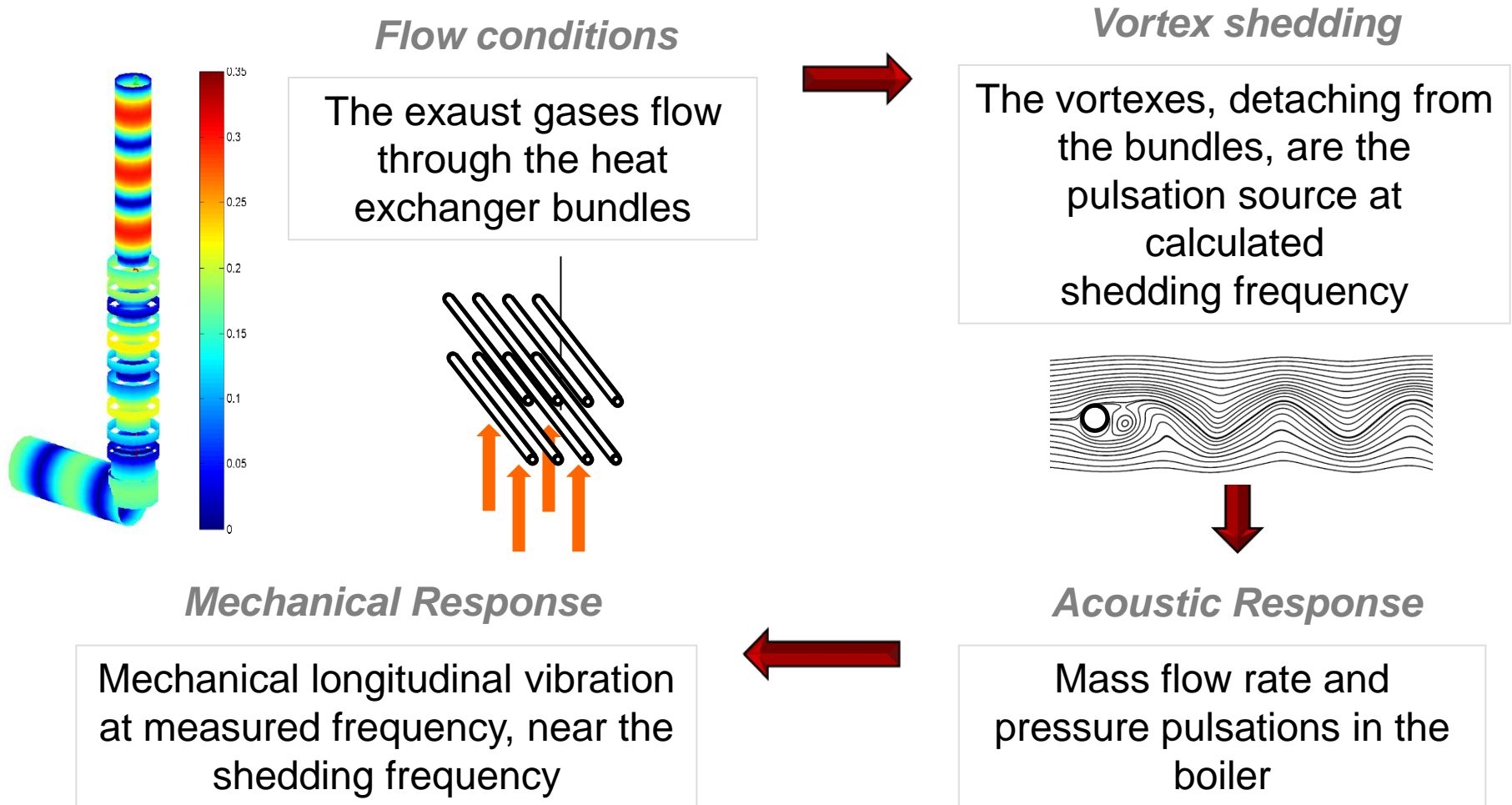


## *Problem analysis*

After having studied the internal layout of the heat exchanger, SATE argues that longitudinal resonances is excited by vortexes detaching from heat exchangers pipe bundles.



# Involved physical phenomena



# Modeling of the acoustical system

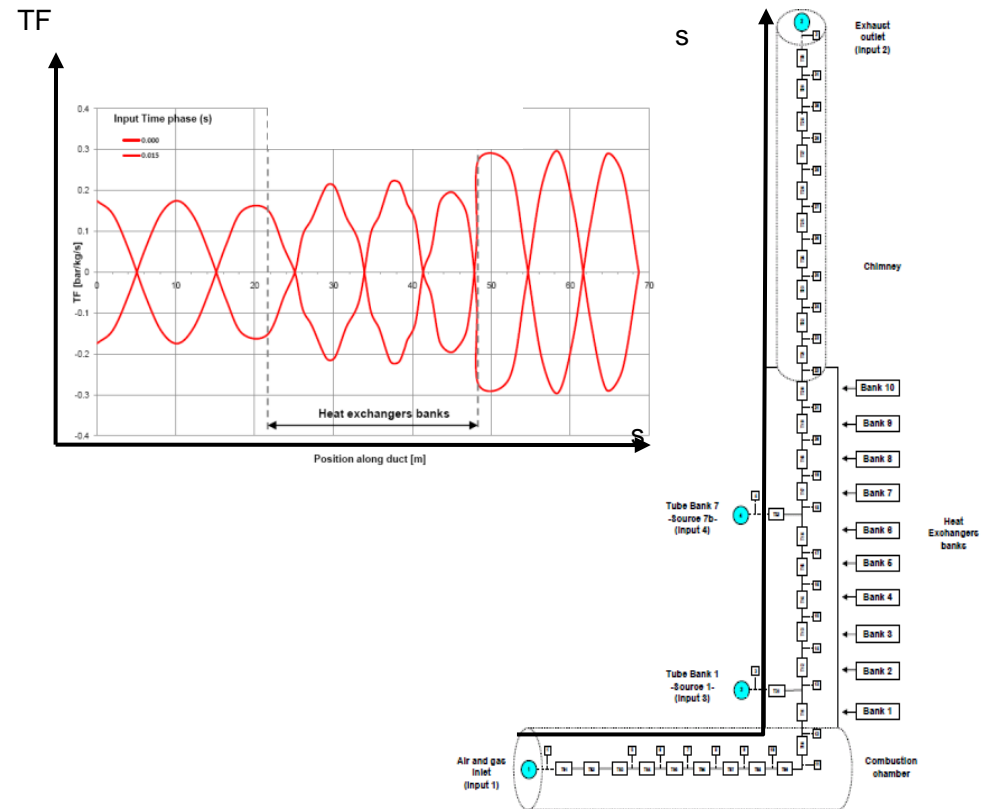
## Plant modeling

SATE models the whole steam generator, with **ACUSYS®**.



## Results

Mechanical vibrations are consequential to the acoustical flow induced pulsations



# Remedial definition and verification

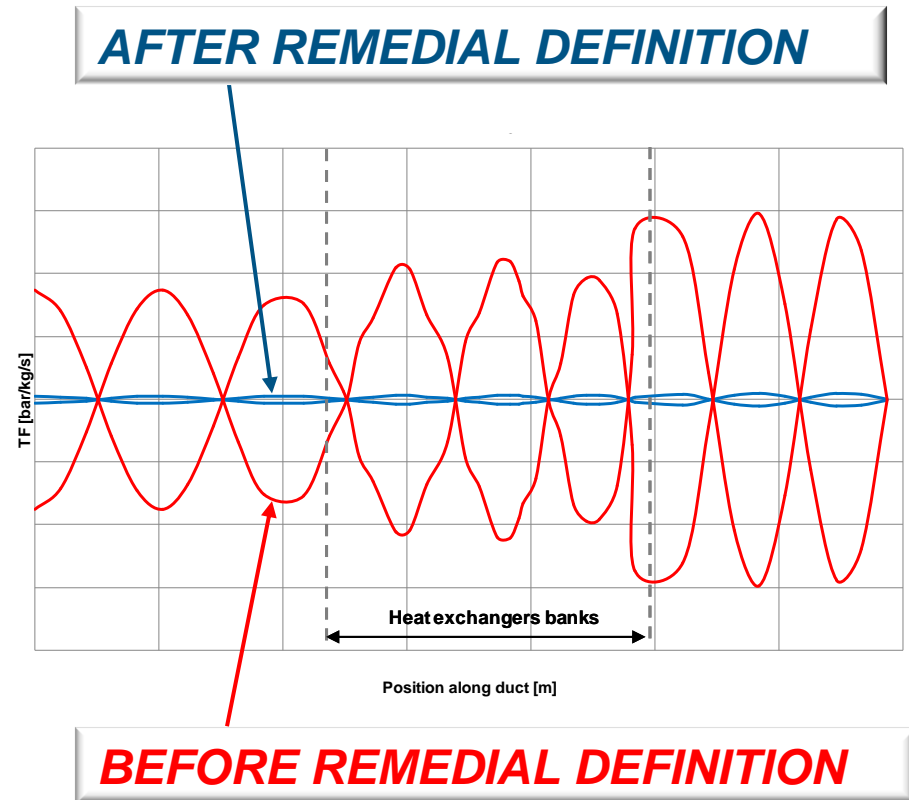
## *Proposal of remedies*

To reduce the pulsation amplitude a remedial has been placed along the exhaust flow path.



## *Verification of remedial device*

Simulations and operator feedback proved a great reduction in mechanical pulsations



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[Variable speed  
compressors](#)

[Flow induced  
pulsations](#)

