



# THE ECOTUBE<sup>®</sup> SYSTEM

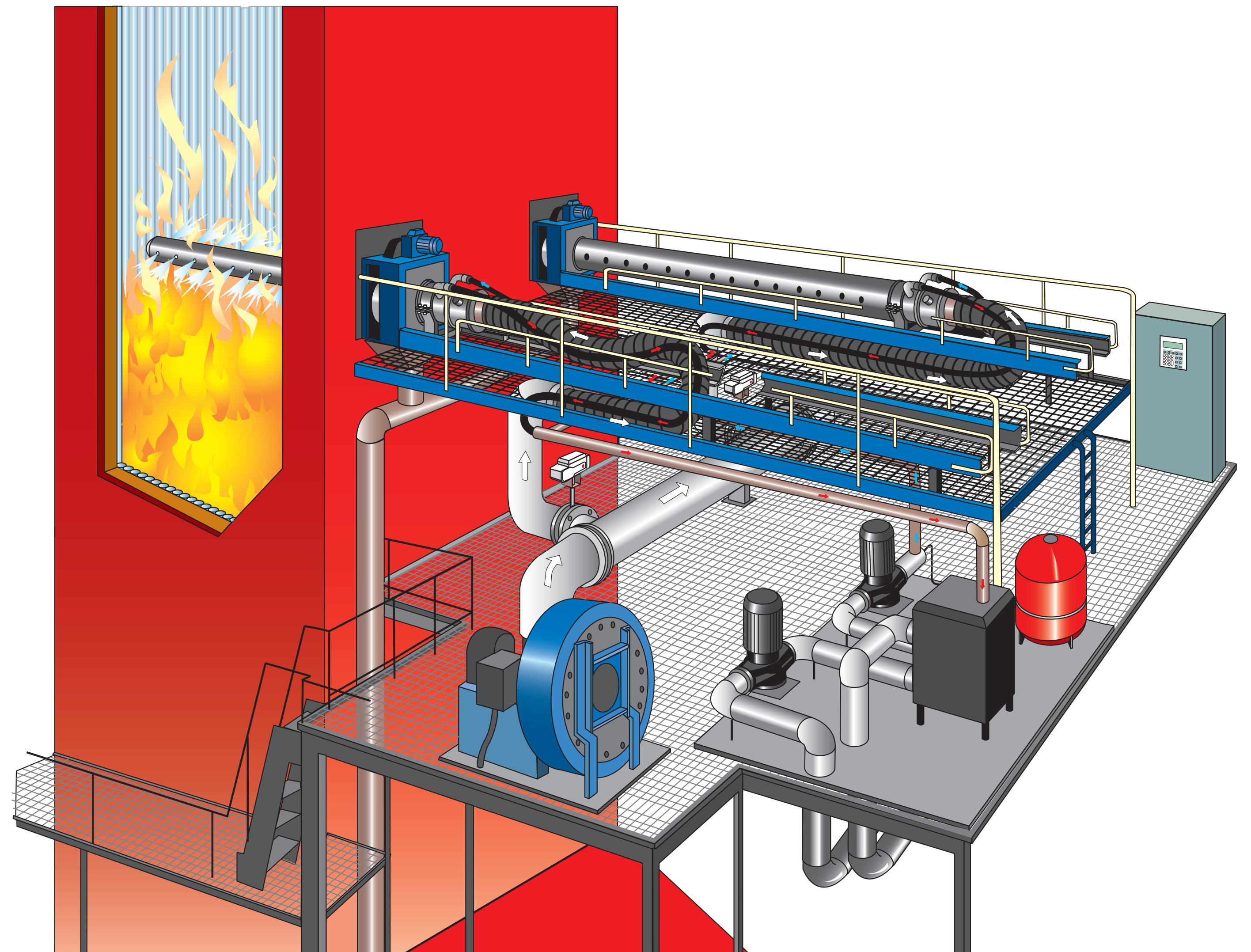
Simple retrofit installation  
by means of well-proven  
technique and equipment.

A: Ecotube Assemblies

B: Combustion Control System

C: Air Supply System

D: Cooling Water System





# **Our Clients**



**Waste to Energy**



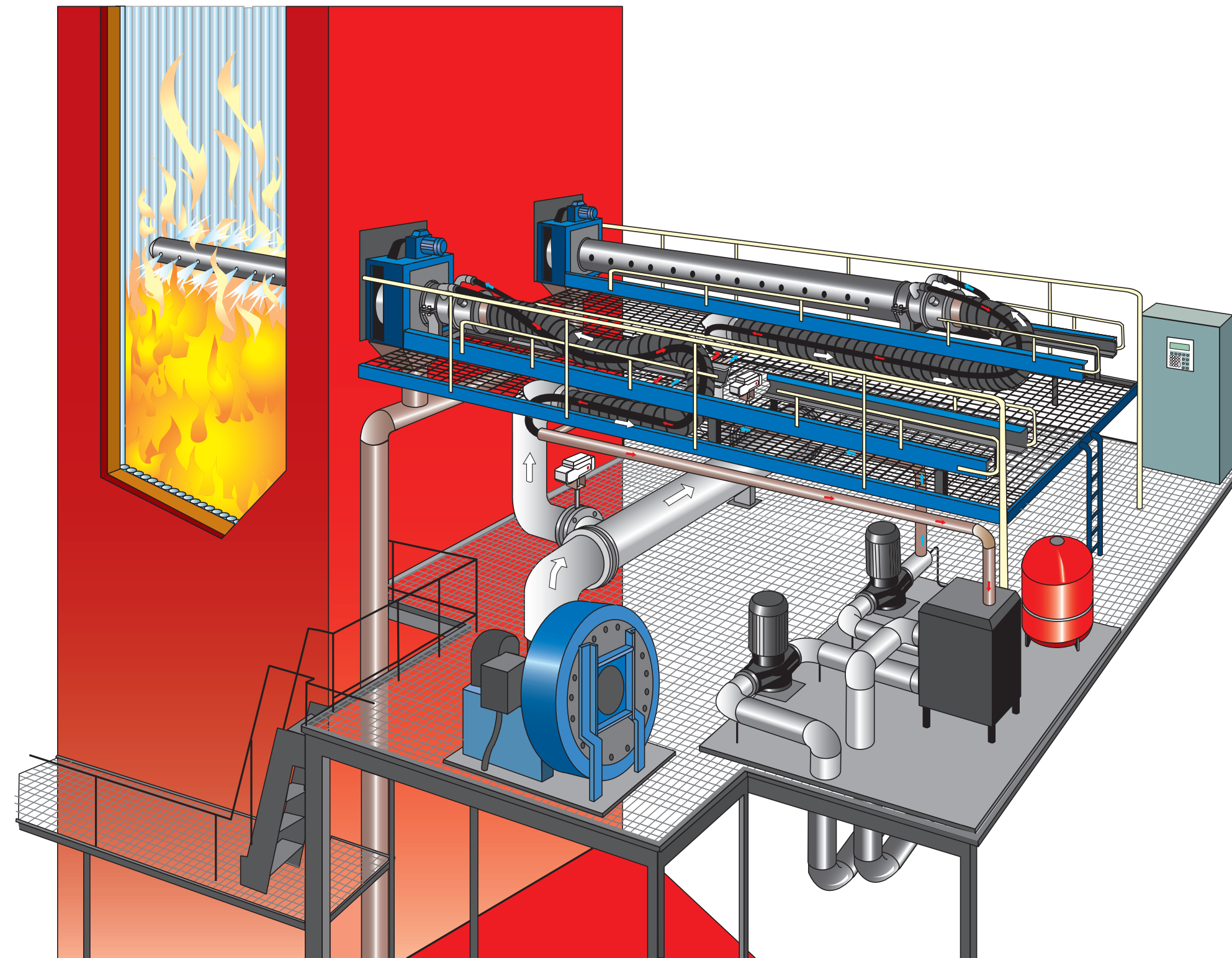
**Coal/Oil Power Plants**



**Biomass**



# Emission Reduction



**NO<sub>x</sub>**

**SO<sub>x</sub>**

**CO**

**CO<sub>2</sub>**

## **Combustion Problem Areas are:**

- **Poor mixing/laminar flue gas flow**
- **Uneven temperatures and gas velocities**
- **Non utilized furnace volumes**
- **High NO<sub>x</sub>**
- **Frequent CO spikes**
- **High SNCR reagent consumption**
- **High ammonia slip**







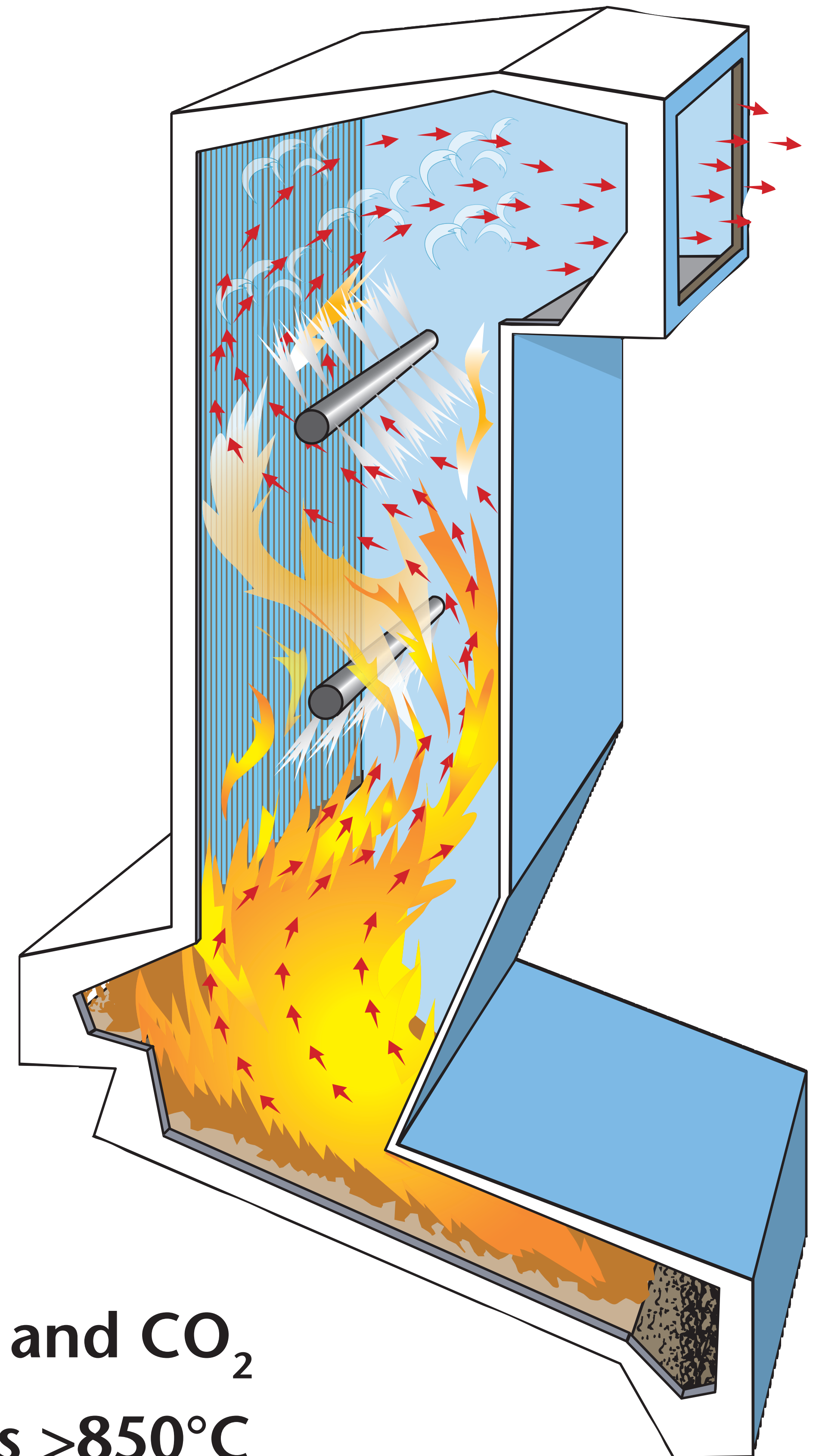
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## Financial Benefits

- Increased waste throughput
- Increased steam flow
- Reduced flue gas flow
- Reduced fly ash carry-over
- Reduced flue gas temperatures in convection pass

## Environmental Benefits

- Reduced emissions of NO<sub>x</sub>, SO<sub>x</sub>, CO, NH<sub>3</sub> and CO<sub>2</sub>
- Increased residence time in temperatures >850°C



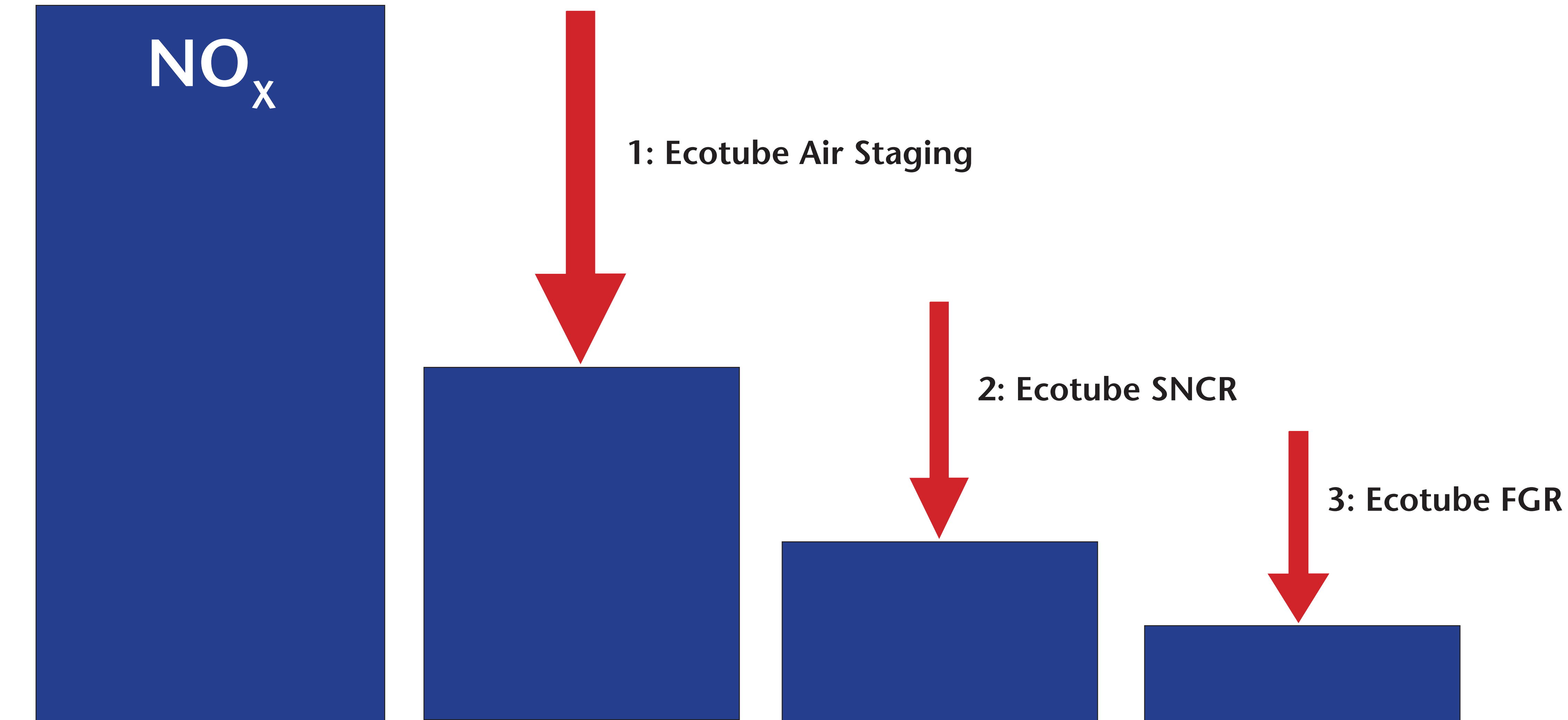


# Improved Combustion Performance

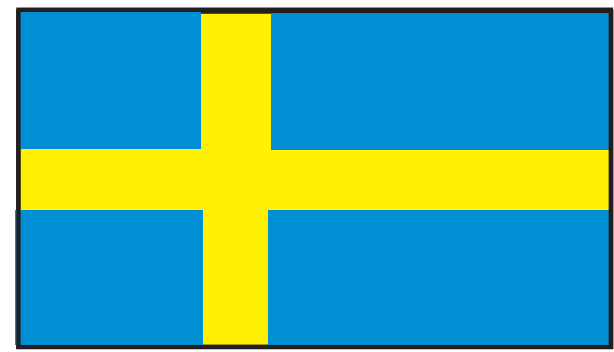
<b>Ecotube Air Staging</b>	Significantly improved combustion performance due to improved flue gas mixing etc NO <sub>x</sub> , SO <sub>x</sub> , CO, O <sub>2</sub> reduction Flue gas flow reduction Increased residence time in temperatures >850°C Increased boiler efficiency Fly ash reduction
<b>Ecotube FGR</b>	NO <sub>x</sub> reduction O <sub>2</sub> reduction Flue gas temperature reduction
<b>Ecotube SNCR</b>	NO <sub>x</sub> reduction
<b>Humidification System</b>	Local temperature reduction NO <sub>x</sub> reduction Increased waste throughput Slagging reduction

# How Low Can You Go With NO<sub>x</sub>?

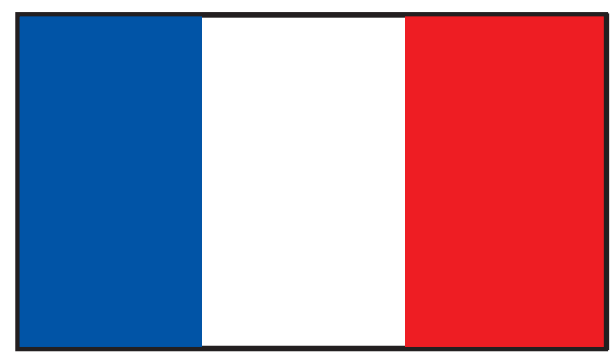
NO<sub>x</sub> Reduction Ladder



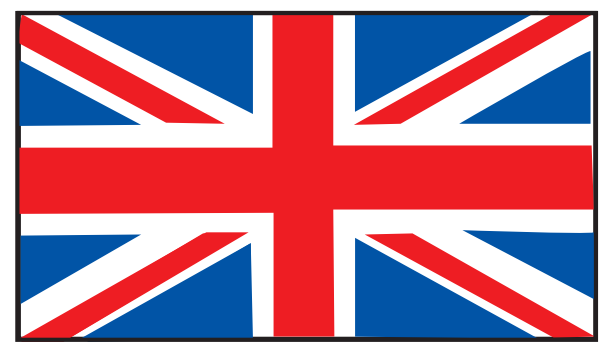
## Reference Plants



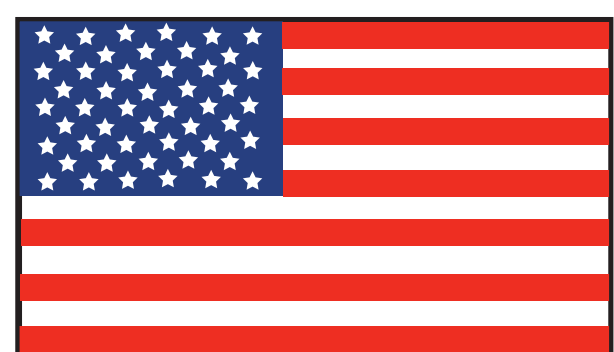
**Sweden**



**France**



**UK**



**USA**

