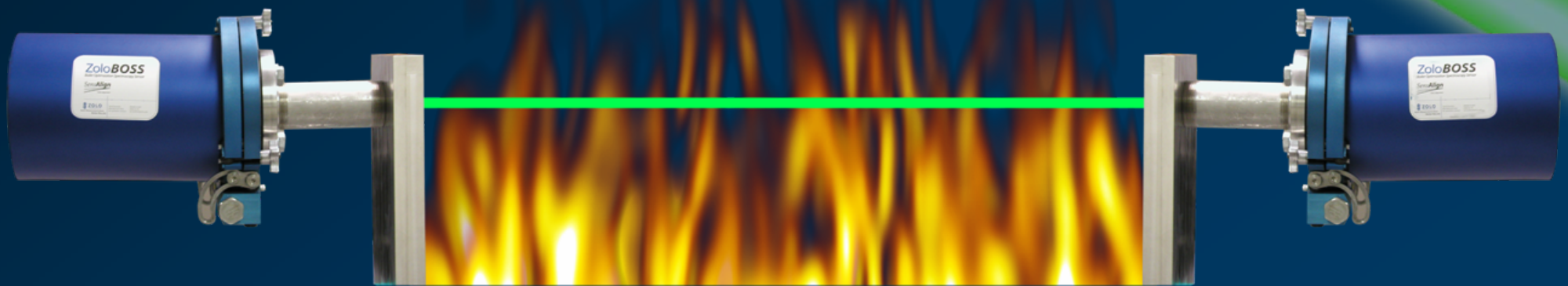
ZoloBOSS
Boiler Optimization Spectroscopy Sensor
Better Measurements
Mean Better Results
ZOLO
TECHNOLOGIES, INC.

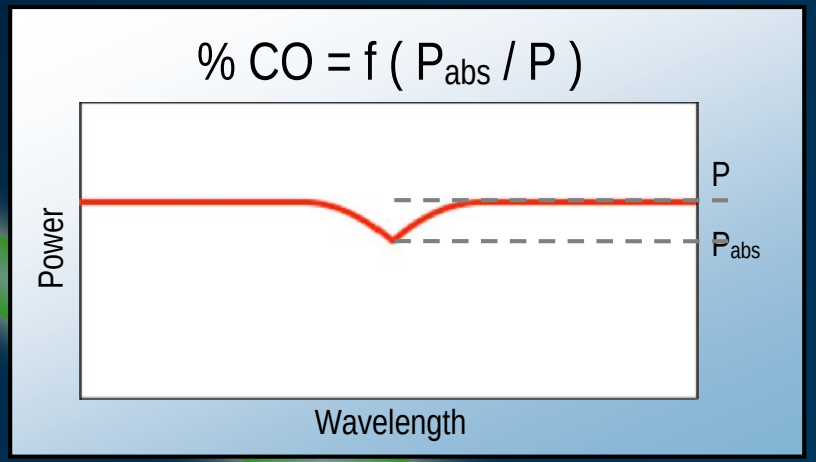
What is Zolo*BOSS*?

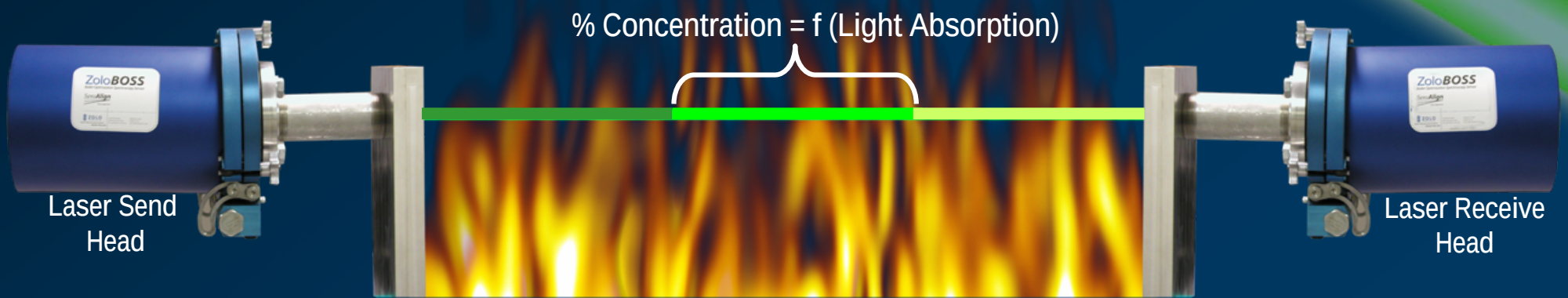
- On-line measurement of O_2, CO, CO_2, H_2O, & temperature
- Laser is beamed across the boiler to measure concentration
- Paths require a 2 1/2” access port and a line-of-sight
- No probes or equipment inside boiler
- Permits measurements in harsh environment of the furnace
- Measure Where It Counts!



Measurement Principle

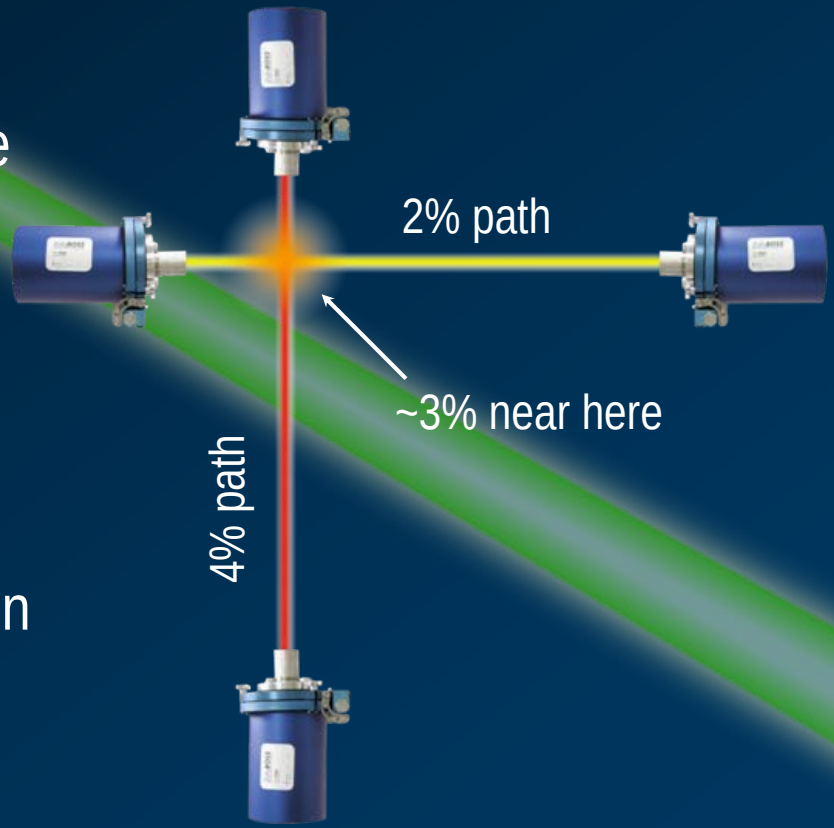
- Based on TDLAS, Tunable Diode Laser Absorption Spectroscopy
- Every molecule has a unique fingerprint of absorption
- Zolo*BOSS* measures the ratio of unabsorbed light to absorbed light
- Ratio is proportional to the concentration and generally unaffected by flame, dust or ash





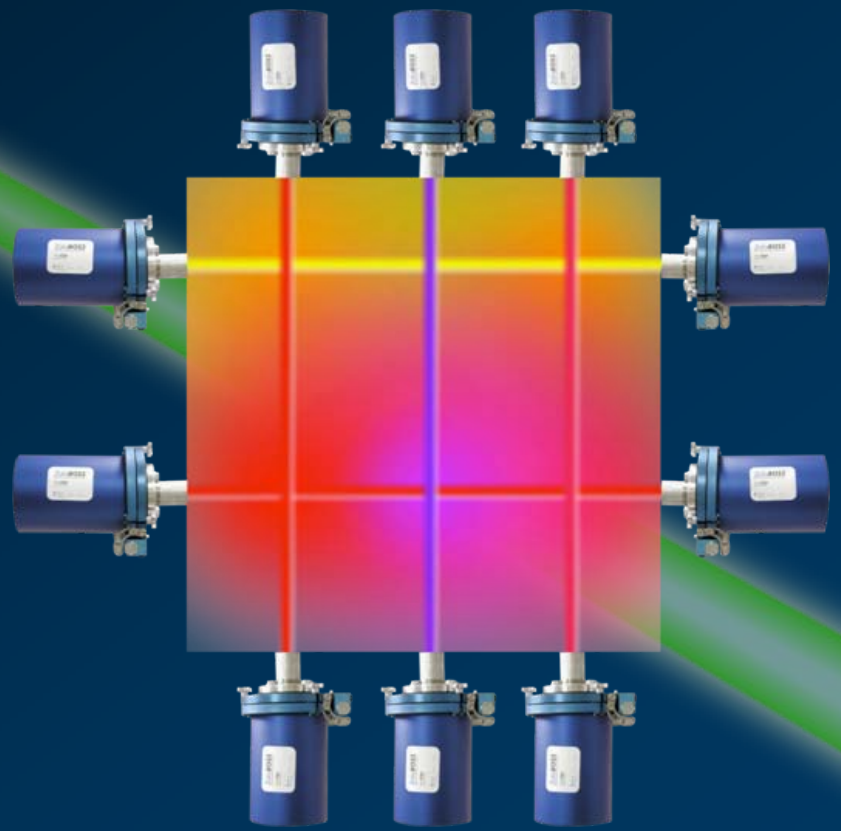
Path Averages to Tomography

- Each path measures an average value for each constituent
- Lasers can be arranged in multiple paths to form a 2-dimensional grid
- Multiple paths provide more information



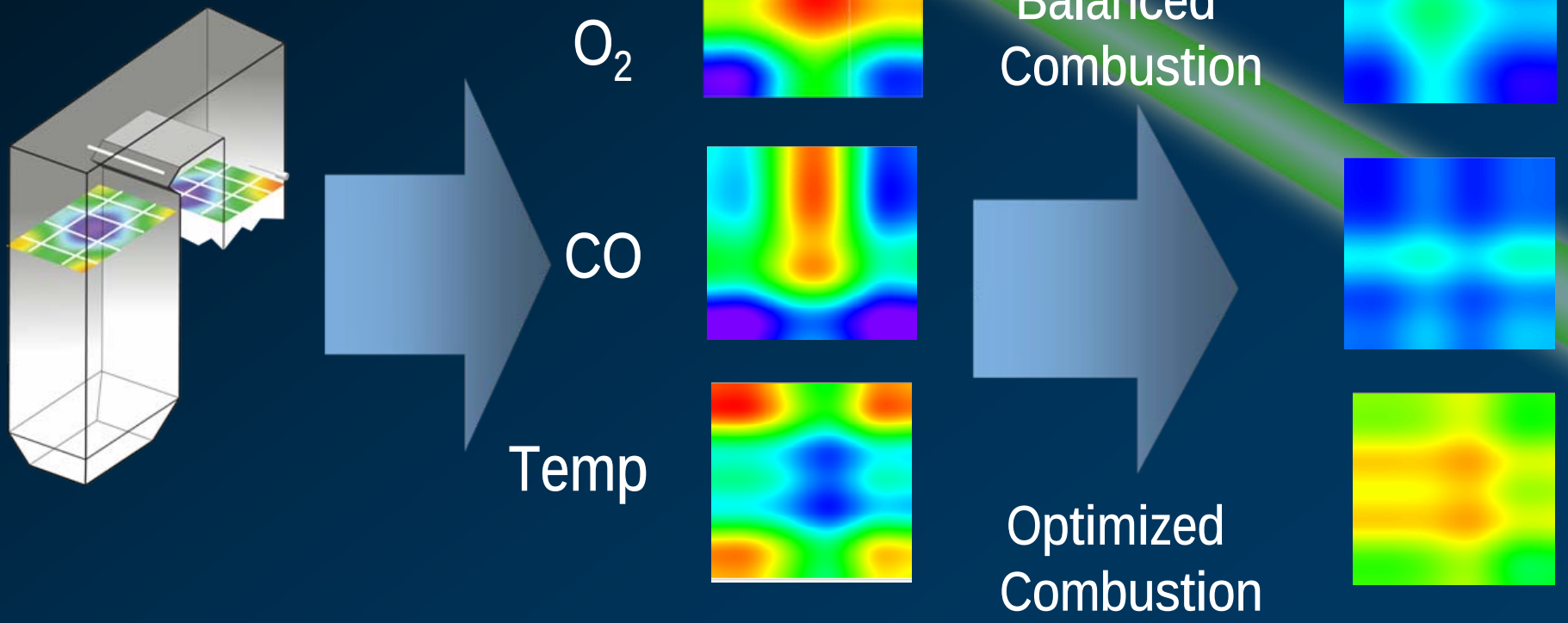
Combustion Mapping

- Multiple paths in the combustion zone can generate a tomographic image
- Values across the grid can be estimated using sophisticated but well established mathematics
- Technology is similar to CAT scanning

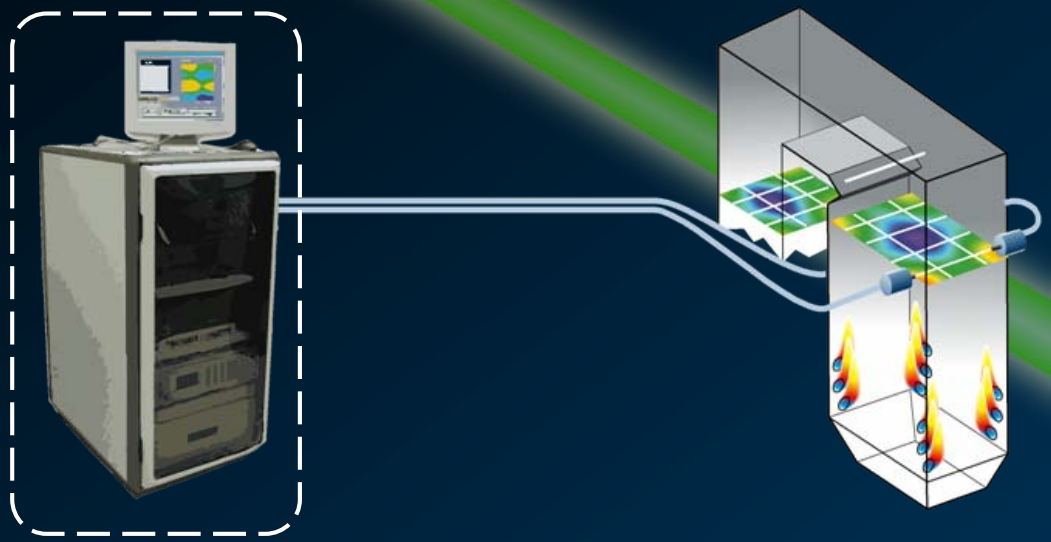


Combustion Mapping

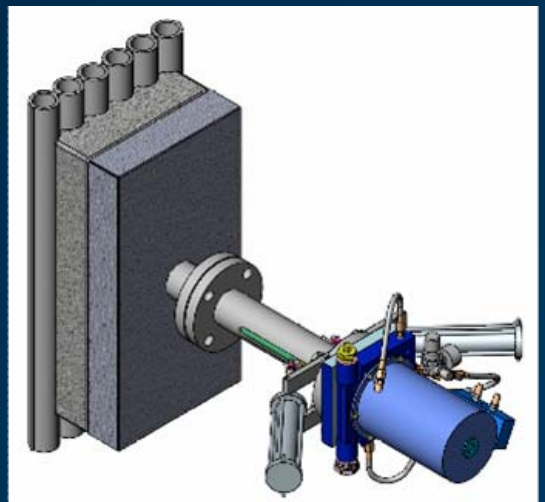
- Each grid creates a map of multiple concentrations, simultaneously
- Data is from WITHIN THE COMBUSTION ZONE
- Measurement Where it Counts
- Output is used to balance & optimize combustion



Typical System Layout



- 15 path standard system
- Grids configured based on specific Plant needs and objectives
- Plant supplies:
  - 2 1/2” line-of-sight access ports/ path
  - Conduits
  - 120V Power @ <3KW
  - Instrument air @ ~100psig



Better Measurement Means Better Results

- Balance Temp, O_2 & CO in furnace to optimize combustion
  - Reduce NO_x & CO_2
  - Improve heat rate
  - Reduce LOI & carbon in ash
  - Reduce opacity events (derates)
  - Reduce water wall wastage caused by low local O_2
- Real time measurement of FEGT
  - Reduce slagging and fouling by maintaining below ash fusion temperature
  - Increase plant availability by reducing forced outages or derates
  - Monitor performance of superheat & reheat temperatures
  - Increase plant output
- Monitor excess O_2 in back pass
  - More accurate representation of O_2 distribution & concentration
  - Reduce overall excess air
  - Monitor for air in-leakage between furnace and back pass

Questions?

- Please visit our website at www.zolotech.com
- Thank you for your time and your interest!

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