

BG Consultancy for Prediction of Performance and Emissions from Utility Boilers and Large Furnaces

Our Approach for Prediction

Combination of:

- | Experimentation by a 50 kW test facility
- | Empirical correlations from full-scale utility boilers
- | Prediction by numerical simulations
- | **i.e., taking advantage of ALL methods utilized**

Unique Capabilities

- | Advanced chemistry (NO_x, CO, sulfur)
- | Two-phase flow
- | Heterogeneous reactions (volatiles, char, soot)
- | Burnout / LOI
- | Deposition patterns & rates (slagging)
- | Radiative heat transfer
- | Corrosion (H₂S, pyrite, sulfur)
- | Variable surface conditions (wall-models)
- | Multiple fuels



Benefit from CFD Simulations

- | Variety of fuels imposes operational problems.
- | Can evaluate great variety of fuels.
- | Increase confidence and reliability.
- | Increase range of operation (various coals) beyond vendors guarantee.

CFD is a cost effective approach for evaluating boiler performance, operational impacts & emissions

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| Improve understanding | Cheaper than testing |
| Estimate performance | More information than testing |
| Provide conceptual designs | Does NOT make decisions for engineers, |
| Identify operational problems | but does help them be more informed |



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