



# BD Energy Systems ASMRT Course September 14th-16th, 2021

The course will empower your stakeholders to apply more effectively the knowledge acquired to better manage specific operating and maintenance issues that plant personnel face on a daily basis.

## Steam Methane Reformer Advanced Training Course



Course

Course Fee:  
**\$650.00** USD

INCLUDES :  
Dinner on Day 1 & 2  
Catered Breakfast & Snacks  
Catered Lunch  
Training Booklet

## Instructor Biographies

An Introduction To Our Instructors

### Dan Barnett • VP Of Engineering

More than 35 years of furnace related work experience where he has been involved with technology development, process design, detailed engineering, project execution, commissioning and plant start-up advisory role. Dan has been involved in more than 100 reformer projects as well as plant revamps and currently serves as Vice President of Engineering at BD Energy Systems.

### Dallas Robinson • Director Of Special Projects

Over 42 years in ammonia plant operations, predominantly in the nitrogen fertilizer & syngas sector. His main areas of experience is in process, project, operations and maintenance management. In the most recent project, Dallas was as Project Director & VP of Operations to dismantle, transport, and relocate/rebuild/upgrade an ISBL Ammonia plant along with OSBL systems that successfully completed within 3 years for approximately \$500 million in project value.

### Steve Lancaster • Chief Engineer

Chief Engineer at BD Energy Systems, having worked with fired heaters in general, and particularly steam methane reformers, for more than 35 years, including at Kellogg/KBR for over thirty years, and IHI E&C (former Davy/Kvaerner)

Details

### Who Should Attend ?

- Plant Operations
- Plant Maintenance
- Engineers
- HSE Personnel

### Location and Contact Details

BD Energy Systems, LLC. - Training Facility  
1001 South Dairy Ashford  
Houston, Texas, U.S.A. 77077  
Phone: +1 (281) 407-9812

### For Additional Information

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Training@BDEnergySystems.com

[WWW.BDENERGYSYSTEMS.COM](http://WWW.BDENERGYSYSTEMS.COM)

September 14th-16th  
**2021**

Presented By

Dan Barnett - Vice President of Engineering

Dallas Robinson - Projects Director

## Target Group

Plant Management, Engineering, Operations, Maintenance, and Health, Safety & Environmental personnel in Ammonia, Methanol, Hydrogen, GTL, and Ore Reduction plants that require Steam Reformer furnaces for generation of hydrogen, synthesis gas, or reducing gas.

# In This Course

The course starts off with a Parrish Process Services and Production Review giving the attendees an overview of plant evaluations, plant operations and Operations Finance 101, including implementation of Green/Blue Hydrogen in existing syngas plants just to name a few.

Getting into the bulk of the learning, the course continues with the basic fundamentals of Steam Reformer design and includes an overview of the historical evolution of various reformer designs and the impact of operating parameters on Steam Reformer reliability. The course progresses to an interactive discussion during which operating and maintenance issues will be introduced and comments from attendees will be addressed in a problem- solution format. BD Energy Systems instructors will also include an expert group of key-component suppliers of equipment and services for Steam Reformers during the interactive session to provide thorough analysis and discussion of each topic.

We end the experience with a Q&A session that allows attendees to interact and gain more detailed insight to sections they may want to further explore with our instructors.

# A BRIEF OF SUBJECTS

## Part 1 - Production Review & PPS Overview

- Key Factors
- Nitrogen Fertilizer Business
- Operations Finance 101
- Pro Formas
- Project Justifications
- Downtime
- Risk Assessment And Mitigation
  - Primary Focus: Run Safely & Eliminate Catastrophic Failures
  - Secondary Focus: Run Consistently
  - Tertiary Focus: Run Efficiently
- Plant Assesment Models

## Part 2 - Steam Reformer Introduction

- Steam Reformer Chemistry
- Steam Reformer Applications
  - Ammonia Synthesis Gas
  - Methanol Synthesis Gas
  - Reduction Gas
  - Hydrogen Production
- Steam Reformer Arrangements

## Part 3 - Critical Design Features

- Radiant Section
- Convection Section
- Exchanger Heat Recovery
- Flue Gas and Combustion Air Handling
- Design for High Efficiency
- Design for Low Emissions
- Insulation Systems

## Part 4 - Turnaround Planning

- Controls and Safety Equipment
- Start-up and Normal Operations
- Emergency and Upset Conditions
- Typical Operating and Maintenance Issues
- Inspection Best Practices

## Part 5 - Reformer Retrofit Options Implementation

- Blue/Green H<sub>2</sub> Technology
- Capacity Increase
- Efficiency Improvement
- NO<sub>x</sub> Reduction
- Enhanced Reliability
- Emissions Reduction
- Decarbonization

## Part 6 - Turnaround Planning

- Detailed Planning / Scheduling
- Material Planning and Laydown
- Pre-Turnaround Activities
- Turnaround Activities
- Post-Turnaround Activities
- Lessons Learned

## Part 7 - Conclusions / Closing Remarks

- Feedback / Survey
- Content
- Usefulness
- Future Sessions

2021  
Advanced Steam Methane Reformer Training