RAILWAY MOTIVE POWER AND ALTERNATIVE PROPULSION

JANUARY 30 TO FEBRUARY 1, 2019
LONG BEACH, CA
Courtyard by Marriott
500 East First Street, Long Beach, CA, 90802
PROGRAM OVERVIEW:
Air quality and volatile diesel prices pose challenges to railways, particularly in urban areas. Traditional wayside power supply requires large capital investment and has visual impact. Emerging propulsion systems have the potential to address these concerns: (a) Rapidly developing battery technology with opportunity charging offers a suitable way forward for some railway services. (b) Hydrogen fuel cell systems offer zero-emission, longer range, flexibility, and lower capital cost than electrification. Knowledge and understanding of these technologies are essential to increase the effectiveness of capital investment, fleet modernization, and to avoid investment in stranded assets.

WHO SHOULD ATTEND:
- Managers considering new rail networks and extensions
- Railway consultants
- Government representatives, regulators, and policy advisors responsible for air quality or public transportation
- Rail transportation managers for ports / port authorities
- Rail motive power managers considering technology changes / fleet renewal or refurbishment

BENEFITS:
This two-and-a-half-day seminar provides participants with knowledge and understanding of railway motive power and it’s environmental, infrastructure, and capital implications. Participants will learn skills that will assist them in technology assessments, motive power management, policy and strategic planning with direct implications for projects that often have decades-long lifetimes and impacts.

The seminar builds awareness of emerging technologies, their opportunities and limitations compared to traditional choices. It will enable managers to engage confidently with consultants and manufacturers requesting and discussing alternative propulsion systems. Policy advisors and regulators will be able to adapt requirements and develop programs to enable safe, clean motive power.
LEARNING OUTCOMES:

- Understand the drivers for alternative propulsion systems
- Know power trains of various architectures, such as diesel, electric, hybrids, hydrogen fuel cells, their advantages and limitations
- Assess suitability of motive power technologies to address environmental, fuel consumption, and capital cost concerns
- Understand design and operational aspects related to wayside power supply
- Understand the impact of duty cycles on propulsion system design and technology selection
- Know emerging research and applications of Hydrail

PRICE & REGISTRATION:

$1995 – full tuition (includes materials, site visit, meals, certificate of completion)

$1795 – early bird registration (available through January 1, 2019)

Registration Contact:
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SCHEDULE:

Day 1:
9am
- Introduction
- Railway vehicle motion
- Diesel and electric propulsion systems
12noon lunch
1-5pm
- Hydrocarbon combustion and emissions
- Wayside power supply

Day 2:
9am
- On-board energy storage systems and batteries suitable for propulsion
- Hybrid drive trains
- Discontinuous electrification and wireless power transfer
12noon lunch
1-5pm
- Alternative fuels and energy carriers
- Hydrogen fuel cell railway propulsion systems (Hydrail)
- Wrap up, conclusion, evaluation

Day 3: Site visit
8:30am leave hotel
9am Port of LA / Long Beach
- Autonomous, battery-operated container handlers
- Hydrogen fuel cell trucks
12:30pm leave port and return to hotel
SITE VISIT INFORMATION:
A visit to the ports of Los Angeles / Long Beach is planned to experience automated, battery-powered container movers and hydrogen fuel cell trucks. Both technologies are relevant to railway motive power and bring the classroom content to life.

INSTRUCTORS:

Faculty Instructor:
Andreas Hoffrichter, PhD
Burkhardt Professor in Railway Management - Director of the MSU Center for Railway Research and Education
Expert in zero-emissions propulsion systems for railway vehicles. CRRE is at the forefront of research on this subject.

Industry Subject Matter Experts:
Dave Cook
Chief Technology Officer, Rail Propulsion Systems, Fullerton, CA.
Insight into the conversion of existing locomotives to hybrids, alternative fuels, such as natural gas, and emission reduction options.

Presenter to be confirmed. M-1 Rail, Detroit, MI.
Insight into the first discontinuous electrification railway system in the country. Battery-powered streetcars charged with several designs. Learn about the design, development, and operations.

MORE INFORMATION:
www.raileducation.com

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