

HYDROPOWER 101

February 7, 2017
EUCI Offices
4601 DTC Blvd., Suite 800
Denver, CO



EUCI is authorized
by IACET to offer
0.8 CEUs for the
course

OVERVIEW

This course will present a basic overview of hydropower operations, including: how hydropower works, project types and definitions, and benefits and challenges associated with hydropower. Attendees will learn about hydropower development in North America and throughout the world. They will discuss the costs associated with hydropower. Our expert speaker will discuss engineering considerations, including: flood control, irrigation, navigation, fish passage, entrainment mortality, in-stream flows, water quality, ramping rate, recreation, and dam safety. Attendees will receive an overview of hydropower relicensing. They will discuss the EPA's Clean Power Plan.

The intent is that participants will be able to apply the information learned the first day they return to their jobs. Hands-on activities will be included throughout the day.

LEARNING OUTCOMES

- Define water power
- Examine project types and definitions
- Discuss how hydropower works
- Identify the costs associated with hydropower
- Describe hydropower development in North America and throughout the world
- Examine the regulatory considerations
- Analyze the benefits and challenges of hydropower
- Review engineering considerations associated with hydropower, including: flood control, irrigation, navigation, fish passage and entrainment mortality, in-stream flows, water quality, ramping rate, recreation, dam safety
- Discuss hydropower relicensing
- Explain the value of hydropower in a changing electricity market
- Review EPA's Clean Power Plan

INSTRUCTOR



Tom Russo

Principal, Russo on Energy LLC

Tom Russo is an Energy and Environmental expert with unique regulatory skills in siting energy infrastructure, markets and physical/cybersecurity.

Prior to founding Russo on Energy LLC in May 2015, Mr. Russo worked for over 30 years as a Manager and Sr. Energy Industry Analyst at the Federal Energy Regulatory Commission (FERC). During that time he amassed experience in hydropower licensing, NEPA environmental impact assessment of energy projects, business process reengineering, and natural gas and crude oil market oversight. Mr. Russo thoroughly understands the Natural Gas Act, Natural Gas Policy Act, Federal Power Act and Energy Policy Act as they apply to natural gas and hydroelectric projects. He also assisted FERC's new Energy Infrastructure Security Office with understanding physical and cybersecurity threats and vulnerabilities to natural gas, oil and gas-fired power projects and physical natural gas and related futures and swaps.

In FERC's Office of Enforcement, he managed and led efforts on the development and implementation of FERC Order 704 and FERC's Form 552 Annual Natural Gas Transaction Report program from 2008 to 2015. He also has helped numerous energy companies address FERC compliance issues in the natural gas, LNG, and hydropower area, as well as natural gas market participants in achieving compliance with transactional issues related to natural gas indices and index formation.

Mr. Russo is a native of Brooklyn, New York. He earned a credential as a Certified Information Systems Security Professional (CISSP) in 2010. He also graduated with a MBA in Finance from the George Washington University and a MS in Biology from the University of Alabama.

AGENDA

TUESDAY, FEBRUARY 7, 2017

8:00 – 8:30 am **Registration and Continental Breakfast**

8:30 am – 5:00 pm **Course Timing**

12:00 – 1:00 pm **Group Luncheon**

Overview

- Water Power - A Simple Definition
- Anatomy of a Hydropower Project
- Hydropower Project Types & Definitions

How it All Works

- Turbines
- Generators
- Electric Transmission

Hydropower Costs

- Power Calculations, Costs and Limitations
- Cost of Hydro vs. Other Electric Power Sources

Hydropower Development

- North America
- Global

Regulatory

- FERC: A Brief Introduction
- The Battle Between Federal Government and Conservationists
- Who Regulates Hydro and Who Builds the Projects

The Effects of Hydropower

- Benefits
- Concerns

Hydropower Engineering

- Flood Control
- Irrigation
- Navigation
- Fish Passage
- Entrainment Mortality
- In-Stream Flows
- Water Quality
- Ramping Rate
- Recreation
- Dam Safety

Making Hydropower Sustainable Through Relicensing

Value of Hydro in a Changing Electricity Market

EPA's Clean Power Plan

Q&A

REQUIREMENTS FOR SUCCESSFUL COMPLETION OF PROGRAM

Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

INSTRUCTIONAL METHODS

Hands-on activities, case studies and PowerPoint presentations will be used in this program.

PROCEEDINGS

The proceedings of the course will be published, and one copy will be distributed to each registrant at the course.

EVENT LOCATION

EUCI Offices

4601 DTC Blvd. Suite 800
Denver, CO 80237

NEARBY HOTELS

**Hyatt Regency Denver
Tech Center**
7800 E. Tufts Ave
Denver, CO 80237
Phone: 303-779-1234
0.3 miles away

Hampton Inn & Suites
5001 S Ulster Street
Denver, CO 80237
Phone: 303-804-9900
0.5 miles away

Denver Marriott Tech Center
4900 S. Syracuse St
Denver, CO 80237
Phone: 303-779-1100
0.7 miles away

**Hilton Garden Inn Denver
Tech Center**
7675 E. Union Ave
Denver, CO 80237
Phone: 303-770-4200
0.7 miles away

IACET CREDITS



EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the AN-SI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the AN-SI/IACET Standard.

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“Very interesting discussions – not just a presentation.”

IRC Manager, SNC Lavalin

REGISTRATION INFORMATION

EVENT LOCATION

Mail Directly To:

Electric Utility Consultants, Inc. (EUCI)
4601 DTC Blvd., Ste. 800
Denver, CO 80237
OR, scan and email to: courses@euci.com

WWW.EUCI.COM**p: 303-770-8800****f: 303-741-0849****EUCI Offices**

4601 DTC Blvd. Suite 800
Denver, CO 80237

View nearby hotels on page 5.

PLEASE REGISTER

**BOTH HYDROPOWER 101 COURSE AND
FERC HYDROPOWER 101 COURSE**
FEBRUARY 7-8, 2017: US \$1495,
Early bird on or before January 20, 2017: US \$1295

HYDROPOWER 101 COURSE ONLY
FEBRUARY 7, 2017: US \$795,
Early bird on or before January 20, 2017: US \$695

ENERGIZE WEEKLY

EUCI's Energize Weekly e-mail newsletter compiles and reports on the latest news and trends in the energy industry. Newsletter recipients also receive a different, complimentary course presentation every week on a relevant industry topic. The presentations are selected from a massive library of more than 1,000 current presentations that EUCI has gathered during its 29 years organizing courses.

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CREDIT CARD INFORMATION

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Security Code (last 3 digits on the back of Visa
and MC or 4 digits on front of AmEx)

OR Enclosed is a check for \$ _____ to cover _____ registrations.

Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before January 6, 2017 in order to be refunded and will be subject to a US \$195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCI's liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices at 303-770-8800. EUCI reserves the right to alter this program without prior notice.

