



March 14th – 15th, 2023

CEATI 

Hydro Conference

Opportunities & Challenges in a Changing
Landscape

Event Overview

CEATI International's Hydropower Conference will focus on the opportunities and challenges that utilities are facing, with specific focus on retrofitting dams for extended life, extreme events and the increased need for flexibility, and opportunities for power plant modernization.

The Week at a Glance

March 13 - 17, 2023 • Palm Springs, CA



| | Morning Break | Lunch | Afternoon Break | |
|-------------------------------|--|--|-----------------------------------|--------------------------|
| MONDAY 13 | Hydropower Operations and Planning and Dam Safety Climate Change Working Group Meeting | Hydropower Workforce Workshop | Young Professionals Group Meeting | Welcome Reception |
| | | Golf Tournament | | |
| TUESDAY 14 | Hydropower | Conference GE Renewable Technology Demonstration | | Exhibitor Reception |
| WEDNESDAY 15 | Hydropower Senior Leaders' Council Meeting | Conference | | Women in Power Reception |
| THURSDAY 16 | Hydropower Plant Equipment General Meeting | | | |
| | Dam Safety General Meeting | | | |
| | Hydropower Operations & Planning General Meeting | | | |
| | Protection & Control General Meeting | | | |
| FRIDAY 17 | Hydropower Plant Equipment General Meeting | | | |
| | Dam Safety General Meeting | | | |
| | Hydropower Operations & Planning General Meeting | | | |
| | Protection & Control General Meeting | | | |

Note: The Monday morning working group meeting and all general meetings on Thursday and Friday the 16-17 are only available to CEATI member utilities. However, everyone is welcome to attend the afternoon sessions on Monday the 13th.

Who Should Attend?

- Electric Utilities and Dam Owners
- Consultants
- Equipment Manufacturers and Suppliers
- Research Facilities and Laboratories
- Academics

This event is supported by the following member utilities:

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| Algonquin Power and Utilities | FortisBC Inc. | Oglethorpe Power Corporation |
| AltaLink | Fortum | Ontario Power Generation |
| Ameren Corporation | Genesis Energy | Pacific Gas and Electric Company |
| American Electric Power (AEP) | Grand River Conservation Authority (GRCA) | PacifiCorp |
| Arizona Public Service Company (APS) | Grand River Dam Authority (GRDA) | Placer County Water Agency |
| Avangrid Networks | Grant County Public Utility District | Portland General Electric |
| Avista Corporation | Great River Hydro | Puget Sound Energy Inc. |
| Axpo | Hetch Hetchy Water and Power | Rev Renewables |
| BC Hydro | Hydro One Networks Inc. | Rio Tinto Alcan |
| Bonneville Power Administration (BPA) | Hydro Ottawa Limited | SA Water |
| Brookfield BRP Holdings (Canada) Inc. | Hydro Tasmania | Sacramento Municipal Utility District |
| Bui Power Authority | Hydro-Quebec | Salt River Project |
| California Department of Water Resources | Idaho Falls Power | San Diego Gas and Electric Company |
| Central Rivers Power | Idaho Power Company | SaskPower |
| Centralia City Light | Korea Hydro & Nuclear Power Co., Ltd | Saskatoon Light & Power |
| Chelan County Public Utility District | Landsvirkjun | Seattle City Light |
| CMS Energy | Lewis County PUD | Severn Trent Water Ltd |
| Columbia Power Corporation | Los Angeles Department of Water and Power | SHEM Societe Hydro Electrique du Midi |
| Con Edison | Louisville Gas & Electric and Kentucky Utilities (LG&E and KU) | Snohomish County P.U.D. #1 |
| Denver Water | Manawa Energy | Snowy Hydro Limited |
| Douglas County PUD | Manitoba Hydro | Southern California Edison |
| Duke Energy | Maritime Electric | Southern Company |
| Eagle Creek Renewable Energy | Merced Irrigation District | SunWater |
| East Bay Municipal Utility District | Mercury Energy | Tacoma Power |
| Electricite de France (EDF) | Meridian Energy Ltd. | Tennessee Valley Authority (TVA) |
| Electricity Supply Board (ESB) | Minnesota Power | Toronto Hydro-Electric System Limited |
| Energiforsk | Nalcor Energy | TransAlta Corporation |
| Energy Keepers Inc. | Nelson Hydro | Turlock Irrigation District |
| Entergy Services | New Brunswick Power | U.S. Army Corps of Engineers |
| Environment Agency | New York Power Authority | U.S. Bureau of Reclamation |
| EPCOR | Newfoundland and Labrador Hydro | U.S. Department of Energy |
| Eugene Water and Electric Board | Northern California Power Agency | Uganda Electricity Generation Company |
| Exelon | Northwest Territories Power Corporation | WaterNSW |
| Federal Emergency Management Agency (FEMA) | NorthWestern Energy | Yuba Water Agency |
| FirstLight Power Resources Services | Nova Scotia Power Inc. | Yukon Energy Corporation |
| FortisBC Inc. | | |

CEATI's Hydropower Conference 2023 – DAY 1

7:00-8:15 Breakfast

8:15-9:45 Welcome & Plenary – All tracks

Ambassador 1-4

- 8:15 **Opening Remarks** – Alex Johnston, Catherine Rhea, CEATI
- 8:45 **Keynote – Hydro-Powering the Clean Energy Revolution: Fundamentals and Storytelling to Pave the Way**
Kurt Miller, Northwest River Partners

9:45-10:30 Coffee Break

Session 1A–Dam Safety

Ambassador 1-3

*Session Chairs: Jennifer Dodd, TVA
Hugh Armitage, CEATI*

- 10:30 **Towards a Comprehensive Dam Safety Management System**
Bob Schubak, BC Hydro
- 11:15 **Lessons Learned from Wanapum Dam Level 3 Risk Analysis**
Zach Ruby, Grant County PUD
William Kingston, Gannett Fleming

12:00-13:30 Networking Lunch

*Session Chairs: Matt Muto, SCE
Bruce Muller, CEATI*

- 13:30 **Design Considerations for Debris Booms in a Changing Climate**
Randy Presleigh, PG&E
- 14:15 **Pondering a Plethora of Penstock Issues**
Kyle Dushane, Placer County Water Agency
Arne Nervik, Black & Veatch
Drew Kennedy, Gannett Fleming

Session 1B–Plant Equipment

Ambassador 4

*Session Chairs: Craig Bourassa, Avista
Roman Dusil, BC Hydro*

- Probabilistic Risk Assessment and Management of Fire Suppression System at U.S. Army Corps of Engineers Hydropower Plants**
Cathy Campbell & Robert Patev, USACE
- Robotic Inspection & Repair of Turbines Runners to Reduce Outage Time, Cost & Risks**
Olivier Teller, GE

Networking Lunch

*Session Chairs: Ram Veeraraghavan,
Tacoma Power; Jean Pellerin, CEATI*

- Replacing Babbitt with PEEK Shells to Ease Maintenance while Improving Reliability**
Daniel Corbeil, Hydro-Québec
Piotr Neunauer, GE
- Improving & Facilitating Decision-Making for Major Equipment Maintenance Through Modernization of Condition-Based Monitoring Technologies**
Aaron Doyle, IRIS Power

Session 1C–Operations & Planning

Ambassador 5-7

*Session Chairs: Ronda Strauch, SCL
Chuck Bach, CEATI*

- Managing the Flood of Record at the Baker Project**
John Chandler, Puget Sound Energy
- A Risk-Informed Decision-Making Framework for a Multipurpose Reservoir in the Rocky Mountains**
Jordan Lanini, USBR

Networking Lunch

*Session Chairs: Don Ferko, OPG
Marcel-Paul Raymond, CEATI*

- Modeling Long-Term Hydropower Projections with Mixed-Integer Linear Optimization**
Nelson Jia, Brookfield Renewable
Hossein Shahandeh, Lixar
- A Sensitivity Analysis on the Effects of Flexibility & Operational Constraints on Long Term Hydropower Capital Investments**
Mark Parrish, USACE

15:00-15:45 Coffee Break

15:45-17:00 Panel Session – All tracks

Ambassador 1-4

Panel Discussion: Opportunities within the Hydropower Industry
Magnús Sigurðsson, Landsvirkjun; Brent Wilson, Meridian; Kishore Billapati, Southern California Edison
Facilitators: Jean Pellerin, Chuck Bach

17:30-19:00 Networking Reception – Expo Hall

7:00-8:15 Breakfast

| Session 2A–Dam Safety Ambassador 1-3 | | Session 2B–Plant Equipment Ambassador 4 | Session 2C–Operations & Planning Ambassador 5-7 |
|---|---|--|---|
| Session Chairs: Jason Clere, Brookfield Paul Lennemann, Tacoma Power | | Session Chairs: Ram Veeraraghavan, Tacoma Power; Steve Wenke, CEATI | Session Chairs: Bruno Benedetti, Brookfield Renewable; Don Ferko, OPG |
| 8:15 | Some Observations from FERC Risk Analysis Pilot Studies Doug Boyer, FERC | Data Driven Reliability Estimates of Hydropower Plant Assets Under Variable Operation Srijib Mukherjee, USDOE (ORNL) | What's the Value of a More Accurate Inflow Forecast? Alden Keefe Sampson, Upstream Tech Nathalie Voisin, USDOE (PNNL) |
| 9:00 | Risk Is Easy, Decisions are Hard – Navigating Dam Safety Decision-Making Challenges for FERC-Regulated Dams Daniel Osmun, HDR | Strategy and New Technologies for Asset Management and Predictive Maintenance of Hydro Units Kaspar Vereide & Uros Stevanovic, Sira-Kvina kraftselskap | Temperature modeling in reservoirs: Data requirements, potential output, examples from the Skagit River Hydroelectric Project, Washington Rich Wildman, Geosyntec |
| 9:45-10:30 Coffee Break | | Coffee Break | Coffee Break |
| 10:30 | Evaluation of Seismic Hazard and Embankment Dam Deformation Hazard as an Input to Risk Informed Decision Making Matt Muto, SCE Chris Conkle & Christie Hale, Geosyntec | Assessing Rotor Pole Tests from a 526MVA Generator – False Positives and Negatives Barry Brummelhuis, BC Hydro Eric See-Toh, PowerTech Labs | Hydropower's Role in the Future Bulk Power System Under Increasing Climate-Water Constraints Marty Schwarz, USDOE (NREL) |
| 11:15 | Dam Construction Data Management in USACE Georgette Hlepas, USACE Laurel Robison Geosyntec, Jamey Rosen, Geosyntec | Ignoring Your Trashrack? An Ounce of Prevention Is Worth A Pound Of Cure Eli Wilson, Seattle City Light | TBD TBD |

12:00-13:30 Networking Lunch

| Session 3A–Dam Safety Ambassador 1-3 | | Session 3B–Plant Equipment Ambassador 4 | Session 3C–Operations & Planning Ambassador 5-7 |
|---|---|---|--|
| Session Chairs: Matt Muto, SCE Bruce Muller, CEATI | | Session Chairs: Craig Bourassa, Avista Jim Calnon, USACE | Session Chairs: Don Ferko, OPG Marcel-Paul Raymond, CEATI |
| 13:30 | Safety Via Satellite: How Data from Space Enables Digital Dam Monitoring Camilla Braithwaite, Rezatec | Cold Spray for In Situ Repair of Cavitation Damage - Effects of Manual Application of Cold Spray Christopher Smith & Kenneth Ross, USDOE (PNNL) | Leveraging River Basin Models in Grid Operations Modeling Greg Stark, USDOE (NREL) |
| 14:15 | Innovative Techniques for Monitoring Complex Concrete Structures: A Case Study from a Run-of-River Dam Ryan Coppersmith, Niricson | 3D Scan and Digital Applications in Hydro David Tessier & Nathan Hennessy, BBA John Sagerser, Chelan County PUD | Pumped Storage Hydro Potential in Canada Michael Morgenroth, Stantec |

15:00-15:45 Coffee Break

| 15:45-17:00 Panel Session & Closing Remarks – All tracks Ambassador 1-4 | |
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| 15:45 | Panel Discussion: Cyber Security for Hydropower – Challenges & Opportunities Andrea Sanders Brackett, TVA; Greg Kenyon, Tacoma Power; Phillip Copeland, USACE; Dan Goodlett, NERC Facilitators: Steve Wenke, Bruce Muller |
| 16:45 | Closing Remarks – Catherine Rhea, CEATI |

17:30-19:00 Women in Power – Networking Reception Rancho Mirage