

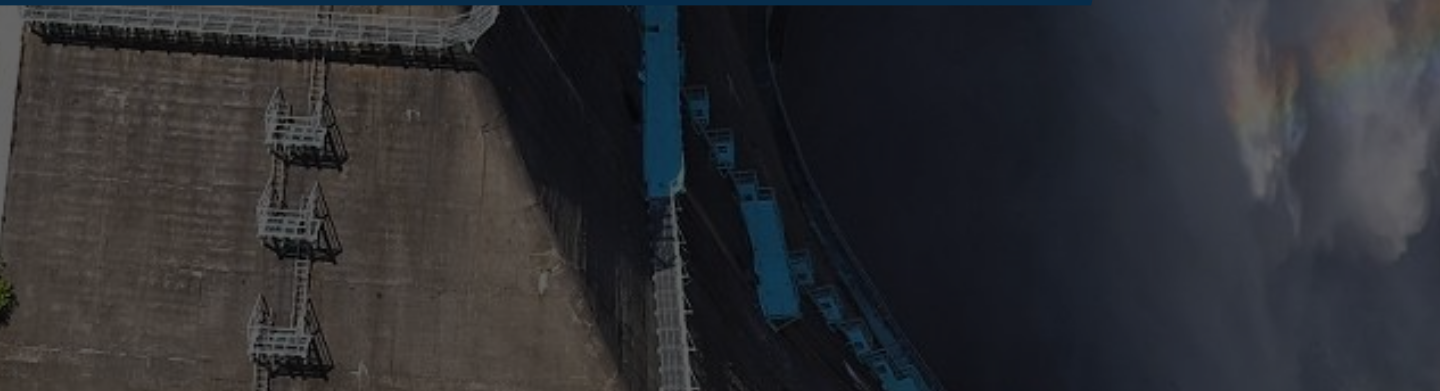


March 14<sup>th</sup> – 15<sup>th</sup>, 2023

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

---

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** – Catherine Rhea & Laurent Nassif, 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 Veerarahavan, Tacoma Power; Jean Pellerin, CEATI

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

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

## 15:00-15:45 Coffee Break

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

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