



Hydropower Program Peer Review Agenda July 25–29, 2022

Hydropower Program Opening Plenary

DAY 1 – MONDAY, JULY 25, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:30 AM	WPTO Overview	WPTO	Jennifer Garson
10:30 AM	10:45 AM	Peer Review Introduction	WPTO	Ali Hewett
10:45 AM	11:30 AM	Hydropower Program Overview	WPTO	Tim Welch
11:30 AM	11:40 AM	BREAK		
11:40 AM	12:05 PM	Data Access, Analytics, and Workforce Development Activity Area Overview	WPTO	Corey Vezina, Allison Johnson
12:05 PM	12:35 PM	Hydropower STEM and Workforce Development	NREL	Elise DeGeorge
12:35 PM		ADJOURN AND MOVE TO ACTIVITY AREA BREAKOUTS (Days 2–4)		

Activity Area Breakout Sessions

WPTO's Hydropower Program Activity Areas Color-Coded Key

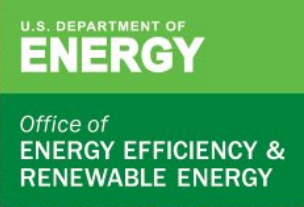
Innovations for Low-Impact Hydropower Growth
HydroWIRES
Fleet Modernization, Maintenance, and Cybersecurity
Environmental and Hydrologic Systems Science

Innovations for Low-Impact Hydropower Growth Review Session

DAY 2 – TUESDAY, JULY 26, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:30 AM	Innovations for Low-Impact Hydropower Growth Activity Area Overview	WPTO	Katie Jackson
10:30 AM	11:00 AM	Groundbreaking Hydro and I AM Hydro Prizes	NREL, ORNL, WPTO	Tessa Greco, Scott DeNeale, Katie Jackson
11:00 AM	11:25 AM	The Design and Development of a Composite Hydropower Turbine Runner	Composite Technology Development, Inc.	Paul Fabian
11:25 AM	11:35 AM	BREAK		
11:35 AM	11:50 AM	Cold Spray Process Development for In Situ Repair and Mitigation of Cavitation Erosion	PNNL	Chris Smith
11:50 AM	12:15 PM	Standard Modular Hydropower Technology Acceleration	ORNL	Scott DeNeale
12:15 PM	1:00 PM	LUNCH		
1:00 PM	1:25 PM	Restoration Hydro: A Watershed Approach to Standard Modular New Hydropower	Natel Energy, Inc.	Abe Schneider
1:25 PM	1:50 PM	Prefabricated Standard Modular Hydropower Installations for Low-Cost Small Hydropower	Littoral Power Systems Inc	David Duquette
1:50 PM	2:15 PM	Small Hydro Interconnection Study	PNNL, ORNL	Alison Colotelo, Todd Wall, Chris O'Reilly, Hope Corsair
2:15 PM	2:40 PM	Reviewer Debrief	Reviewers	
DAY 3 – WEDNESDAY, JULY 27, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:25 AM	Development of a Modular Helical Fish Passage for Low Head Applications	Percheron Power, LLC	Jerry Straalsund
10:25 AM	10:50 AM	Advanced Compact Generation Module with Fish Safe Runner Technology	Natel Energy, Inc.	Gregor Cadman, Sterling Watson
10:50 AM	11:15 AM	Prefabricated Zero Ascend Omnispecies (ZAO) Modular Fish Passage Modules	Littoral Power Systems Inc.	David Duquette

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		Using Advanced Manufacturing Techniques		
11:15 AM	11:25 AM	BREAK		
11:25 AM	11:50 AM	A Novel Sediment Passage Module Design for Support of Standard Modular Hydropower	Regents of The University of Minnesota	Jeffrey Marr
11:50 AM	12:15 PM	National Conduit Resource Assessment	ORNL	Shih-Chieh Kao
12:15 PM	1:00 PM	LUNCH		
1:00 PM	1:25 PM	Integrated Water Power Resilience	PNNL, INL	Juliet Homer, Shiloh Elliott
1:25 PM	1:50 PM	Irrigation Modernization	INL, PNNL	Thomas Mosier
1:50 PM	2:15 PM	Alternative Opportunities for Hydropower	PNNL, INL	Rajiv Prasad, Thomas Mosier
2:15 PM	2:40 PM	Cost Data Collection & Modeling for Hydropower	ORNL	Gbadebo Oladosu
2:40 PM	3:05 PM	Reviewer Debrief	Reviewers	

HydroWIRES (Grid Reliability, Resilience, and Integration) Review Session

DAY 2 – TUESDAY, JULY 26, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:40 AM	HydroWIRES Initiative Overview	WPTO	Sam Bockenbauer
10:40 AM	11:05 AM	Hydropower Flexibility Framework	Electric Power Research Institute, Inc.	Francisco Kuljevan
11:05 AM	11:30 AM	Increasing Operational Flexibility of Francis Turbines at Low Head Sites, Through Analytical and Empirical Solutions	GE Renewable Energy Hydro	Guillaume Rudelle
11:30 AM	11:40 AM	BREAK		
11:40 AM	12:05 PM	Exploring Multidimensional Spatial-Temporal Hydropower Operational Flexibilities by Modeling and Optimizing Water-Constrained Cascading Hydroelectric	Stevens Institute of Technology	Lei Wu
12:05 PM	12:30 PM	Identifying Hydropower Operational Flexibilities in Presence of Streamflow and Net-Load Uncertainty	University of California, Irvine	Soroosh Sorooshian and Bitu Analui
12:30 PM	1:00 PM	LUNCH		
1:00 PM	1:25 PM	Geomechanical Pumped Storage	Quidnet Energy Inc.	Howard Schmidt
1:25 PM	1:50 PM	Modeling And Optimizing Pumped Storage in A Multi-Stage Large Scale Electricity Market Under Portfolio Evolution	University of Missouri System	Rui Bo
1:50 PM	2:15 PM	Value And Role of Pumped Storage Hydro Under High Variable Renewables	GE Power	Christina Bisceglia
2:15 PM	2:40 PM	Predicting Unique Market Pumped Storage Significance (PUMPSS)	Electric Power Research Institute, Inc.	Aidan Tuohy
2:40 PM	3:00 PM	Reviewer Debrief	Reviewers	
DAY 3 – WEDNESDAY, JULY 27, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker

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10:00 AM	10:30 AM	FAST Commissioning Prize for Pumped Storage Hydropower	NREL, WPTO	Tessa Greco, Corey Vezina
10:30 AM	10:55 AM	PSH-TES Tool	PNNL, ANL	Mark Weimar, Patrick Balducci
10:55 AM	11:20 AM	HydroWIRES Topic D1: CEM Enhancements	NREL	Stuart Cohen
11:20 AM	11:30 AM	BREAK		
11:30 AM	11:55 AM	Value Drivers Quantification	ANL, NREL, PNNL	Todd Levin
11:55 AM	12:20 PM	HydroWIRES Topic A: Environment-Flexibility Win-Wins	ORNL	Brenda Pracheil
12:20 PM	1:00 PM	LUNCH		
1:00 PM	1:25 PM	PSH Portfolio Evaluation and Innovation Study	ANL	Vladimir Koritarov
1:25 PM	1:50 PM	Life Cycle Assessment of Storage Technologies	NREL	Greg Stark
1:50 PM	2:15 PM	Scope Improvements to Power Flow and Stability Models	PNNL	Slaven Kincic
2:15 PM	2:30 PM	Reviewer Debrief	Reviewers	

DAY 4 - THURSDAY, JULY 28, 2022

Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:25 AM	HydroWIRES Topic C: Quantifying Reliability/Resilience	PNNL, ANL, INL, NREL, ORNL	Abhishek Somani
10:25 AM	10:50 AM	HydroWIRES Topic D2: Transmission/Storage Equivalence	PNNL, ANL	Jeremy Twitchell, Zhi Zhou
10:50 AM	11:15 AM	Idaho Power Run-of-River Hydropower and Battery Modeling	PNNL	Feng Pan
11:15 AM	11:25 AM	BREAK		
11:25 AM	11:50 AM	Hydropower Plant Controller Prototyping using Remote Hardware in the Loop	NREL	Mayank Panwar
11:50 AM	12:15 PM	Integrated Hydropower and Energy Storage: Providing Essential Reliability and Ancillary Services using Individual or Coordinated Hydropower Plants	INL, NREL	Thomas Mosier, Vahan Gevorgian
12:15 PM	1:00 PM	LUNCH		
1:00 PM	1:25 PM	Hydropower Storage Capacity Dataset	ORNL	Carly Hansen
1:25 PM	1:50 PM	HydroWIRES Topic B1: Enhancing the Representation of Conventional	NREL, PNNL	Greg Stark, Nathalie Voisin

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		Hydropower Flexibility in Production Cost Models		
1:50 PM	2:15 PM	HydroWIRES Topic B2: Improving the Representation of Hydrologic Processes and Reservoir Operations in Production Cost Models	NREL, PNNL	Greg Stark, Nathalie Voisin
2:15 PM	2:40 PM	HydroWIRES Topic D3: Forecasting	PNNL, INL	Nathalie Voisin, Thomas Mosier
2:40 PM	3:00 PM	Reviewer Debrief	Reviewers	

Fleet Modernization, Maintenance, and Cybersecurity Review Session

DAY 4 – THURSDAY, JULY 28, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:25 AM	Fleet Modernization, Maintenance, and Cybersecurity Activity Area Overview	WPTO	Kyle DeSomber
10:25 AM	10:50 AM	Digital Twin	PNNL, ORNL	Osman Ahmed, Hong Wang
10:50 AM	11:15 AM	Hydropower Fleet Intelligence	ORNL	Pradeep Ramuhalli
11:15 AM	11:25 AM	BREAK		
11:25 AM	11:50 AM	Cybersecurity Value-at-Risk Framework	NREL, ANL	Anuj Sanghvi
11:50 AM	12:15 PM	Hydropower Cyber-Physical Reference Framework	PNNL, ANL, NREL	Ken Ham
12:15 PM	1:00 PM	LUNCH		
1:00 PM	1:25 PM	Hydropower Cybersecurity Risk/State of Fleet	PNNL	Marie Whyatt
1:25 PM	1:50 PM	Hydropower Fleet Cybersecurity Response and Recovery	PNNL	Darlene Thorsen
1:50 PM	2:15 PM	Reviewer Debrief	Reviewers	

Environmental and Hydrologic Systems Science

DAY 2 – TUESDAY, JULY 26, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:30 AM	Environmental and Hydrologic Systems Science Activity Area Overview	WPTO	Dana McCoskey
10:30 AM	10:55 AM	A Real-time and Autonomous Water Quality Monitoring System	PNNL	Daniel Deng
10:55 AM	11:20 AM	Shad Tag Development	PNNL	Daniel Deng
11:20 AM	11:30 AM	BREAK		
11:30 AM	12:00 PM	Fish Protection Prize	NREL, WPTO	Tessa Greco, Dana McCoskey
12:00 PM	12:25 PM	Reviewer Debrief	Reviewers	
DAY 3 – WEDNESDAY, JULY 27, 2022				
Start (ET)	End (ET)	Presentation Topic	Organization	Speaker
10:00 AM	10:25 AM	Demonstrating Value of River Data Aggregation and Visualization Capabilities	PNNL	Kyle Larson
10:25 AM	10:50 AM	GMLC Water Risk for the Bulk Power System: Asset to Grid Impacts	NREL, ORNL	Ariel Miara
10:50 AM	11:15 AM	Methane Emissions	ORNL	Natalie Griffiths
11:15 AM	11:25 AM	BREAK		
11:25 AM	11:50 AM	FERC eLibrary	PNNL	James Bradford, Bo Saulsbury
11:50 AM	12:15 PM	Hydro Fleet Database Development and Analyses (HydroSource)	ORNL	Debjani Singh
12:15 PM	12:35 PM	Reviewer Debrief	Reviewers	

Reviewer Debrief with WPTO *closed door*

DAY 5 – FRIDAY, JULY 29, 2022			
Start (ET)	End (ET)	Presentation Topic	Organization
10:00 AM	11:00 AM	HydroWIRES Reviewer Debrief with WPTO	Reviewers and WPTO
11:00 AM	11:45 AM	Environmental and Hydrologic Systems Science Reviewer Debrief with WPTO	Reviewers and WPTO
11:45 AM	12:15 PM	STEM and Workforce Development	Reviewers and WPTO
12:15 PM	1:00 PM	BREAK	
1:00 PM	2:00 PM	Innovations for Low-impact Hydropower Growth Reviewer Debrief with WPTO	Reviewers and WPTO
2:00 PM	2:30 PM	Fleet Modernization, Maintenance, and Cybersecurity Reviewer Debrief with WPTO	Reviewers and WPTO
2:30 PM	3:00 PM	Prize Reviewer Debrief with WPTO	Reviewers and WPTO