QCE20 Workshop on Quantum Computing Opportunities in Renewable Energy

Times are given in Mountain Time (MT, UTC-6)

Session 1

10:45-10:50 Welcome Zach Eldredge (DOE), Annarita Giani (GE Research)


11:20-11:50 Keynote Computing advancements for renewable energy integration – will there be a quantum leap? Zhenyu (Henry) Huang, Ph.D., P.E., F. IEEE Laboratory Fellow, PNNL; Research Professor, Washington State University


12:15-13:00 Break

Session 2


13:15-13:30 Quantum Machine Learning for Predictive Analytics Himanshu Thapliyal, University of Kentucky

13:30-13:45 Simulating organic semiconductors on a noisy quantum computer: What model Hamiltonians can do for you, Eric Jones, NREL

13:45-14:00 Scalable demand response scheduling for renewable energy integration through Quantum Computing, Javad Mohammadi, CMU and Mohsen Rahmani, D-Wave System

14:00-14:15 Practical implementation of quantum optimization algorithms for wind farms design, Marouane Salhi, Qubits Engineering

14:15-14:30 Designing Energy-Efficient Quantum Computers Through Prediction and Reduction of Cooling Requirements for Cryogenic Electronics, Michael Martin, Caroline Hughes, Gilberto Moreno, Eric Jones, David Sickinger, Sreekant Narumanchi and Ray Grout, NREL

14:30-15:15 Break

Session 2

15:15-15:30 Quantum Computing for Mixed-Integer Linear Programming, Chin-Yao Chang, NREL


15:45-16:00 A Quantum Chance Constrained Binary Optimization (QCCBO) Algorithm, Peter Graf and Eric Jones, NREL

16:00-16:40 Panel Discussion
- Ceren Susut-Bennet, DOE
- Laurent White, ExxonMobil (Dual Energy Challenge)
- Witold Kowalczyk, Zapata Computing (Sustainability)
- Karl Thibault, Q4Climate Initiative
  - Presentations - 20 mins
  - Discussion - 10 mins
  - Questions from audience - 10 mins

16:40-16:45 Final remarks, next steps, Zach Eldredge (DOE), Annarita Giani (GE Research)