MEMORANDUM OF UNDERSTANDING FOR HYDROPOWER Among

THE DEPARTMENT OF ENERGY, THE DEPARTMENT OF THE INTERIOR And THE DEPARTMENT OF THE ARMY

(Five-Year Extension)

Purpose: This agreement extends and builds upon the Memorandum of Understanding for Hydropower (MOU) signed on March 24, 2010 to help meet the Nation's needs for reliable, affordable, and environmentally sustainable hydropower by strengthening a long-term working relationship, prioritizing similar goals, and aligning ongoing and future renewable energy development efforts between the U.S. Department of Energy (DOE), the Department of the Interior (DOI), and the Department of the Army (DOA) through the U.S. Army Corps of Engineers (USACE) (collectively the "Agencies").

Background: Since the Agencies signed the MOU for Hydropower in March 2010, they have endeavored to advance their mutual goals for greater development and utilization of clean, reliable, cost-effective, and sustainable hydropower generation in the U.S. The original MOU for Hydropower established 13 over-arching goals for sustainable hydropower generation and identified a specific set of activities that the Agencies collectively would undertake to elevate the goal of increased hydropower generation as a priority of each agency to the extent permitted by their respective statutory authorities. These commitments were designed to represent a new approach to hydropower development that would harmonize the production of clean, renewable power generation with avoidance or reduction of environmental impacts and maintenance or enhancement of the viability of ecosystems. The original MOU for Hydropower, a two-year progress report published in 2012, and this MOU Extension and new Action Plan are available at the Agencies' websites.

Accomplishments: Over the past five years, through collaboration and partnerships with other federal agencies, the hydropower industry, the research community, and numerous stakeholders, the Agencies have successfully fulfilled the commitments and promise of the original MOU. Examples of these accomplishments include:

- Completed numerous publicly available assessments of different hydropower resources, including the construction of a database for all existing U.S. hydropower infrastructure.
- Developed tools for optimizing the operation of hydropower facilities and evaluating the potential for state-ofthe-art upgrades and modernizations.
- Funded several research projects that aim to develop and demonstrate new hydropower generation technologies and minimize the environmental impacts of hydropower facilities.
- Produced a report that examines the potential effects of climate change on water available for hydropower generation at federal facilities.
- Developed and implemented an integrative approach to assess complementary hydropower and environmental opportunities at the scale of a river basin through Basin-Scale Opportunity Assessments.
- Established a Federal Inland Hydropower Working Group, including staff from 16 federal entities that are involved with hydropower in order to share information and increase collaboration.
- Improved the licensing process for the development of new, privately owned hydropower generation at existing federal dams and water infrastructure.

Since these efforts were initiated, there has been an upsurge in non-federal hydropower development at federal facilities. Since the 2010 signing, 10 non-federal projects, comprising 33 megawatts of capacity, have come online at Reclamation facilities, with an additional 40 projects initiated and currently in development. For USACE, three non-federal projects, comprising 19.4 megawatts of capacity have come online, with an additional 32 projects initiated and currently in development.

Commitments: To build upon the successes accomplished through this inter-agency partnership, the Agencies renew their commitment with a second phase of collaboration outlined in the attached Memorandum of Understanding for Hydropower – Sustainable Hydropower Action Plan (Phase II). This Action Plan details the second phase of collaboration, which seeks to support the Administration's goals for doubling renewable energy generation by 2020 and improving federal permitting processes for clean energy as established in the President's Climate Action Plan. Through continued collaboration and partnerships with other federal agencies, the hydropower industry, the research community, and numerous stakeholders, these Agencies intend to continue working toward the objectives and goals of the MOU.

This Action Plan provides a structure for collaborative activities that clarifies those roles and enhances the efficiency and benefits of coordinated activities in the following areas: (a) Technology Development, (b) Asset Management, (c) Hydropower Sustainability, (d) Quantifying Hydropower Capabilities and Value in Power Systems, and (e) Information Sharing, Coordination, and Strategic Planning. If successful, these collaborations will help to increase hydropower productivity, speed evaluation of hydrokinetic projects, further the deployment of low-impact hydropower at non-powered dams and irrigation canals, improve the environmental performance of turbines, and assess climate risks and build resilience of U.S. hydropower generation and water infrastructure.

Term: This MOU extension will become effective upon the date of the last signature and remain in effect for a period of five years.

3-19-15

3-24-15

Dr. Elizabeth Sherwood-Randall Deputy Secretary of Energy U.S. Department of Energy Date

Michael L. Connor

Deputy Secretary of the Interior U.S. Department of the Interior

Date

Honorable Jo-Ellen Darcy

Assistant Secretary of the Army (Civil/Works)

Iller der

U.S. Department of the Army, U.S. Army Corps of Engineers

Date