

## Hydropower Analysis Center

- [List of Mandatory Services](#)
- [Exceptions to Mandatory Use](#)
- [Center Description](#)
- [Roles and Responsibilities](#)
- [Center Contacts](#)
- [Proponent Contact](#)
- [Program Management Plan](#)
- [Hydropower System - Economic Evaluation Homepage](#)

### **1. List of Mandatory Services:**

The U.S. Army Corps of Engineers Hydropower Analysis Center (HAC) was established to maintain Corps of Engineers expertise and capability to perform power system analysis regarding hydropower project outputs and economic benefit evaluations for existing and new hydropower projects of all Corps of Engineers powerplant installations. Please contact the MCX for information on mandatory services.

### **2. Exceptions to Mandatory Use:**

There are no specific routine exceptions to mandatory use of this MCX. Requests for exceptions must be fully justified, and submitted to the HQUSACE proponent for approval.

### **3. Center Description:**

The Power Branch, Water Management Division, Northwestern Division, serves as the U.S. Army Corps of Engineers HAC (formerly known as "Hydropower System Analysis and Economic Evaluation Mandatory Center of Expertise"). The purpose of the HSA MCX is to maintain the expertise and capability to perform power system analysis regarding hydropower project outputs and economic benefit evaluations for existing and new hydropower projects of all Corps of Engineers powerplant installations. Expertise and services are available to help other Corps of Engineers offices to satisfactorily accomplish their study objectives or any level of analysis. The HAC works closely with the Corps of Engineers Hydroelectric Design Center (HDC) on studies involving the evaluation of hydropower generating equipment.

### **4. Roles and Responsibilities:**

The Hydropower Analysis Center was established to maintain the expertise and capability to perform power systems analysis regarding hydropower project

outputs and economic benefit evaluations of all existing and new hydroelectric plants.

Types of services the HAC provides are as follows:

(a) Major River System Studies: Conduct power system studies and economic analysis on major river and power systems.

(b) Major Powerplant Rehabilitation Studies: Conduct analysis of powerplant output and economic evaluations for the Powerplant Major Rehabilitation Program. The HAC has been involved in all of the studies within the Corps of Engineers that have been done thus far in this program.

(c) Miscellaneous Powerplant Studies: Conduct analysis in support of a wide variety of other powerplant studies.

Included are studies such as:

- Environmental/Fishery Studies: Analysis of the effects of powerplant changes for environmental/fishery reasons such as fish screens, fish bypass systems, water quality improvements, etc.

- Generator Rewind and Uprate Studies: Analysis of the effects of generator rewinds and uprates.

- Plant Expansion Studies: Analysis of the feasibility of expanding the generation capabilities at existing power plants or adding new generation at non-power projects.

(d) Cost Allocation And Reallocation Studies: Analysis of the hydropower benefit component in cost allocation studies for multi-purpose water resource projects. Conduct water storage reallocation studies which require the identification of power benefits and revenue forgone with reallocation of storage for municipal use and industrial water supply withdrawals.

(e) Power Value Computation: Computation of energy and/or capacity values to be used in power benefit analysis. Power System Production Cost Models such as PROSYM, POWRSYM, and PC-SAM are maintained for areas throughout the country to allow the MCX to provide power values for all regions. The MCX provides coordination with the Federal Energy Regulatory Commission (FERC) and Federal Power Marketing Agencies. These values are combined with energy and capacity data to determine power benefits.

(f) Hydroelectric Design Center (HDC) Support: HDC serves as the Corps of Engineers Mandatory Center of Expertise for hydroelectric and large pumping plant engineering services. The HAC works with the HDC on numerous projects.

Work involves collection, compilation and analysis of hydrologic and hydraulic data needed by HDC for developing turbine performance characteristics and other similar power plant information. The HSA MCX also works with HDC to determine changes in expected power generation resulting from equipment upgrades and modifications.

(g) Coordination With Interagency Groups on Power Evaluation Procedures: The staff of the HSA MCX have been involved in numerous committees to develop policy and procedures for planning and analysis of hydropower. Examples of some of these committees include the Water and Energy Task Force, National Hydropower Study, and others.

(h) Training on Hydropower Analysis: The HSA MCX can provide training for others on all aspects of hydropower analysis and economic evaluation of hydropower projects. This has been provided within the Corps as well as outside of the Corps and for representatives of foreign countries.

**5. Center Contacts:**

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**7. Program Management Plan:**

Currently under construction.

**8. Homepage:**

<http://www.nwd-wc.usace.army.mil/PB/welcome.html>