

impoundments to be included as part of the project;

(3) The number, type, and the hydraulic and installed (rated) capacity of any proposed turbines or generators to be included as part of the project;

(4) The number, length, voltage and interconnections of any primary transmission lines proposed to be included as part of the project;

(5) The description of any additional mechanical, electrical, and transmission equipment appurtenant to the project; and

(6) An estimate of the dependable capacity, average annual, and average monthly energy production in kilowatt-hours (or mechanical equivalent).

(F) If applicable, a description of:

(1) The current and proposed operation of the project;

(2) Any new facilities or components to be constructed at the project;

(3) The construction history of the project; and

(4) Any plans for future development or rehabilitation of the project.

(G)(1) The potential applicant should discuss, with respect to each of the resources as follows:

(i) The existing environment to the level of detail indicated in this paragraph;

(ii) Any existing data or studies regarding the resource;

(iii) Any known or potential adverse impacts and issues associated with the construction, operation or maintenance of the proposed project;

(iv) Any project features the potential applicant has already constructed and/or maintains, voluntarily, or pursuant to the requirements of Federal or state agency or tribe to avoid or minimize adverse effects on the resource;

(v) Any measures the potential applicant believes might reasonably be taken to avoid or minimize adverse effects on the resource. The potential license applicant should consider providing photographs or other visual aids, as appropriate, to supplement its written presentation of information.

(ii) *Geology and Soils.* A description of the existing geology, topography, and soils of the proposed project and surrounding area, to the extent known and available, including:

(A) A description of geological features, including bedrock lithology, stratigraphy, structural features, glacial features, unconsolidated deposits, and mineral resources;

(B) A description of the soils, including the types, occurrence, physical and chemical characteristics, erodability and potential for mass soil movement;

(C) A description showing the location of existing and potential

geological and soil hazards and problems, including earthquakes, faults, seepage, subsidence, solution cavities, active and abandoned mines, erosion, and mass soil movement, and an identification of any large landslides or potentially unstable soil masses which could be aggravated by reservoir fluctuation;

(D) The existence of any disposal sites especially those listed under Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA) and the National Priorities List (NPL); and

(E) A description of the anticipated erosion, mass soil movement and other impacts on the geological and soil resources due to construction and operation of the proposed project.

(iii) *Water Resources.* A description of the water resources of the proposed project and surrounding area. The applicant should address the quantity and quality (chemical/physical parameters) of all waters affected by the project including but not limited to the project's reservoir(s), tributaries to the reservoir, the bypassed reach, and tailrace. To the extent known, available, and applicable, this section should include:

(A) Drainage area, the monthly minimum, mean, and maximum recorded flows in cubic feet per second of the stream or other body of water at the powerplant intake or point of diversion, with a specification of any adjustment made for evaporation, leakage minimum flow releases (including duration of releases) or other reductions in available flow; a flow duration curve indicating the period of record and the location of gauging station(s), including identification number(s), used in deriving the curve; and a specification of the critical streamflow used to determine the project's dependable capacity;

(B) A description of existing instream flow uses of streams in the project area that would be affected by construction and operation; estimated quantities of water discharged from the proposed project for power production; and any existing and proposed uses of project waters for irrigation, domestic water supply, industrial and other purposes, including any upstream or downstream requirements or constraints to accommodate those purposes;

(C) A description of the seasonal variation of existing water quality data for any stream, lake, or reservoir that would be affected by the proposed project, including measurements of: significant ions, heavy metals, hazardous organic compounds,

chlorophyll a, nutrients, specific conductance, pH, total dissolved solids, total alkalinity, total hardness, dissolved oxygen, bacteria, temperature, suspended sediments, turbidity and vertical illumination;

(D) A description of any existing lake or reservoir and any of the proposed project reservoirs including surface area, volume, maximum depth, mean depth, flushing rate, shoreline length, substrate classification, and gradient for streams directly affected by the proposed project;

(E) A description of the anticipated impacts of any proposed construction and operation of project facilities on downstream flows, including stream geomorphology, and water quality, such as temperature, turbidity and nutrients;

(F) A description of groundwater in the vicinity of the proposed project, including water table and artesian conditions, the hydraulic gradient, the degree to which groundwater and surface water are hydraulically connected, aquifers and their use as water supply, and the location of springs, wells, artesian flows and disappearing streams.

(iv) *Fish and Aquatic Resources.* A description of the fish and other aquatic resources, including invasive species, of the proposed project and surrounding area. The section should address the existing fish and macroinvertebrate communities, including the presence or absence of anadromous or catadromous fish and any known impacts on the aquatic community. To the extent known and available, this section should include:

(A) A description of existing fish and aquatic communities of the proposed project area and its vicinity, including any upstream and downstream areas that may be affected by the proposed project;

(B) The temporal and spacial distribution of fish and aquatic communities and any associated trends on;

(1) Species and life stage composition;

(2) Standing crop;

(3) Age and growth data;

(4) Run timing;

(5) The extent and location of spawning, rearing, feeding, and wintering habitat; and

(6) Essential fish habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act.

(v) *Wildlife and Botanical Resources.* A description of the wildlife and botanical resources, including invasive species, of the proposed project and surrounding area, to the extent known and available, including: