1.1 The Proposed Project

This chapter provides an outline of the EGC ESP project. It is organized into the following sections:

- The Applicant and Owner (Section 1.1.1);
- Site Location (Section 1.1.2);
- Reactor Information (Section 1.1.3);
- Cooling System Information (Section 1.1.4);
- Transmission System Information (Section 1.1.5);
- The Nature of the Proposed Action and Constraints (Section 1.1.6); and
- Construction Start Date (Section 1.1.7).

1.1.1 The Applicant and Owner

Pursuant to the Atomic Energy Act of 1954 (AEA), as amended, and the Nuclear Regulatory Commission's (NRC) regulations in Title 10 of the Code of Federal Regulations (CFR), the Applicant has filed a Site Safety Analysis Report (SSAR), which accompanies this ER (10 CFR 52.17). The EGC ESP Site is located within the boundary of the Clinton Power Station (CPS) property, which is owned by AmerGen Energy Company, LLC (AmerGen). As described in Section 3.4.6 of the Administrative Information, agreements between the Applicant and AmerGen will be in place to assure that the Applicant has the necessary authority, control, and rights related to the proposed EGC ESP Site.

1.1.2 Site Location

The site is located in DeWitt County, Illinois, approximately 6-mi east of the City of Clinton and along the shore of Clinton Lake. The site is the location of the CPS, and the EGC ESP Facility will be built 700 feet (ft) south of the CPS. For purposes of this ER, the site is defined as the property within the fenceline of the CPS. The vicinity is the area within a 6-mi radius from the centerpoint of the power block footprint. The region is the area between the 6-mi radius and the 50-mi radius from the centerpoint of the power block footprint. Clinton Lake is used as a source of cooling water for the CPS, and will be used as a source of makeup water for the EGC ESP Facility. The site is already zoned as industrial. Within the vicinity of the site: 12,076 acres (ac) (16.6 percent) is classified as recreational; 59,870 ac (82.1 percent) is classified as agricultural; 512 ac (0.7 percent) is classified as industrial; and 512 ac (0.7 percent) is classified as residential. Within the region of the site: 269,258 ac (5.4 percent) is classified as recreational; 4,580,167 ac (92.5 percent) is classified as agricultural; 27,530 ac (0.6 percent) is classified as industrial; and 71,843 ac (1.5 percent) is classified as residential. For more information on site location and demographics, see Chapter 2.

1.1.3 Reactor Information

The selection of a reactor design to be used for this facility is still under consideration. The types of reactors from which the bounding parameters were determined (see SSAR, Table 1.4-1), include:

- Pebble bed modular reactor (PBMR) – 8 modules;
- Advanced boiling-water reactor (ABWR) – 1 unit;
- Advanced pressurized-water reactor (AP1000) – 2 units;
- Economic Simplified Boiling-Water Reactor (ESBWR) – 1 unit;
- Gas turbine-modular helium reactor (GT-MHR) – 4 modules;
- Advanced Canada Deuterium Uranium (CANDU) Reactor (ACR-700) – 2 units; and
- International Reactor Innovative and Secure (IRIS) – 3 units.

Selection of a reactor to be used at the EGC ESP Site will not be limited to those listed above. The final selected reactor may be a future design that is bounded by the surrogate plant design reflected in the Plant Parameters Envelope (PPE), as presented in SSAR Table 1.4-1.

It is estimated that the proposed reactor(s) will be capable of generating up to a core thermal power level of 6,800 megawatts thermal (MWt). For more information on the reactors assessed in the PPE, see Chapter 3.

1.1.4 Cooling System Information

Waste heat will be dissipated by a cooling tower(s), which will draw cooling water makeup from Clinton Lake. The cooling water makeup will be withdrawn from Clinton Lake through a new intake structure. The approach velocity to the intake will be limited to a maximum velocity of 0.50 feet per second (fps) at the normal lake elevation of 690 ft above mean sea level (msl). The normal raw water requirement is estimated to be 48,288 gallons per minute (gpm). A breakdown of the usage of the raw water supply can be seen in Table 3.3-2. The total discharge from the cooling tower(s) will normally be 12,000 gpm, with a maximum discharge of 49,000 gpm. For more information on the cooling system, see Section 3.4.

1.1.5 Transmission System Information

The existing transmission system is insufficient to handle the load of an additional large generation source. If EGC decides to construct generation up to the maximum load specified in the PPE, it will be necessary to increase the capacity of the existing transmission facilities as described below.

A double circuit line will connect the facility to an interconnect point at the Brokaw substation near Bloomington, Illinois, about 23-mi north of the site. A second double circuit line will connect the site to a future substation, about 8-mi south of the site at the intersection of the existing Clinton-Oreana and Latham-Rising lines. Based on regional transmission operator (RTO) construction practices, it is anticipated that four wood pole H-Frames will be constructed to carry the lines to their destinations. The H-Frame structures will carry the double circuit lines that consist of six phases of two or three bundle conductors of

1,272 kilo circular mils (kcmil), aluminum-conductor steel-reinforced (ACSR), and two shield wires. Final conductor size will be determined by the transmission system operator based on:

- Operating voltage;
- Loads to be carried, both initially and in the future;
- Thermal capacity;
- Cost of the conductor, support structures, foundations, right-of-way, and the present value of the energy losses associated with the conductor size and expected loading; and
- Electric and magnetic field strengths, which depend on operating line voltage, conductor currents, and conductor configuration and spacing.

For more information on the transmission system, see Section 3.7.

1.1.6 The Nature of the Proposed Action and Constraints

This ER does not assess impacts based on a specific power facility design; it considers a spectrum of feasible designs. The description of the plant details and the environmental impacts provided in the ER are based on the most conservative bounding parameters.

The New Licensing Reactor Project Office (NRLPO) held a public outreach meeting on March 20, 2003, in Clinton, Illinois, to provide information on opportunities for public involvement in the ESP process for this site. Additional interaction with the public was provided by representatives from EGC, who contacted members of the surrounding community during the period of August 21, 2002 to September 1, 2002 to gather input from residents who may be affected by the construction and operation of the proposed EGC ESP project.

1.1.7 Construction Start Date

At this time, EGC has not established a date for preconstruction activities. It is estimated that site preparation activities (preconstruction) will take between six and 18 months to complete. Based on estimates provided by the reactor vendors, assuming that appropriate licenses are obtained, actual construction is expected to take between three and five years.

1.2 Status of Reviews, Approvals, and Consultations

Table 1.2-1 provides a list of the environmentally-related authorizations, permits, and certifications required by federal, state, regional, local, and affected Native American tribal agencies. It includes, but is not limited to, permits that are required before the construction and operation of the proposed EGC ESP Facility. It is organized as follows:

- The particular agency with jurisdiction over the imposed requirement;
- The authority, law, or regulation that dictates the requirement;
- The name of the required license, permit, or certification;
- The license or permit number of any existing licenses or permits;
- The expiration date on the license or permit; and
- A brief description of the requirement fulfilled or to be fulfilled by the Applicant prior to the approval of the site.

The structure of this table is based on the format provided in NUREG-1555 (USNRC, 1999). However, since the purpose of this ER is only to establish the feasibility of the proposed location, any applicable permits will not be applied for until the combined operating license (COL) phase. Therefore, the columns for existing permits and expiration dates have been left blank. For exact locations mentioned in Table 1.2-1, please refer to the site maps in Chapter 2.

CHAPTER 1

References

Chapter Introduction

U.S. Nuclear Regulatory Commission (USNRC*). Standard Review Plans for Environmental Reviews of Nuclear Power Plants*. NUREG-1555. Office of Nuclear Reactor Regulation. October 1999.

Section 1.1

10 CFR 52.17. Code of Federal Regulations. "Contents of Applications."

Section 1.2

U.S. Nuclear Regulatory Commission (USNRC*). Standard Review Plans for Environmental Reviews of Nuclear Power Plants*. NUREG-1555. Office of Nuclear Reactor Regulation. October 1999.

CHAPTER 1

Tables

TABLE 1.2-1
Federal, State, and Local Authorizations

Agency	Authority	Requirement	License/ Permit No.	Expiration Date	Authorization Granted
U.S. Nuclear Regulatory Commission (USNRC)	10 CFR 40	Source Material License	--[a]	--[a]	Possession of source material
USNRC	Atomic Energy Act of 1954 (AEA), 10 CFR 51	ER	--[a]	--[a]	Site approval for a nuclear power station separate from an application for a standard design certification or combined operating license (COL)
USNRC	10 CFR 52	COL	--[a]	--[a]	Construction and Operation Safety Review for a nuclear power station
USNRC	10 CFR 70	Special Nuclear Materials License	--[a]	--[a]	Possession of fuel
USNRC	10 CFR 30	By-product License	--[a]	--[a]	Possession of special nuclear materials
U.S. Fish and Wildlife Services (USFWS)	Threatened and Endangered Species Act	Letter of Compliance	--[a]	--[a]	Compliance with Threatened and Endangered Species Act
Federal Aviation Administration (FAA)	49 USC 1501	Construction Notice	--[a]	--[a]	Construction of structures affecting air navigation
U.S. Environ-mental Protection Agency (USEPA)	Clean Water Act (CWA)	Stormwater Pollution Prevention Plan (SWP3)	--[a]	--[a]	Discharge of stormwater associated with construction activities
US Army Corps of Engineers (USACOE)	CWA	Section 404 Permit	--[a]	--[a]	Disturbance of the crossing of a navigable stream
USACOE	Section 404 Conditional Permit	Walleye Spawning Areas Permit	--[a]	--[a]	Disturbances of walleye spawning areas
USACOE	33 CFR 209	Dredge and Fill Discharge Permit	--[a]	--[a]	Construction/modification of the discharge to Salt Creek

TABLE 1.2-1
Federal, State, and Local Authorizations

Agency	Authority	Requirement	License/ Permit No.	Expiration Date	Authorization Granted
State Historic Preservation Office (SHPO)	36 CFR 800	Cultural Resources Review	--[a]	--[a]	Confirmation that site and transmission corridor are not considered historic preservation areas
Illinois Commerce Commission	Illinois Public Utilities Act	Certification of Public Convenience and Necessity	--[a]	--[a]	Construction and operation of plant
Illinois Department of Transportation (IDOT)	Illinois Rev. Stat. 1971	Construction Permit	--[a]	--[a]	Construct lift crane
IDOT	Illinois Rev. Stat. 1971	Construction Permit	--[a]	--[a]	Construct dome lighting mast
IDOT	Illinois Commerce Act 1911	Construction Permit	--[a]	--[a]	Construction/modification of discharge structures on Salt Creek
IDOT	Illinois Commerce Act 1911	Construction Permit[b]	--[a]	--[a]	Construction of transmission lines crossing waterways
IDOT	Illinois Commerce Act 1911	Construction Permit[b]	--[a]	--[a]	Construction of transmission lines crossing state highways
Illinois Environmental Protection Agency (IEPA)	Resource Conservation and Recovery Act (RCRA)	Development (DE), Operating (OP), and Supplemental Permits	--[a]	--[a]	Storage and transportation of hazardous materials
IEPA	17 IL Adm. Code Part 120	Surface Water Withdrawal Permit	--[a]	--[a]	Withdrawal of water from a public surface water source
IEPA	CWA	IEPA Section 401 Water Quality Certification	--[a]	--[a]	Certification that activities will comply with water quality standards of the state
IEPA	General permit for discharges associated with construction activities	Notice of Intent (NOI) for Construction	--[a]	--[a]	Discharge of stormwater from site during construction
IEPA	General permit for discharges associated with construction activities	Notice of Termination (NOT) for Construction	--[a]	--[a]	Termination of coverage under the general permit for stormwater discharge associated with construction site activities
IEPA	CWA	NPDES Permit	--[a]	--[a]	Discharges to surface water

TABLE 1.2-1
Federal, State, and Local Authorizations

Agency	Authority	Requirement	License/ Permit No.	Expiration Date	Authorization Granted
IEPA	CAA	Minor Source Construction Permit	--[a]	--[a]	Construction and operation of facilities generating air emissions
IEPA	Title V	Title V Operating Permit	--[a]	--[a]	Operation of facility generating air emissions
IEPA	General Stormwater Permit	Notice of Termination (NOT) for Industrial Activities	--[a]	--[a]	Termination of coverage under the general permit for stormwater discharge associated with operations activities
IEPA	Environmental Protection Act (415 ILCS 5)	Sanitary Wastewater Hauling Permit	--[a]	--[a]	Transportation of sanitary wastewater
IEPA	Environmental Protection Act (415 ILCS 5)	Sludge Disposal Operating Permit	--[a]	--[a]	Disposal of sludge
IEPA	Environmental Protection Act (415 ILCS 5)	Non-Hazardous Domestic Waste-water or Sludge Transporting Permit	--[a]	--[a]	Transportation of non-hazardous wastewater or sludge
IEPA	IL Adm. Code, Part 170	Emergency Petroleum Storage Tank Permit	--[a]	--[a]	Implementation of storage tanks containing petroleum products
IEPA	Environmental Protection Act (415 ILCS 5)	Open Burning Permit	--[a]	--[a]	Open burning of petroleum products for back-up generators
IEPA	Environmental Protection Act (415 ILCS 5)	Supplemental Waste Stream Permit	--[a]	--[a]	Disposal of waste from additional waste streams
IEPA	N/A	Refrigerant Recovery/Recycling Equipment Certifications	--[a]	--[a]	Recovery and recycling of refrigerants
IEPA	Environmental Protection Act (415 ILCS 5)	Construction Permit	--[a]	--[a]	Construction of waste treating facilities
IEPA	Environmental Protection Act (415 ILCS 5)	Construction Permit	--[a]	--[a]	Construction of temporary sewage treatment unit for construction phase only

TABLE 1.2-1
Federal, State, and Local Authorizations

Agency	Authority	Requirement	License/ Permit No.	Expiration Date	Authorization Granted
IEPA	Environmental Protection Act (415 ILCS 5)	Operating Permit	--[a]	--[a]	Operation of temporary sewage treatment unit for construction phase only
IEPA	Environmental Protection Act (415 ILCS 5)	Operating Permit	--[a]	--[a]	Treatment of waste water discharge
DeWitt County Zoning Board of Appeals	Illinois Zoning Act	Approvals	--[a]	--[a]	Construction of the plant
Circuit Court of DeWitt County	Eminent Domain Act	Petition for Condemnation	--[a]	--[a]	Exercise right of eminent domain

[a] Data not available. Applicable permits may not be applied for until the COL phase. Applications for permits will be made before the beginning of construction, as required. Some permits may be combined with existing CPS permits.

[b] To be obtained by the Regional Transmission Operator.

Note: All permits will be applied for before the beginning of construction. Some permits may not be obtained since the area may be combined with some existing CPS permits.