Chapter G1: Background

INTRODUCTION

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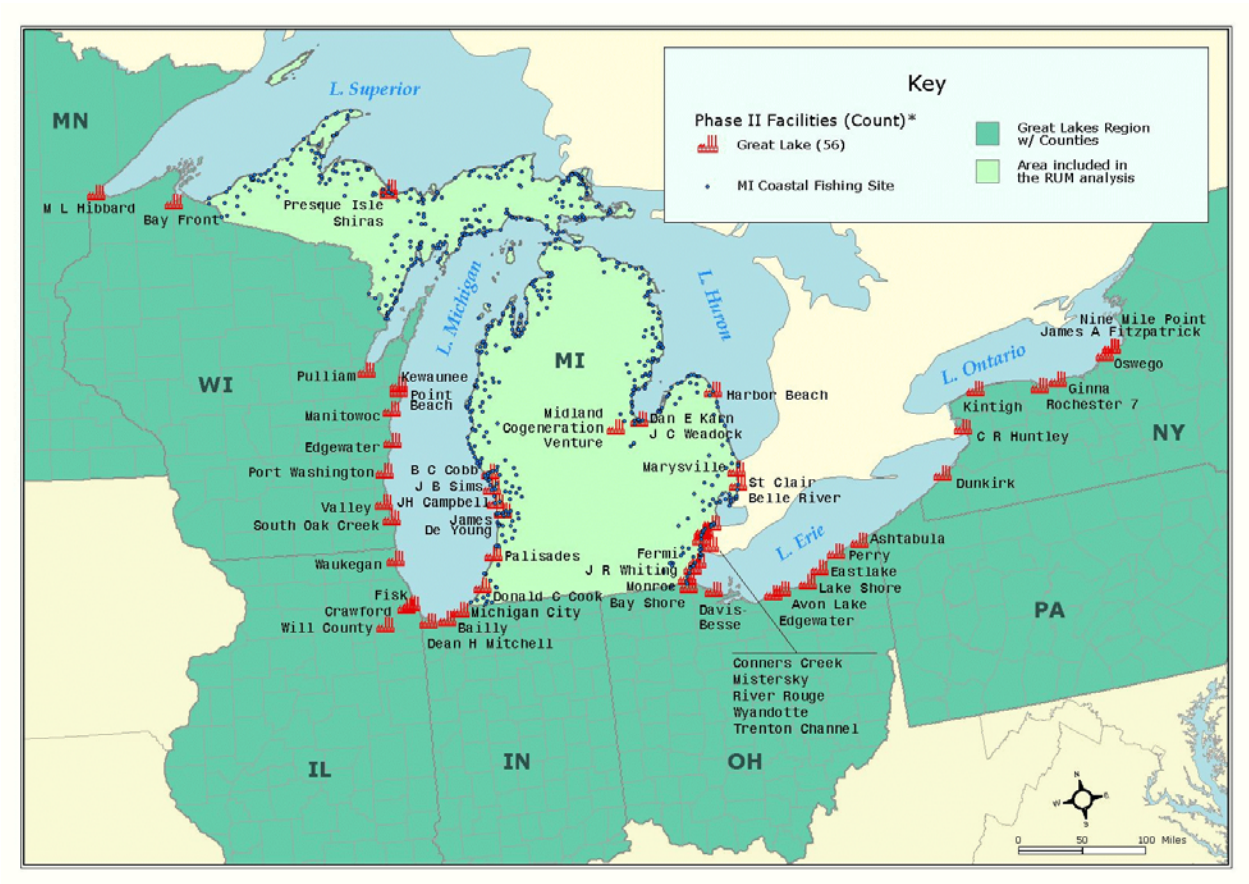
This chapter presents an overview of the Phase II facilities in the Great Lakes study region and summarizes their key operating, economic, technical, and compliance characteristics. For further discussion of operating and economic characteristics of Phase II facilities, refer to Chapter A3 of the *Economic and Benefits Analysis for the Final Section 316(b) Phase II Existing Facilities Rule*; for further discussion of the technical and compliance characteristics of Phase II facilities, refer to the *Technical Development Document for the Final Section 316(b) Phase II Existing Facilities Rule* (U.S. EPA, 2004a,b).

G1-1 OVERVIEW

The Great Lakes Study includes 56 facilities that are in scope for the final Phase II regulation. All 56 facilities withdraw cooling water from the Great Lakes or their tributaries. Figure G1-1 presents a map of the 56 in-scope Phase II facilities located in the Great Lakes study region.

Figure G1-1: In-Scope Phase II Facilities in the Great Lakes Regional Study



Source: U.S. EPA analysis for this report.

G1-2 Operating and Economic Characteristics

Most of the 56 Great Lakes Study facilities (41) are coal steam facilities; 10 are nuclear facilities; 4 are oil/gas facilities; and 1 is a combined-cycle facility. In 2001, these 56 facilities accounted for 44.6 gigawatts of generating capacity, 215,000 gigawatt hours of generation, and $7.1 billion in revenues.

The operating and economic characteristics of the Great Lakes Study facilities are summarized in Table G1-1. Section G1-4 provides further information on each facility [including facility state, North American Electric Reliability Council (NERC) region, plant type, capacity, 2001 generation, and whether impingement and entrainment estimates were developed for the facility].

Table G1-1: Operating and Economic Characteristics of Phase II Facilities

Waterbody Type	Number of Facilities by Plant Type[a]					Total Capacity (MW)[b]	Total Generation (MWh)[b]	Electric Revenue (millions)
	Coal Steam	Combined Cycle	Nuclear	Oil/Gas Steam	Total			
Great Lake								
IL	4	-	-	-	4	3,651	12,478,209	$334
IN	3	-	-	-	3	1,880	6,843,217	$245
MI	17	1	3	2	23	20,881	101,784,212	$3,385
MN	1	-	-	-	1	123	-	$-
NY	4	-	3	1	8	7,460	37,887,228	$1,131
OH	5	-	2	1	8	5,863	29,033,765	$1,111
WI	7	-	2	-	9	4,771	27,147,465	$899
TOTAL	**41**	**1**	**10**	**4**	**56**	**44,629**	**215,174,096**	**$7,104**

[a] Based on largest steam-electric capacity at facilities.
[b] MW is an abbreviation for megawatt. MWh is an abbreviation for megawatt hour.

Sources: Plant type (IPM Analysis, U.S. EPA, 2002; Form EIA-860, U.S. DOE, 2001a); capacity (Form EIA-860, U.S. DOE, 2001a); generation (Form EIA-906, U.S. DOE, 2001c); revenue (Form EIA-861, U.S. DOE, 2001b; Form EIA-906, U.S. DOE, 2001c).

G1-3 Technical and Compliance Characteristics

The 56 Great Lakes Study facilities have a combined design intake flow of 35,500 million gallons per day (MGD). Forty-nine of the facilities employ a once-through cooling system in the baseline, four facilities employ a recirculating cooling system, and three facilities employ a combination cooling system. The 56 facilities incur a combined pre-tax compliance cost of $59 million. Table G1-2 below summarizes the flow, compliance responses, and compliance costs for these 56 facilities.

Table G1-2: Technical and Compliance Characteristics of Phase II Facilities

	Cooling Water System (CWS) Type[a]			
	Once-Through	**Recirculating**	**Combination**	**All**
Design Flow (MGD)	**33,939**	**548**	**1,058**	**35,545**
Number of Facilities by Compliance Response				
Fine Mesh Traveling Screens w/Fish H&R	6	-	-	6
New Larger Intake Structure with Fine Mesh and Fish H&R	5	-	-	5
Passive Fine Mesh Screens	6	-	1	7
Fish Barrier Net/Gunderboom	1	-	-	1
Relocate Intake to Submerged Offshore with Passive Screen	-	-	1	1
Double-Entry, Single-Exit with Fine Mesh and Fish H&R	7	-	-	7
Multiple	5	-	1	6
None	19	4	-	23
Total	**49**	**4**	**3**	**56**
Compliance Cost (2002$; millions)	**$53.6**	**$0.4**	**$4.7**	**$58.7**

[a] Combination CWSs are costed as if they were once-through CWSs.

Source: U.S. EPA analysis for this report.

G1-4 Phase II Facilities in the Great Lakes Regional Study

Table G1-3 presents economic and operating characteristics of the Great Lakes Study facilities.

Table G1-3: Phase II Facilities in the Great Lakes Study

EIA Code	Plant Name	Plant State	NERC Region	Steam Plant Type	2001 Capacity (MW)	2001 Net Generation (MWh)	I&E Data?
Great Lake							
867	Crawford	IL	MAIN	Coal Steam	805	2,059,096	N
883	Waukegan	IL	MAIN	Coal Steam	915	4,703,658	N
884	Will County	IL	MAIN	Coal Steam	1,269	4,454,422	N
886	Fisk	IL	MAIN	Coal Steam	663	1,261,033	N
995	Bailly	IN	ECAR	Coal Steam	653	2,657,837	N
996	Dean H Mitchell	IN	ECAR	Coal Steam	547	1,770,841	N
997	Michigan City	IN	ECAR	Coal Steam	680	2,414,539	N
1695	B C Cobb	MI	ECAR	Coal Steam	378	2,087,331	N
1702	Dan E Karn	MI	ECAR	O/G Steam	1,761	4,541,738	N
1710	J H Campbell	MI	ECAR	Coal Steam	1,542	9,714,966	N
1715	Palisades	MI	ECAR	Nuclear	812	2,331,046	N
1720	J C Weadock	MI	ECAR	Coal Steam	333	2,176,183	N
1723	J R Whiting	MI	ECAR	Coal Steam	346	2,119,978	Y
1726	Conners Creek	MI	ECAR	Coal Steam	275	62,543	N
1729	Fermi	MI	ECAR	Nuclear	1,218	8,556,303	N
1731	Harbor Beach	MI	ECAR	Coal Steam	125	214,420	N
1732	Marysville	MI	ECAR	Coal Steam	200	108,778	N
1733	Monroe	MI	ECAR	Coal Steam	3,293	18,328,247	Y
1740	River Rouge	MI	ECAR	Coal Steam	944	2,612,562	N
1743	St Clair	MI	ECAR	Coal Steam	1,929	5,764,277	N
1745	Trenton Channel	MI	ECAR	Coal Steam	776	4,128,006	N
1769	Presque Isle	MI	MAIN	Coal Steam	625	3,305,693	N
1822	Mistersky	MI	ECAR	O/G Steam	189	413,834	N
1825	J B Sims	MI	ECAR	Coal Steam	75	407,456	N
1830	James De Young	MI	ECAR	Coal Steam	63	337,358	N
1843	Shiras	MI	MAIN	Coal Steam	78	278,646	N
1866	Wyandotte	MI	ECAR	Coal Steam	73	257,391	N
6000	Donald C Cook	MI	ECAR	Nuclear	2,285	15,824,307	Y
6034	Belle River	MI	ECAR	Coal Steam	1,709	9,268,439	N
10745	Midland Cogeneration Venture	MI	ECAR	Combined Cycle	1,854	8,944,710	N
1897	M L Hibbard	MN	MAPP	Coal Steam	123	0	N
2549	C R Huntley	NY	NPCC	Coal Steam	816	3,575,773	N

Table G1-3: Phase II Facilities in the Great Lakes Study

EIA Code	Plant Name	Plant State	NERC Region	Steam Plant Type	2001 Capacity (MW)	2001 Net Generation (MWh)	I&E Data?
2554	Dunkirk	NY	NPCC	Coal Steam	560	3,437,101	N
2589	Nine Mile Point	NY	NPCC	Nuclear	1,901	11,762,527	N
2594	Oswego	NY	NPCC	O/G Steam	1,804	484,773	N
2642	Rochester 7	NY	NPCC	Coal Steam	253	1,727,793	N
6082	Kintigh	NY	NPCC	Coal Steam	728	5,492,573	N
6110	James A FitzPatrick	NY	NPCC	Nuclear	882	7,120,960	N
6122	Ginna	NY	NPCC	Nuclear	517	4,285,728	N
2835	Ashtabula	OH	ECAR	Coal Steam	440	1,192,438	N
2836	Avon Lake	OH	ECAR	Coal Steam	870	3,586,861	N
2837	Eastlake	OH	ECAR	Coal Steam	1,289	5,022,223	N
2838	Lake Shore	OH	ECAR	Coal Steam	260	554,150	N
2857	Edgewater	OH	ECAR	O/G Steam	171	35,465	N
2878	Bay Shore	OH	ECAR	Coal Steam	655	3,178,866	N
6020	Perry	OH	ECAR	Nuclear	1,253	7,779,444	N
6149	Davis-Besse	OH	ECAR	Nuclear	925	7,684,318	N
3982	Bay Front	WI	MAPP	Coal Steam	68	331,254	N
4040	Port Washington	WI	MAIN	Coal Steam	340	941,117	N
4041	South Oak Creek	WI	MAIN	Coal Steam	1,211	5,909,779	N
4042	Valley	WI	MAIN	Coal Steam	275	1,115,111	N
4046	Point Beach	WI	MAIN	Nuclear	1,073	8,045,696	N
4050	Edgewater	WI	MAIN	Coal Steam	770	4,844,573	N
4072	Pulliam	WI	MAIN	Coal Steam	410	2,235,357	N
4125	Manitowoc	WI	MAIN	Coal Steam	89	262,568	N
8024	Kewaunee	WI	MAIN	Nuclear	535	3,462,010	N

Source: U.S. EPA analysis for this report.