

GEOTHERMAL RESOURCE ASSESSMENT

Resource assessment is a strong focus for GeothermEx, and typically includes conceptual modeling of the geothermal system (based on analyses of exploration, drilling, well logging and well testing data), reserve estimation, field development optimization, power cycle analysis, field management planning, and economic analysis. We have extensive experience with all types of geothermal resources (low-enthalpy, single-phase water, two-phase water, single-phase steam and hypersaline brine) throughout the world. The projects listed below represent nearly 7,000 MW of geothermal generation, using dry steam, flash-steam and binary cycle technology.

FIELD	COUNTRY	MWe ON LINE OR UNDER CONSTRUCTION	YEAR ASSESSED
Bacon Manito, Luzon I.	Philippines	150	1984-1985, 1999; 2004-2005; 2010
Batong-Buhay, Luzon I.	Philippines	--	1983-1984, 1998-1999
Biliran, Biliran I.	Philippines	--	1999
Mak-Ban, Luzon I.	Philippines	425	1981, 1995-1997; 2008
Daklan, Luzon I.	Philippines	--	1982-1983, 1999
Maibarara, Luzon I.	Philippines	25	1982, 1999
Mambucal, Negros I.	Philippines	--	1999
Mt. Apo, Mindanao I.	Philippines	52	1999; 2004-2005; 2010
Mt. Labo, Luzon I.	Philippines	--	1999
Palimpinon, Negros I.	Philippines	195	1982-1983; 2004-2005; 2010
Northern Negros I.	Philippines	50	2010
Tiwi, Luzon I.	Philippines	330	1983-1985, 1995-1997; 2008
Tongonan, Leyte I.	Philippines	700	1999; 2004-2005; 2010
Takigami, Kyushu I.	Japan	25	1983-1992
Niseko, Hokkaido I.	Japan	--	1986-1987

FIELD	COUNTRY	MWe ON LINE OR UNDER CONSTRUCTION	YEAR ASSESSED
Minami Aizu, Honshu I.	Japan	--	1986-1987
Hakkoda, Honshu I.	Japan	--	1986-1987
Kokubu, Kyushu I.	Japan	--	1986-1987
Okuaizu, Honshu I.	Japan	55	1986-1989; 1993
Uenotai, Honshu I.	Japan	25	1988-2005
Onikobe, Honshu I.	Japan	12.5	1988-1989
Otake, Kyushu I.	Japan	12.5	1992-1993
Wasabizawa, Honshu I.	Japan	--	1996-2002
Poihipi	New Zealand	55	1996-1997
Tauhara	New Zealand	30	1997; 2010
Wairakei	New Zealand	140	1999; 2001; 2004-2006; 2009
Ohaaki	New Zealand	70	1999
Kawerau	New Zealand	110	2005-2009; 2011
Dieng	Indonesia	140	1983, 1995-1998; 2003, 2004-2005
Patuha	Indonesia	80	1997-1998, 2003, 2004-2005
Darajat	Indonesia	125	1997, 2004-2005
Kamojang	Indonesia	140	1997
Karaha – Telaga Bodas	Indonesia	--	1997-1998
Cibuni	Indonesia	50	1996; 2008
Wayang Windu	Indonesia	220	1995-1998; 2005; 2007-present
Raja Basa	Indonesia	--	2009
Rantau Dedap	Indonesia	--	2009 - 2010
Muara Laboeh	Indonesia	--	2009
Lihir Island	Papua New Guinea	20	1986-1996; 2008; 2010
Chingshui	Taiwan, China	3	1979

FIELD	COUNTRY	MWe ON LINE OR UNDER CONSTRUCTION	YEAR ASSESSED
Tatun	Taiwan, China	--	1985
Olkaria	Kenya	200	1982, 1997, 2005; 2007-2009
Suswa	Kenya	--	2010
Latera	Italy	30	1985-1987
Mofete	Italy	--	1986-1987
Kocani	Macedonia	Direct Use	1983-1984
Kizildere	Turkey	15	1984; 2010
Germencik	Turkey	50	2007-present
Salihli	Turkey	--	2010
Jermuk	Armenia	Direct Use	1998-1999
Zugdidi	Republic of Georgia	Direct Use	1996-1998
Agua de Pao, São Miguel	Azores (Portugal)	13	1990-1993, 1998-present
Terceira	Azores (Portugal)	10	2003-present
Qualibou	St. Lucia	10	1999; 2010; 2011
Nevis	St. Kitts and Nevis	10	2004-2005; 2009
La Soufrière, St. Vincent	St. Vincent and the Grenadines	10	2006; 2010-2011
Miravalles	Costa Rica	177	1975-1980, 1986-1988, 1990-2006; 2010 - present
Rincon de la Vieja	Costa Rica	--	1999
Las Pailas	Costa Rica	--	2002-2005
Tenorio	Costa Rica	--	1999
Zunil	Guatemala	27.5	1985-1986, 1988-1991, 1995-1996, 2002-2005

FIELD	COUNTRY	MWe ON LINE OR UNDER CONSTRUCTION	YEAR ASSESSED
Amatitlán	Guatemala	20	1995-1997, 2005; 2008
Ahuachapán	El Salvador	95	1998-1999
Berlín	El Salvador	60	1998-1999
Cerro Prieto	Mexico	620	1989-1990, 1991-1992, 1998-1999, 2005
Los Azufres	Mexico	185	2003; 2008
Los Humeros	Mexico	35	2003; 2008
Las Tres Vírgenes	Mexico	10	2003; 2008
San Jacinto - Tizate	Nicaragua	60	1997-1998, 1999-2001, 2004; 2008; 2010 - present
Momotombo	Nicaragua	37	1979, 1995-1996, 1999-2001
Chiltepe, Tipitapa, Masaya-Granada-Nandaime, El Hoyo-Monte Galán, Cosigüina, Casita-San Cristobal, Ometepe, Telica-El Ñajo	Nicaragua	--	1999-2001
Laguna Colorada	Bolivia	--	1993
East Mesa, California (Ormesa IH)	United States	10	1989, 1997, 2002, 2004
East Mesa, California (Ormesa IE)	United States	10	1988-1989, 1997, 2002, 2004
East Mesa, California (GEMLP Project)	United States	46	1987-1991, 2002, 2004
Salton Sea, California (Entire field)	United States	290	1983-1992, 1994-1998, 2003, 2005; 2009
South Brawley, California	United States	--	1984-1985, 1992
Brawley, California	United States	50	2008

FIELD	COUNTRY	MWe ON LINE OR UNDER CONSTRUCTION	YEAR ASSESSED
Heber, California	United States	140	1980, 1987-1989, 1991-1992, 1994-1996, 1999, 2004-2005
Long Valley, California	United States	50	1985-1986, 1989-1991, 1992-1999, 2004; 2011
Coso Hot Springs, California (LADWP)	United States	--	1984-1987, 1988-1992
Coso Hot Springs, California (CalEnergy, Caithness)	United States	250	1986-1992, 1994-1999-present
Litchfield, California	United States	Direct Use	1982-1983, 1990-1991
Wendel, California	United States	3	1984, 2005; 2009
Amedee, California	United States	3	1987-1988, 2005; 2009
Susanville, California	United States	Direct Use	1980-1983
Surprise Valley, California	United States	30	1991, 1994, 2003-2005
Puna, Hawaii	United States	30	1974-1983, 1988-1991, 1994-1998, 1999; 2005-present
Lightning Dock, New Mexico	United States	10	2002-2003; 2008
Valles Caldera, New Mexico	United States	--	1998; 2007
Beowawe, Nevada	United States	15	1979-1984, 1990-1991, 1999, 2004-2006
Blue Mountain, Nevada	United States	38	2006-present
Bradys Hot Springs, Nevada (GFP Leasehold)	United States	Direct Use	1980-1981
Bradys Hot Springs, Nevada	United States	25	1986-1987, 1991, 1994-1996, 2004; 2010-present

FIELD	COUNTRY	MWe ON LINE OR UNDER CONSTRUCTION	YEAR ASSESSED
Desert Peak, Nevada	United States	10	1979-1981, 1990-1991, 2003-present
Dixie Valley, Nevada	United States	60	1983-1989, 1996, 1999 – present
Empire, Nevada	United States	3	1986-1988, 2004; 2010
Fish Lake Valley, Nevada	United States	--	1984-1985, 1995, 1998, 2001; 2006
Soda Lake, Nevada	United States	15	1986-1987, 1989-1991, 2002; 2008
Steamboat, Nevada (Steamboat Hills)	United States	13	1985-1988, 1995, 1997, 2003-2005; 2010
Steamboat, Nevada (Lower Steamboat)	United States	45	1987-1989, 1991, 1995-1997, 2001-2003; 2006-2007; 2010
Reese River, Nevada	United States		2006-2008
Rye Patch / Humboldt House, Nevada	United States		1991-1992, 1998, 2005
Salt Wells, Nevada	United States	30	2004-2005; 2007
Stillwater, Nevada	United States	45	1988-1991, 1995, 2001-2004; 2007-2008
Mary's River, Nevada	United States	--	2009
Alvord, Oregon	United States	--	1983
Crump Geyser, Oregon	United States	--	2006
Klamath Falls, Oregon	United States	Direct Use	1976-1980
Ontario, Oregon	United States	--	1979-1981
Vale, Oregon	United States	Direct Use	1990
Raft River, Idaho	United States	15	2002; 2008; 2009; 2010 - present

FIELD	COUNTRY	MWe ON LINE OR UNDER CONSTRUCTION	YEAR ASSESSED
Newdale, Idaho	United States	--	2008
Cove Fort, Utah	United States	30	1988-1989, 2002-2003, 2004 – 2005
Roosevelt Hot Springs, Utah	United States	26	1983, 1984-1986, 1990-1991, 2005; 2007-2008
Thermo, Utah	United States	10	2008-2010