

Appendix J: Owned Hydroelectric Facilities



APPENDIX J - Owned Hydroelectric Fleet

Resource Name	Age (years)	Type of Operation	Location	City/Town	State	Output (MW)	Operational License	Description
Arnold Falls	90	Run-of-River	Passumpsic River	St Johnsbury	VT	0.35	FERC 40-year license No. 2396 expires June 16, 2034	Recent Improvements: In 2008, we modernized the facility's switchgear, relay protection, and controls; in 2009, we constructed a new concrete gravity dam to replace the dam's deteriorated timber cribs.
Barnet	32	Run-of-River	Stevens River	Barnet	VT	0.56	FERC 50 year license P-05702 expires in 2032	Recent improvements include replacement of the GSU transformer, and replacement of the intake deck and trash rack rake.
Beldens Falls	105	Run-of-River	Otter Creek	New Haven	VT	5.85	FERC 40-year license No. 2558 expires in 2054	Central Vermont Public Service (CVPS) acquired this former Vermont Marble Power Division (VMPD) facility in 2011. Recent Improvements: In 2008, we modernized the station's electrical switchgear, protection relays, and control devices; refurbished turbine-generator Unit 2; and completed FERC-required recreational improvements and runner upgrades for Unit 3.
Bolton Falls	32	Run-of-River	Winooski River	Duxbury	VT	7.5	FERC 40-year license expires January 31, 2022	Recent Improvements: Originally built in 1899, we rebuilt it in 1985 and again in 2005. We also modernized the station's electrical switchgear, protection relays, automation, and control devices. Planned improvements: We plan to refurbish and/or replace major turbine components.
Carver Falls	124	Run-of-River	Poultney River	West Haven (and East Hampton, NY)	VT	2.55	FERC 30-year license No. 11475 expires in 2039	Recent Improvements: In 2011, we replaced and uprated turbine-generator Unit 1.
Cavendish	110	Run-of-River	Black River	Cavendish	VT	1.44	FERC license No. 2489 expires in 2024	Recent Improvements: Since the unit was commissioned, we installed an automated spillway crest control at the dam.
Center Rutland	120	Run-of-River	Otter Creek	Rutland	VT	0.28	FERC 30-year license No. 2445 expires in 2024	former VMPD facility (acquired by CVPS in 2011) Recent Improvements: Recently, we added relay protection and SCADA controls to improve remote operation, and refurbished major mechanical components to enable the hydro to be brought back online.
Clarks Falls	81	Dispatchable	Lamoille River	Milton	VT	3	FERC 30 year license No. 2205 expires in 2035	Utilized for behind the meter load reduction. Recent Improvements: In 2001, we installed a new generator step-up transformer; in 2004, we replaced the turbine runner. In 2017; we modernized the facilities switchgear, relay protection, and controls. In 2018 and 2019; deteriorated concrete on the tainter gates and at the surge tank were replaced.
Deweys Mill	33	Run-of-River	Ottawaquechee River	Quechee	VT	2.75	FERC 50 year license P-05313 expires in 2032	Recent improvements included PLC and controls upgrade in 2021.
East Barnet	35	Run-of-River	Passumpsic River	Barnet	VT	2.2	FERC Exempt No. 3051	Recent upgrades include refurbishment of crest gate components in 2020.
East Pittsford	104	Dispatchable	East Creek	Pittsford	VT	3.6	PSB dam safety regulation, Non-FERC jurisdiction	Utilized for behind the meter load reduction. Because of the size and hazard classification of the Chittenden Dam, which forms the station's impoundment, this facility falls under the Vermont Public Service Board's (PSB's) dam safety regulation. Recent Improvements: In 2010, we modernized the station's switchgear, protection relays, and control devices; replaced the penstock in the powerhouse; automated critical equipment, including the head gate; and refurbished the major penstock.
Essex #19	101	Run-of-River	Winooski River	Williston/Essex Junction	VT	7.2	FERC 30 year license expires on March 30, 2025	Recent Improvements: In 1990, we significantly repaired the dam. More recently, we continued to resurface the concrete dam, replaced the GSU Transformer, upgraded the excitors. In 2018 and 2021 all three sections of the rubber dam have been replaced with new bladders. In addition, new modern mechanical seals have been installed on
Fairfax Falls	98	Run-of-River	Lamoille River	Fairfax	VT	4.2	FERC 30 year license No. 2205 expires in 2035	Recent Improvements: In 2004, we modernized the station's electrical switchgear, protection relays, and control devices; and refurbished and uprated turbine-generator Unit 1; refurbished the Unit 2 generator and stator; and replaced the waste gate.
Gage	99	Run-of-River	Passumpsic River	St Johnsbury	VT	0.7	FERC 40 year license No. 2397 expires 2034	Recent Improvements: We replaced the original head gates and actuators with new steel gates and automated actuators, made safety improvements, and resurfaced the concrete on the intake canal. We plan to install a new Obermeyer Spillway Gate system to replace existing hinged flashboards.
Glen	98	Dispatchable	East Creek	Rutland	VT	2	Non-FERC jurisdiction	Utilized for behind the meter load reduction; Recent Improvements: We modernized the station's electrical switchgear, protection relays, and control devices; installed a new generator step-up transformer; replaced sections of the penstock; rewound Unit 1; performed environmental abatement in the powerhouse; replaced over 2,000 linear feet of penstock; replaced the trash racks and head gate actuator; modernized the station's switchgear, relay protection, and controls; installed a new generator step-up transformer; and replaced penstock sections.
Gorge #18	90	Run-of-River	Winooski River	Colchester/South Burlington	VT	3	Non-FERC jurisdiction	Recent Improvements: Gorge's two dams were built in 1914 and 1928. Recently, we installed a new runner to capture lower flows and an automated crest control rubber dam system. These improvements are expected to significantly increase the station's capacity of approximately 9,500 to 11,500 MWh per year.

Huntington Falls	107	Run-of-River	Otter Creek	Weybridge	VT	6.6	40-year FERC license No. 2558 expires in 2054	Former VMPD facility Recent Improvements: In 2015, we refurbished and uprated the turbine-generator on Unit 1 and Unit 2 (the turbine-generator on Unit 3 operates well and is in good repair), modernized the electrical system, and automated the plant.
Kelley's Falls	29	Run-of-River	Piscataquog River	Manchester	NH	0.4	FERC 40 year license P-03025 expires in 2024	
Marshfield #6	91	Dispatchable	Molly's Brook	Cabot	VT	5	Non-FERC jurisdiction	The dam is a rolled earth-fill construction built in 1927 with an additional spillway added in 1991. Because of the size and hazard classification of the Marshfield Dam, this facility falls under the PSB's dam safety regulation. Recent Improvements: We replaced the wood-stave penstock over a six-year timeframe, modernized the electric system, rebuilt the substation. In 2019 we rehabilitated the headgate and actuator, lined the conduit through the earthen dam. In 2019, 2020, and 2021 we performed major improvements to the primary spillway, added automated spillway gates, and penstock bypass following PUC approval. We are planning major improvements to the emergency spillway in 2022.
Mascoma	30	Run-of-River	Mascoma River	Lebanon	NH	2.05	FERC 40 year license P-08405 expires in 2027	Recent improvements include mechanical seal upgrades on Units 1 and 3, and PLC and controls upgrade.
Middlebury Lower	98	Run-of-River	Otter Creek	Middlebury	VT	2.25	FERC 30 year license No. 2737 that expires in 2031	Recent Improvements: In 2004, we modernized the electrical relay protection relays and control devices; in 2010, we installed a new generator step-up transformer. More recently, we made major structural improvements to the building, and rewound the generator.
Middlesex #2	90	Run-of-River	Winooski River	Middlesex	VT	3.2	Non-FERC jurisdiction	Minimal ponding facility originally built in 1928. Recent Improvements: We reconstructed the intake canal and headworks, and replaced the original turbine runners. In addition, 2020, a major Dam Stability project was performed by installing several rock anchors and resurfacing sections of the dam. We are planning a major electrical modernization in 2022.
Milton	89	Dispatchable	Lamoille River	Milton	VT	7.5	FERC 30 year license No. 2205 expires 2035	Recent Improvements: In 2002, we modernized the station's electrical system; in 2005, we installed an automated spillway crest control; and in 2007, we reconstructed the intake and headworks. More recently, we upgraded the governor controls and rewound the generator.
Newbury	14	Run-of-River	Wells River	Wells River	VT	0.42	FERC 50 year license P-05261 expires in 2023	Recent improvement include the replacement of the trash rack rake.
Ottawaquechee	94	Run-of-River	Ottawaquechee River	N Harland	VT	1.69	FERC exempt	Recent improvements include restoring the unit 1 machine to fully regulated Kaplan.
Passumpsic	90	Run-of-River	Passumpsic River	St Johnsbury	VT	0.7	FERC 40 year license No. 2400 expires in 2034	Recent Improvements: We improved the fish passage and resurfaced the concrete. Furthermore, in 2020 the facilities Control and Protection System was replaced with modern PLC.
Patch	97	Run-of-River	East Creek	Rutland	VT	0.4	Non-FERC jurisdiction	Recent Improvements: In 2011, Hurricane Irene significantly damaged the Patch station and flooded the plant. We thoroughly cleaned and replaced many electrical components, including a full rewind of the generator, and brought the unit back online in 2013.
Peterson	70	Dispatchable	Lamoille River	Milton	VT	6.35	FERC 30 year license No. 2205 expires in 2035	One of three facilities that comprise the ISO-NE resource called Lower Lamoille Composite. In 2019, we performed a major mechanical and electrical modernization project to improve safety, operations, and reliability. In 2020, we replaced the bascule gate system on the crest of the dam following major mechanical failure of the previous system.
Pierce Mills	90	Run-of-River	Passumpsic River	St Johnsbury	VT	0.25	FERC 40 year license No. 2396 expires in 2034	
Proctor	113	Dispatchable	Otter Creek	Proctor	VT	10.23	FERC 40-year license expires in 2054	Former VMPD facility (acquired by CVPS in 2011) Recent Improvements: We have fully restored this facility. In 2012, we built a vehicular bridge that spans Otter Creek at the station; in 2013, we extensively modified the intake headworks. After receiving authorization from FERC in 2014, we began modernizing the mechanical and electrical systems, and adding a new turbine-generator for increasing capacity. After FERC issued a new operating license in October 2014, we completed the work started earlier in the year: we replaced three turbine-generator sets and completely overhauled and rebuilt another turbine-generator unit. The facility became fully operational in the second quarter of 2015. In 2016, we completed FERC-required recreational improvements.
Rollinsford	35	Run-of-River	Salmon Falls River	Rollinsford	NH	1.5	FERC 40 year license P-03777 expires in 2021	
Salisbury	101	Dispatchable	Leicester River	Salisbury	VT	1.3	Non-FERC jurisdiction	Utilized for behind the meter load reduction; Recent Improvements: In 2011, we modernized the station's electrical switchgear, protection relays, and control devices; installed a new generator step-up transformer; and recoated sections of the penstock pipeline.
Salmon Falls	95	Run-of-River	Salmon Falls River	Berwick	ME	1.2	FERC 40 year license P-11163 expires in 2037	Recent improvements include mechanical overhaul of unit 3.
Silver Lake	102	Dispatchable	Sucker Brook	Leicester	VT	2.2	FERC 30 year license No. 11478 expires in 2039	Utilized for behind the meter load reduction; Recent Improvements: In 2008, we improved the stability of the Goshen and Silver Lake dams to meet FERC dam safety guidelines. In 2011, we automated the station components. We are currently underway with a large capital project to replace the water control device at the Goshen Reservoir. This work was directed by FERC and includes moving the control of water from the downstream end to the upstream side of the earthen dam conduit by construction of a new intake tower, bridge and valve system.
Smith	34	Run-of-River	Waits River	Bradford	VT	1.5	FERC Exempt No. 3051	Recent Improvements: In 2006, we replaced the Unit 1 turbine runner. More recently, we replaced the taintor gate control and a gearbox for Unit 2.

Somersworth (Lower Great Falls)	34	Run-of-River	Salmon Falls River	Somersworth	NH	1.28	FERC 40 year license P-04451 expires in 2022	Recent improvements include penstock replacement and electrical upgrades.
Taftsville	76	Run-of-River	Ottawaquechee River	Woodstock	VT	0.5	FERC 30 year license No. 2490 expires in 2024	Recent Improvements: In 2011, the Taftsville facility flooded extensively during Hurricane Irene. Since then, we cleaned up the site, modified the powerhouse, modernized the electrical equipment, and replaced the station's electrical switchgear, protection relays, and control devices, and its generator rewind.
Vergennes 9&9B	106	Run-of-River	Otter Creek	Vergennes	VT	2.4	FERC 30 year license expires 2029	Limited storage capacity facility. Recent Improvements: In 2010, we completely rebuilt the intake system, associated penstocks, and turbines of Units 1 and 2. In 2019 we replaced the penstock to Unit 9b. In 2021, we modernized the station's electrical system with new switchgear, relay protection, and controls.
Waterbury #22	65	Run-of-River	Little River	Waterbury	VT	5.52	FERC 40 year license expires in 2056	The dam was constructed in 1938 and received significant repairs in 2006. Although we operate the facility, the dam itself is owned by the State of Vermont. 2018 is the first year of operations under the new license regime as improvements were completed in June of 2018. The generation output has been reduced and the facility is no longer in the dispatchable market as the site transitions to a run-of-river operation. Recent Improvements: To best meet the FERC and 401 requirements while maximizing generation, we replaced the turbine runner with a runner that produces more efficiently at lower flows earlier this year. In 2019, we completed the FERC-required recreational projects. For the facility to move to true run-of-river, the State must repair gates on the dam. This is likely to occur in the next five to 10 years.
West Danville #1	101	Run-of-River	Joe's Pond	West Danville	VT	1	Non-FERC jurisdiction	Limited storage capacity facility. Recent Improvements: We resurfaced the dam in 1996. In 2011, Hurricane Irene significantly damaged the facility, which we repaired in 2014. In 2014, we upgraded the penstock from the surge tank to the powerhouse. In 2016, we upgraded the dam control system; in 2017, we overhauled the unit because of mechanical failures. Recently, in 2018, we modernized the PLC equipment up at the intake.
West Hopkinton	35	Run-of-River	Contoocook River	W Hopkinton	NH	1.12	FERC exempt	Recent improvements include penstock replacement to and mechanical overhaul of unit 1.
Weybridge	67	Dispatchable	Otter Creek	Weybridge	VT	3	FERC 30 year license No. 2731 expires in 2031	Utilized for behind the meter load reduction; In 2019, we replaced the SCADA system with modern equipment. Currently, a project is underway to replace the gantry crane hoist systems with modern equipment.
TOTAL						116.74		