

BEFORE THE NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION

The City of Holyoke Gas & Electric Department  
Application for Certification of Class IV for the Existing  
Small Hydroelectric Facilities Pursuant to RSA 362-F

Docket No. DE 10-151

BRIEF OF THE CITY OF HOLYOKE GAS  
& ELECTRIC DEPARTMENT

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Pursuant to Public Utilities Commission ("Commission" or "PUC") Rule 203.32 and the Commission's January 31, 2011, order, the City of Holyoke Gas & Electric Department ("HG&E") hereby submits its brief in support of the Application (submitted in this proceeding on June 2, 2010) for certification of fourteen hydro stations ("Hydro Facilities") as Class IV renewable energy sources pursuant to RSA 362-F (New Hampshire's Renewable Portfolio Standard, "NH RPS Law"). As demonstrated herein, each of the Hydro Facilities at issue in this proceeding has a gross nameplate capacity less than 5 MW (including all turbines/generators within the Hydro Facility).<sup>1</sup> Further, HG&E owns and operates fish passage facilities at the Holyoke Dam that enable diadromous fish to pass upstream and downstream on the Connecticut River, avoiding the Hydro Facilities located on the HG&E Canal System adjacent to the Holyoke Dam.

Class IV certification of the Hydro Facilities is consistent with the language and intent of the NH RPS Law. Accordingly, HG&E requests that the Commission reverse its August 2010 determination in this proceeding and affirm Class IV certification for the Hydro Facilities.

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<sup>1</sup> See Facilities Information Table (HG&E Application, Appendix A), included in Stipulation Appendix A (also included in Appendix A to this Brief at page A-1, for the convenience of the Commission).

I.

**Background**

On June 2, 2010, HG&E's Application for Class IV status under the NH RPS Law was received by the Commission and docketed as No. DE 10-151 ("Application"). No parties intervened or sought to participate in the proceeding. HG&E supplemented its application and provided additional information on June 14 and June 30, 2010, respectively.

The Commission Staff issued a memorandum dated July 26, 2010 ("July 2010 Memorandum") recommending to the Commission that HG&E's Application be denied solely because the Hydro Facilities "do not each have both upstream and downstream diadromous fish passages." On August 12, 2010, the Commission issued a letter denying HG&E's request ("August 2010 Letter") on the sole basis, as recommended by the Commission Staff, that NH RPS Law required that an existing facility has "installed both upstream and downstream diadromous fish passages and such installations have been approved by the Federal Energy Regulatory Commission." On September 9, 2010, HG&E submitted a Motion requesting that the Commission reconsider and reverse its August 2010 determination, granting HG&E Class IV certification for the Hydro Facilities.

By order issued October 28, 2010 (Order No. 25,160, referred to herein as "October 2010 Order", as supplemented on November 17, 2010), the Commission set this matter for adjudicative hearing. On December 1, 2010, Granite State Hydropower Association ("GSHA") filed a petition to intervene in this proceeding.

A prehearing conference was held on December 7, 2010 ("Prehearing

Conference"). Based on discussions at that Prehearing Conference and pursuant to the Commission's subsequent order issued January 31, 2011, HG&E, Commission Staff and GSHA (jointly referred to herein as "Parties") submitted Stipulated Findings of Fact on February 11, 2011 ("Stipulation"). HG&E submits its Brief pursuant to the procedural schedule set out in the Commission's January 2011 order.

## **II.**

### **Facts at Issue**

#### **A. The Fourteen Hydro Facilities**

As demonstrated on Figures 1 and 3 in HG&E's Application and stipulated to by the Parties,<sup>2</sup> the Hydro Stations at issue are located in the City of Holyoke's 4.5 mile cascading Canal System adjacent to the Holyoke Dam on the Connecticut River. The following six stations at issue in this proceeding are covered by the Federal Energy Regulatory Commission ("FERC") license for Project No. 2004<sup>3</sup> (see Stipulation, pages 1-2) issued under the Federal Power Act ("FPA"): Boatlock Station (3.23 MW), Beebe-Holbrook Station (0.25 MW), Skinner Station (0.3 MW), Riverside 4-7 Station (3.04 MW), Riverside 8 Station (4 MW), and Chemical Station (1.6 MW). In addition, the "FERC has separately licensed the remaining eight stations at issue in this proceeding: Holyoke No. 1 Station (1.056 MW, FERC

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<sup>2</sup> See Stipulation Appendix B, Figures 1 and 3 (also included in Appendix B to this Brief at pages B-1 and B-3).

<sup>3</sup> 88 FERC ¶ 61,186 (1999); as amended 111 FERC ¶ 61,106 (2005) (HG&E Application, Appendix B), selected pages included in Stipulation Appendix C (also included in Appendix C to this Brief at pages C-1 through C-17). Although HG&E was not the licensee at the time of the 1999 FERC License, HG&E understands that its predecessor sought and obtained only one FPA license for the separate stations for administrative convenience.

Project No. 2386<sup>4</sup>), Holyoke No. 2. Station (0.8 MW, FERC Project No. 2387<sup>5</sup>), Holyoke No. 3 Station (0.45 MW, FERC Project No. 2388<sup>6</sup>), Holyoke No. 4 Station (0.375 MW, FERC Project No. 7758<sup>7</sup>), Albion Mill A Station (0.312 MW, FERC Project No. 2768<sup>8</sup>), Albion Mill D Station (0.5 MW, FERC Project No. 2766<sup>9</sup>), Gill Mill D Station (0.45 MW, FERC Project No. 2775<sup>10</sup>) and Valley Hydro/ No. 5 Station (0.79 MW, FERC Project No. 10806<sup>11</sup>).

The Holyoke No. 1 Station, Holyoke No. 2 Station, and Holyoke No. 4 Station are all between the First Level Canal and the Second Level Canal. The Holyoke No. 3 Station is located on the Second Level Canal and discharges to the Third Level of the Canal. The Albion Mill A Station, Albion Mill D Station, Gill Mill D Station, and Valley Hydro/Station No. 5 are located on the Second Level Canal and discharge into the River.

As confirmed in the Stipulation (page 2), water enters the Canal System on the First Level Canal through the Gatehouse and subsequently through the full depth louver structure adjacent to the Holyoke Dam on the Connecticut River, as shown on

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<sup>4</sup> 46 FERC ¶ 62,229 (1989) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

<sup>5</sup> 44 FERC ¶ 62,310 (1988) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

<sup>6</sup> 44 FERC ¶ 62,309 (1988) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

<sup>7</sup> 116 FERC ¶ 62,128 (2006) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

<sup>8</sup> 47 FERC ¶ 62,298 (1989) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

<sup>9</sup> 47 FERC ¶ 62,307 (1989) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

<sup>10</sup> 47 FERC ¶ 62,297 (1989) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

<sup>11</sup> 51 FERC ¶ 62,314 (1990) (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C.

Figure 2 of HG&E's Application.<sup>12</sup> Water exits the Canal System into the River through the Chemical Station and #4 Overflow located on the Canal System's Third Level and through Valley Hydro/No. 5, Albion Mill A, Albion Mill D, Gill Mill D, Riverside 4-7 and Riverside 8 Stations and through 5 other hydroelectric stations not at issue in this proceeding (the Crocker AB, Crocker C, Gill Mill A, Nonotuck and Mt. Tom Projects) located on the Canal System's Second Level.

The parties have stipulated that the fourteen Hydro Facilities at issue in this proceeding have the following characteristics (see Stipulation at page 3):

- Each Station commenced operation prior to January 1, 2006.
- Each Station is located on the Canal System in a different location.
- Each Station is physically and electrically separate with its own intake, penstock, powerhouse and tailrace facility; and with its own separate electrical system and metered separately.
- Each Station is covered by a FERC license.
- Each Station is covered by a Massachusetts Department of Environmental Protection ("MADEP") Water Quality Certification ("WQC") or the requirement for a WQC is waived (as noted on the Stipulation Appendix A).

Therefore, based on the Stipulation of the parties and supported by prior pleadings and orders in this proceeding, it is undisputed that the Hydro Facilities are separate facilities that were operational prior to the trigger date under the NH RPS Law, and that each of the Hydro Facilities is covered by an FERC license and a MADEP WQC (unless the requirement for WQC was expressly waived).

#### **B. The Fish Passage Facilities**

HG&E acquired the Holyoke Project in 2001 with some existing fish passage facilities and thereafter began implementing significant enhancements.<sup>13</sup> As

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<sup>12</sup> See Stipulation Appendix B, Figure 2 (also included in Appendix B to this Brief at page B-2).

<sup>13</sup> See 111 FERC ¶ 61,106 at 61,524 and 61,532-45 (HG&E Application, Appendix B), included in Stipulation Appendix C (also included in Appendix C to this Brief at pages C-2 and C-4 through C-17).

described in the Stipulation (page 2) and affirmed by federal and state agencies with documentation in the FERC's orders issued August 20, 1999, and April 29, 2005, the six stations at issue in this proceeding that are licensed under FERC Project 2004 (*i.e.*, Boatlock, Beebe-Holbrook, Skinner, Riverside 4-7, Riverside 8, and Chemical Stations) are "collectively served by upstream fish passage facilities and downstream fish passage facilities." Furthermore, the FERC and four federal and state resource agencies (*i.e.*, the U.S. Department of Interior Fish & Wildlife Service; the U.S. Department of Commerce National Marine Fisheries Service; the MADEP; and the Massachusetts Department of Fish and Game) have found that the HG&E fish passage facilities operated at the Holyoke Dam would provide the most efficient and effective passage for diadromous fish at this point of the Connecticut River, keeping the fish out of the Canal System.<sup>14</sup> As affirmed by these federal and state agencies, HG&E's fish passage facilities provide fish passage protection for the remaining eight stations located on the Canal System at issue in this proceeding (*i.e.*, Holyoke No. 1, Holyoke No. 2, Holyoke No. 3, Holyoke No. 4, Albion Mill A, Albion Mill D, Gill Mill D, and Valley Hydro/ No. 5 Stations).

1. Fish passage facilities prior to  
HG&E ownership in 2001.

The Application in this proceeding documents the extensive fish passage facilities that are operated and maintained by HG&E in connection with the stations at issue in this proceeding.<sup>15</sup>

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<sup>14</sup> 111 FERC ¶ 61,106 at 61,524 (HG&E Application, Appendix B), included in Stipulation Appendix C (also included in Appendix C to this Brief at page C-2).

<sup>15</sup> See Application at pages 4-7 and Figure 2; *see also* Stipulation at pages 3-4 and Stipulation Appendix B, Figure 2 (Figure 2 is included in Appendix B to this Brief at page B-2).

As described in the Final Environmental Impact Statement (issued in July 1999),<sup>16</sup> as of 1999 the upstream fish passage facilities at the Holyoke Dam consisted of two fishlifts – one serving the Dam tailrace and one serving the Dam Bypass Reach. Each fishlift consisted of an entrance, a crowding bay, a lift bucket, and a lift elevator. Furthermore, as of 1999 downstream fish passage was facilitated through a Bascule Gate at the Holyoke Dam which discharged into the Bypass Reach next to the spillway fishlift. In addition, a partial-depth louver array in the First Level Canal served to help guide downstream migrating fish away from entering the Canal System to a bypass structure (a 3-foot steel pipe) through which the fish were returned to the Dam tailrace.

2. HG&E enhancements to fish passage facilities since acquisition in 2001.

As more fully discussed below (and discussed in the FERC's 2005 Order<sup>17</sup>), since HG&E's acquisition of the Holyoke Project in 2001, the tailrace and spillway fishways/fishlifts have been rebuilt undergone substantial enhancements for upstream fish passage, eel ladders installed for upstream passage, and full depth louvers installed for downstream fish passage, at significant expense to HG&E. Further, flows at the Dam are regulated by HG&E to facilitate enhanced fish protection and passage in the Bypass Reach. These modifications and enhancements have been made in consultation with the federal and state resource agencies and other stakeholders, and approved by the FERC and the MADEP. As

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<sup>16</sup> Final Environmental Impact Statement, Holyoke Hydroelectric Project (Massachusetts), FERC Project No. 2004 (issued July 1999).

<sup>17</sup> 111 FERC ¶ 61,106 at 61,532-45 (HG&E Application, Appendix B), included in Stipulation Appendix C (also included in Appendix C to this Brief at pages C-4 through C-17).



determined best for the fisheries resource working with the federal and state agencies, these enhancements undertaken by HG&E are all focused on moving fish along the River and keeping them out of the Canal System.

Specifically for upstream fish passage, since 2001 HG&E has: (1) replaced the tailrace lift tower, auxiliary equipment, and hopper (approximately one-third larger than the existing hopper) to accommodate 33 cubic feet per minute capacity; (2) replaced the spillway lift tower, auxiliary equipment, and hopper (approximately doubling the size of the old hopper) to accommodate 46 cubic feet per minute capacity; (3) increased the crowding channel from the prior 10 ft to approximately 35 ft.; (4) increased the width of the spillway transport channel to an average width of 6 feet, and increased the length of the transport channel from 30 ft. to approximately 70 ft.; (5) modified the exit flume to accommodate the new spillway fishlift location and to widen the flume from 3 ft. to 7 ft.; (6) increased the width of fish exit channel up to a maximum of 14 feet between the fishlift towers and fish counting station, and added a backlit panel at the counting station to aid in the enumeration and identification of fish passing; (7) modified the attraction water supply system to provide up to 200 cfs at the spillway fishlift entrance and 120 cfs at each of the tailrace fishlift entrances to better attract migrating fish; and (8) removed approximately 350 cubic yards of bedrock outcropping at the west tailrace fishlift entrance.

In addition, since 2001 HG&E has installed and operates facilities specifically designed for upstream passage of American eels. These facilities include eel ladders on the Holyoke side located inside the entrance to the tailrace and spillway

fishlifts and located outside the spillway entrance in the Bypass Reach (all provided with attraction flows), and a permanent eel ramp on the South Hadley side of the Project (also provided with attraction flows).

Specifically for downstream fish passage, after taking ownership of the Holyoke Project, HG&E replaced the partial-depth louvers with full-depth louver at the entrance to the Canal System and an associated bypass pipe. The full-depth louvers begin approximately 500 ft downstream of the Canal gatehouse, are approximately 500-ft long, and are angled across the entrance to the First Level Canal. The louvers guide fish to the bypass pipe which transports migrating fish to the tailrace of the Holyoke Dam away from the Hydro Facilities in the Canal System. In the event that the louver facility is not operational, the Canal System will not be operated and the headgates will be closed preventing water and fish from entering the Canal System.

Testing of the partial-depth louvers (prior to HG&E's installation of the full-depth louvers) demonstrated effective guidance for salmon smolts and juvenile shad and herring away from the Canal System (*i.e.*, over 97%). Effectiveness testing of the full-depth louvers after installation by HG&E affirmed that high level of efficiency for guiding salmon smolts and juvenile shad and herring, and affirmed 100% guidance efficiency for juvenile shortnose sturgeon. These reports were filed with the FERC and MADEP and accepted. Therefore, downstream migrating fish are guided away from the Canal System by the fish passage facilities.

To further enhance downstream fish passage, in 2001 HG&E installed the rubber dam comprised of five 3.5 ft high sections on the spillway crest of the

Holyoke Dam. The sections are automated with a programmable control system to deflate sequentially at the pond elevation settings such that the Holyoke pond will not drop below the minimum pond elevation, but the Rubber Dam sections can also be operated manually if needed. HG&E also modified the Downstream Sampling Facility to enhance downstream passage of diadromous fish.

HG&E releases specific minimum flows into the Bypass Reach of the Holyoke Dam during fish passage season (when the fishlifts are operating) to enhance the ability of the fish to locate the fishlift entrances. During periods when the fishlifts are not operating HG&E releases a different specific minimum flow into the bypass reach to enhance fish habitat below the Dam. Further, since 2001 HG&E has implemented studies of potential modified run-of-river operations at the Holyoke Project with such re-regulation being of benefit to diadromous fish. Based on its cumulative analysis of potential modified run-of-river operations (with studies undertaken in 2004 through 2007), HG&E found the modified mode of operation to provide enhancements to fish passage (and other natural resources). Therefore, with FERC and MADEP approval HG&E is now continuing operating under a modified run-of-river protocol for a trial period before finalizing that protocol.

3. HG&E's ongoing research, studies and plans to further enhance fish passage.

In addition to the extensive work since 2001, since its acquisition HG&E has undertaken nearly a decade of additional research and studies relating to fish passage at the Holyoke Dam, including: (i) five years of flume studies at the Conte and Alden Laboratories ("Alden") (analyzing potential configurations of such a

downstream fish bypass at the Dam for eels and shortnose sturgeon); (ii) eight-plus years of computational fluid dynamic ("CFD") studies by Alden (evaluating flows approaching and exiting the Dam and associated facilities, and how such flows would be affected by potential additional fish passage enhancements); (iii) three-years of shortnose sturgeon radio tracking studies and one year of American eel radio tracking studies; and (iv) desk-top analysis of downstream fish passage efficiency at the Holyoke Dam based on the flume testing data. The radio tracking studies have demonstrated that passage efficiency by all routes at the Project is high (89%), demonstrating the effectiveness of the fish passage facilities at the Holyoke Project (associated with the Hydro Facilities). In addition, turbine-passage mortality analysis of shortnose sturgeon based on a desktop study and of juvenile American shad at the existing Hadley Falls Station have been analyzed; demonstrating high fish passage efficiencies and low turbine mortality.

The studies and analysis performed have provided, and the additional studies to be performed will provide, additional data on fish passage in connection with the Holyoke Dam. All such studies have been done in close consultation with the federal/state resource agencies and other stakeholders.

The fish passage facilities at the Dam and the studies and analysis performed and to be performed with respect to fish passage on the River are directly related to the Hydro Facilities because the goal is to continue to keep fish migrating upstream and downstream at the Holyoke Dam without entering the Canal System where the Hydro Facilities are located.

4. FERC and MADEP findings on fish passage relative to the Hydro Facilities.

The FERC and MADEP have expressly recognized that these fish passage facilities are associated with the Hydro Facilities at issue in this proceeding – thus meeting the requirements of the NH RPS law.

With respect to the six stations at issue in this proceeding that are covered by the FERC Project 2004 License, the FERC has clearly confirmed that License Articles 410 through 413 deal with “upstream passage, downstream passage, eel passage, and monitoring such passage”<sup>18</sup> and HG&E provides “minimum flows for the bypassed reach, and upstream and downstream fish passage.”<sup>19</sup> With respect to the remaining eight stations at issue in this proceeding, since 2001 when HG&E acquired the Holyoke Dam, FERC has determined that the fish passage facilities and requirements under the Project 2004 License address fish resource issues under the separate FERC licenses for those eight Hydro Facilities (*i.e.*, not covered by the Project 2004 License) by facilitating fish passage on the River and preventing fish from entering the Canal System.<sup>20</sup> FERC has consistently referred to the Project 2004 License for implementation of fish passage.

The MADEP has also considered the fish passage facilities under the Project 2004 License to cover the Hydro Facilities which are in the Canal System. For example, in its letter dated May 14, 2009, covering the Albion Mill A, Albion Mill D

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<sup>18</sup> 111 FERC ¶ 61,106 at 61,526 (HG&E Application, Appendix B), included in Stipulation Appendix C (also included in Appendix C to this Brief at page C-3).

<sup>19</sup> *Id.* at 61,532-34 (HG&E Application, Appendix B), included in Stipulation Appendix C (also included in Appendix C to this Brief at pages C-4 through C-6).

<sup>20</sup> *See, e.g.*, 116 FERC ¶ 62,128 (2006), relicensing the Holyoke No. 4 Station, FERC Project No. 7758 (HG&E Application, Appendix B); selected pages included in Stipulation Appendix C (pages also included in Appendix C to this Brief at pages C-18 through C-27).

and Gill Mill D Stations, the MADEP confirmed that they “consider the recently issued water quality certification for FERC Project 2004 to apply to these eight Projects.”<sup>21</sup> Further, by letter dated April 10, 2006, covering the Holyoke No. 4 Station, the MADEP stated that the 401 WQC for the Holyoke Project, FERC Project No. 2004, contained “all the conditions necessary to meet State water quality standards for the Holyoke No. 4 Project (FERC Project No. 7758).”<sup>22</sup> Finally, by letter dated May 25, 2010, covering Holyoke Nos. 1, 2 and 3 Stations and the Valley Hydro/Station No. 5 the MADEP confirmed that those were also covered by “the water quality certification for FERC Project 2004.”<sup>23</sup>

### III.

#### **Certification is Consistent with the Language and the Intent of the NH RPS Law.**

This proceeding involves a question of interpretation of two elements of the Class IV certification criteria under the NH RPS Law – the term “facility” and the phrase “actually installed” with respect to fish passage facilities. The Commission’s denial of certification for the fourteen stations is not required by the language of the Law, as enacted in 2007 or amended in 2009, and is not consistent with the language and intent of the Law.

#### **A. The 2007 NH RPS Law**

The NH RPS Law was enacted in 2007 based on House Bill 873 (the

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<sup>21</sup> See MADEP Letter dated May 14, 2009, letter for Project Nos. 2772, 2775, 2771, 2487, 2768, 2766, 2758 and 2770, included in Stipulation Appendix C (also included in Appendix C to this Brief at page C-28).

<sup>22</sup> See MADEP Letter dated April 10, 2009, letter for Project No. 7758, included in Stipulation Appendix C (also included in Appendix C to this Brief at pages C-29 through C-30).

<sup>23</sup> See MADEP Letter dated May 24, 2010, letter for Project Nos. 2386, 2387, 2388 and 10806, included in Stipulation Appendix C (also included in Appendix C to this Brief at page C-28).

Renewable Portfolio Standard enacted as RSA 362-F, "RPS Law") with the stated finding that it is "in the public interest to stimulate investment in low emission renewable energy generation technologies in New England ... whether at new or existing facilities." (RSA 362-F:1).

At the April 17, 2007 hearing before the Senate Committee on Energy, Environment and Economic Development on House Bill 873 ("April 2007 Hearing," included in Appendix D to the Stipulation), numerous persons affirmed that the NH RPS Law was based on an analysis of the renewable portfolio standards enacted by other New England States<sup>24</sup>, and that New Hampshire was the only state in New England without a renewable portfolio standard.<sup>25</sup> Numerous meetings were held with stakeholders to develop the NH RPS Law, focusing on definitions and other details of the proposed law.<sup>26</sup> The economic analysis supporting the NH RPS Law drew upon the renewable portfolio standards in 23 other states, recognizing the regional nature of the electricity market.<sup>27</sup> During that April 2007 Hearing, the negative impact on developers by future changes in criteria and definitions under the

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<sup>24</sup> See Statement of Senator Martha Fuller Clark (Senate prime sponsor of the legislation), April 2007 Hearing, Transcript at 2 ("crafted after looking at the successes and strengths of the other RPS legislation"), included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-2).

<sup>25</sup> See, e.g., Statement of Representative Suzanne Harvey (House prime sponsor of the legislation), April 2007 Hearing, Transcript at 4, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-4); and Statement of Director Robert Scott, Air Resources Division, NH Department of Environmental Services, April 2007 Hearing, Transcript at 7, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-5).

<sup>26</sup> See, e.g., Statement of Representative Harvey, April 2007 Hearing, Transcript at 3, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-3); and Statement of Director Amy Ignatius, Office of Energy and Planning, April 2007 Hearing, Transcript at 20, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-10).

<sup>27</sup> See Statement of Director Scott, April 2007 Hearing, Transcript at 7, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-5); and Statement of Dr. Ross Gittel, University of New Hampshire, April 2007 Hearing, Transcript at 16 and 19, included in Stipulation Appendix D (also included in Appendix D to this Brief at pages D-7 and D-9).

RPS Law was also recognized.<sup>28</sup> The NH RPS Law was intended not only to incentivize new renewable projects, but also to support existing renewable generation,<sup>29</sup> to ensure that existing projects remained viable.<sup>30</sup>

#### **B. The 2009 Amendment**

In 2009, House Bill 229 enacted two clarifications of the RPS Law Class IV hydro definition ("2009 Amendment"): (i) confirming that the facility capacity requirement was to include all turbines at the facility; and (ii) confirming that there were to be installed fish passage that met with FERC approval.<sup>31</sup> Representative Harvey defined the 2009 Amendment as "housekeeping for clarification purposes."<sup>32</sup>

Specifically in the 2009 Amendment, the definition of Class IV in Section 362-F:4, IV(a) under the RPS Law was amended to change the word "source" relative to the production of electricity from hydroelectric energy to "facility" and to substitute "total" for "gross" in the context of the "nameplate capacity" of the facility. In addition, language was added to the definition to confirm that the measurement of capacity of the facility would be based on "the sum of the nameplate capacities of all the generators at the facility." Finally, as relevant to this proceeding, additional

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<sup>28</sup> As affirmed by Dr. Gittell, April 2007 Hearing, Transcript at 16, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-7); Director Ignatius, April 2007 Hearing, Transcript at 20, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-10); and Mr. Magnusson, April 2007 Hearing, Transcript at 16, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-7).

<sup>29</sup> See Statement of Ms. Alice Chamberlin on behalf of Governor Lynch, April 2007 Hearing, Transcript at 12, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-6).

<sup>30</sup> See Statement of Director Scott, April 2007 Hearing, Transcript at 7, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-5).

<sup>31</sup> See, e.g., Statement of Joanne Morin, NH Department of Environment Services, at the Hearing before the Senate Committee on Energy, Environment and Economic Development on House Bill 229 on April 9, 2009 ("April 2009 Hearing," included in Appendix D to the Stipulation), Transcript at 4 (included in Appendix D to this Brief at page D-15).

<sup>32</sup> See Statement of Representative Harvey, April 2009 Hearing, Transcript at 1, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-13).



language was added to the definition to confirm that both upstream and downstream passages for diadromous fish were to be installed and approved by the FERC.

The 2009 Amendment did not include a definition of the term “facility.” As affirmed in the legislative history for House Bill 229 (included in Appendix D to the Stipulation), the focus of the 2009 Amendment was to confirm that each turbine or generator of a facility was not intended to be analyzed separately for the purpose of applying the 5 MW limit.<sup>33</sup> Further, the language added to the definition with respect to fish passage facilities in the 2009 Amendment did not require that such fish passage facilities be physically connected to the hydro facility involved. As affirmed in the legislative history for House Bill 229 with respect to fish passage, the focus of the change in language was on the difference between: (i) requests for Class IV certification where upstream and downstream fish passage facilities were not both present because both/either were not required by the FERC [as involved in the Commission’s *Public Service Company of New Hampshire* proceeding (“PSNH”) and *FPL Energy Maine Hydro, LLC* (“FPLE”) proceedings<sup>34</sup>], and (ii) requests for Class IV certification where both upstream and downstream fish passage facilities were installed and operational.<sup>35</sup>

**C. Each of the Hydro Facilities at Issue Here Qualifies as a “Facility” under the NH RPS Law.**

In its August 2010 determination, the Commission specifically relies on the

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<sup>33</sup> See, e.g., Statement of Ms. Morin, April 2009 Hearing, Transcript at 4, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-15).

<sup>34</sup> PSNH, Docket No. 08-053; and FPLE, DPUC Docket Nos. 08-123 and 08-124; Order No. 24,940 (dated February 6, 2009) and Order No. 24,952 (dated March 23, 2009).

<sup>35</sup> See Statement of Representative Harvey, April 2009 Hearing, Transcript at 2 and Attachment #1, included in Stipulation Appendix D (also included in Appendix D to this Brief at pages D-14 and D-17 through D-18); Statement of Commissioner Clifton Below, April 2009 Hearing, Transcript at 7, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-16).

findings and recommendations in the Staff's Memorandum as a basis for the denial of HG&E's Application – referencing only the fish passage issue. However, based on comments at the December 2010 Prehearing Conference in this proceeding, it appears that the Commission Staff would now also seek to have the Commission deny the Application on the basis of combining the capacity of the fourteen Hydro Facilities.<sup>36</sup> Such a determination is not supported by the NH RPS Law and is contrary to commonly used industry definition of the term "facility."

The RPS Law does not contain a definition of the term "facility" (neither in the original 2007 legislation, nor in the 2009 Amendment) and, therefore, does not support an argument by the Commission Staff that stations must be combined when analyzing a "facility" under the NH RPS Law. Furthermore, the Commission has not defined the term "facility" or "station" in its RPS regulations (PUC Rules Chapter 2500). As explained above, the only clarification of what was intended under the Law as to the term "facility" was contained in the 2009 Amendment stating that, for purpose of determining the total nameplate capacity of a facility, all generators/turbines were to be cumulated. Neither the NH RPS Law nor the Commission's Rules require the combination of multiple stations for the purpose of analysis of Class IV eligibility.<sup>37</sup>

The U.S. Department of Energy, Energy Information Administration ("EIA"), defines the term "facility" as a:

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<sup>36</sup> See, e.g., Statement of Suzanne Amidon, Esq., for PUC Staff, DPUC Docket No. DE 10-151, Prehearing Conference ("Prehearing Conference"), Transcript at 15.

<sup>37</sup> As noted above, HG&E understands that its predecessor included multiple stations in Project No. 2004 when it was originally licensed as a matter of administrative convenience. The fact that multiple stations at issue in this proceeding are covered by the Project No. 2004 license has no relevance to the eligibility of these stations for NH RPS Class IV certification. The term "facility" used under the RPS Law is not defined as equal to the term "project" defined under the FPA.

"location or site at which prime movers, electric generators, and/or equipment for converting mechanical, chemical, and/or nuclear energy into electric energy are situated, or will be situated. A facility may contain more than one generator of either the same or different prime mover type."<sup>38</sup>

Similarly, EIA defines a "plant" as:

"a facility at which are located prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or nuclear energy into electric energy. A plant may contain more than one type of prime mover."<sup>39</sup>

Therefore, EIA considers the term "facility" and the term "plant" to be synonymous.

The terms "station" and "generating station" are not defined by EIA. However, as commonly used, a "generating station" is a "stationary plant containing apparatus for large-scale conversion of some form of energy (such as hydraulic, steam, chemical, or nuclear energy) into electrical energy. Also known as generating plant; power station."<sup>40</sup> Therefore, the terms "generating station", "station", "plant" and "facility" are considered synonymous. Where there is no express definition under NH RPS Law, HG&E's Hydro Facilities at issue in this proceeding are clearly "facilities."<sup>41</sup>

As explained above and confirmed in the Stipulation, each of the fourteen Hydro Facilities at issue in this proceeding are small hydro, with a gross nameplate

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<sup>38</sup> See [www.eia.doe.gov/cneaf/electricity/page/glossary.html#ef](http://www.eia.doe.gov/cneaf/electricity/page/glossary.html#ef). A "prime mover" is defined as "the engine, turbine, water wheel, or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity directly (e.g., photovoltaic solar and fuel cell(s))."

<sup>39</sup> *Id.*

<sup>40</sup> McGraw-Hill Dictionary of Scientific & Technical Terms, 6E, 2003; see <http://encyclopedia2.thefreedictionary.com/generating+station>.

<sup>41</sup> Even GSHA has equated the term "facility" with "station" in interpreting the NH RPS Law in other DPUC proceedings, as acknowledged in the Commission's Order No. 24,940, at page 11, in the *PSNH* and *FPLE* cases. In its Brief (page 4) filed in those proceedings on November 24, 2008, GSHA referred to a "source" as "a generating facility, project or station" (differentiating such a facility or station from "an individual generating unit within a facility..." (emphasis in original). Further in that Brief (at page 5), GSHA again discussed the terms stating: "what is commonly called a 'facility', 'project', or 'station', i.e., a single site at which hydroelectric power is produced ..."

capacity of less than 5 MW. Each station is physically and electrically separate – as confirmed in the Stipulation (page 3). Some of the stations have multiple turbines and generators – but HG&E is not seeking in its Application to separately certify each of those turbines/generators. Rather, HG&E is seeking to certify each station consistent with the RPS Law.

**D. The HG&E Stations are Facilities under Connecticut RPS Law.**

In enacting the NH RPS Law, the legislators affirmed that they were relying on analysis of renewable portfolio standards established by other states in New England, including the Connecticut RPS Law.<sup>42</sup> The Connecticut RPS Law contains a specific definition for the term “facility.” Yet in adopting the NH RPS Law, the legislators did not include their own definition of the term. It is reasonable to argue that, in deciding not to develop their own definition of the term “facility”, the NH legislators were relying on a term that was defined in the RPS law of other New England states, *e.g.*, under Connecticut RPS Law.

Under Connecticut RPS Law, a “Class II renewable energy source” is energy derived from, *inter alia*, “a run-of-river hydropower facility provided such facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the riverflow, and began operation prior to July 1, 2003.”<sup>43</sup> On September 10, 2004, the Connecticut Department of Public Utility Control (“CT DPUC”) issued a Declaratory Ruling in Docket No. 04-02-07 (“CT Ruling”) to clarify its general

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<sup>42</sup> See, Statement of Matt Magnusson, University of New Hampshire, April 2007 Hearing, Transcript at 17 (specifically noting that the Connecticut RPS Law defined qualification differently from the NH RPS Law with respect to trash burning – no other distinguishing factors were presented or discussed), included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-8).

<sup>43</sup> Conn. Gen. Stat. §16-1(a)(27).

framework for Connecticut RPS Law implementation. The focus of the CT Ruling was to confirm that qualified facilities must be operated as run-of-river and to confirm that it would not certify individual generating units in a hydroelectric facility as eligible for separate Connecticut RPS Law certification (*i.e.*, the issue addressed in the NH RPS Law 2009 Amendment). As particularly relevant to this proceeding, the CT Ruling (at page 2) found that “[i]n the energy industry, the term “facility” commonly refers to an entire electric power generating plant, which may utilize a number of turbine generating units, at a single site and those associated transmission lines connecting the generating plant to either a power transmission system or interconnected primary transmission system or both.” The CT Ruling further referenced (at page 4) the California interpretation of “facility” as an “entire plant at a site, not each turbine generating unit.”

The CT DPUC has expressly found that the HG&E Hydro Facilities at issue in this proceeding qualified under the Connecticut RPS based on that definition of “facility.” In 2005 the DPUC specifically found that the Beebe Holbrook, Boatlock, Chemical, Holyoke No. 1, Holyoke No. 2, Holyoke No. 3, Holyoke No. 4, Riverside 4-7, Riverside 8, Skinner, and Valley Hydro/No. 5 Stations – all at issue in this proceeding (*i.e.*, the stations that HG&E owned at that time) – each qualified separately under the Connecticut RPS Law.<sup>44</sup> In 2008, the DPUC specifically found that the Albion Mill A, Albion Mill D or Gill Mill D Stations – all at issue in this

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<sup>44</sup> See Application, Appendix D: Beebe Holbrook, Docket No. 04-01-28RE01 (November 23, 2005); Boatlock, Docket No. 04-01-29RE01 (November 23, 2005); Chemical, Docket No. 04-01-30RE01 (November 23, 2005); Holyoke Nos. 1 through 4, Docket No. 04-01-31RE01 (November 23, 2005); Riverside 4-7, Docket No. 04-01-32RE01 (November 23, 2005); Riverside 8, Docket No. 04-01-33RE01 (November 23, 2005); Skinner, Docket No. 04-01-34RE01 (November 23, 2005); and Valley Hydro/No. 5, Docket No. 04-01-35RE01 (December 14, 2005).

proceeding (*i.e.*, the stations that HG&E acquired after 2005) – also each qualified separately under the Connecticut RPS Law.<sup>45</sup> The CT DPUC determinations included a specific finding that each of the stations was a “Facility” under Connecticut RPS Law – as “an entire hydroelectric plant at a single site.”<sup>46</sup> A similar determination is appropriate in this proceeding.

**E. HG&E’s Fish Passage Facilities Provide Passage for all HG&E Stations.**

The sole basis of the Commission’s August 2010 denial of certification was its determination that the Hydro Facilities at issue “do not each have both upstream and downstream diadromous fish passage.” However, such a determination is contrary to the evidence and the repeated affirmation by the federal and state resource agencies that HG&E’s facilities at the Holyoke Dam provide fish passage protections for the Hydro Stations in the Canal System.

It is undisputed<sup>47</sup> that HG&E has installed and operates, with FERC approval, extensive upstream and downstream fish passage facilities at the Holyoke Dam as described above. These facilities provide upstream and downstream passage for anadromous fish (including American shad, sea lamprey, striped bass, gizzard shad, Atlantic salmon, and blueback herring), catadromous fish (American eel), and

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<sup>45</sup> See Application, Appendix D: Albion Mill A, Albion Mill D and Gill Mill D, CT DPUC Docket No. 08-44-11 (order issued June 11, 2008) (also included in Appendix E to this Brief at pages E-1 through E-5).

<sup>46</sup> See, *e.g.*, CT DPUC Order for Holyoke Nos. 1 through 4, Docket No. 04-01-31RE01, issued November 23, 2005, at page 2 (distinguishing the stations from a turbine generating unit within a hydroelectric plant) (also included in Appendix E to this Brief at pages E-6 through E-9). See also, CT DPUC June 2008 Order for Albion Mill A, Albion Mill D and Gill Mill D, Docket No. 08-44-11, at page 2 (with same language as in November 2005 DPUC Order) (also included in Appendix E to this Brief at page E-3).

<sup>47</sup> See Stipulation at pages 3-4 and Stipulation Appendix B, Figure 2 (also included in Appendix B to this Brief at page B-2).

resident fish.<sup>48</sup> Further, as confirmed above (see Part II.B.2. above), through testing of the partial and full-depth louvers over a number of years, HG&E has documented that the louvers direct fish away from the Canal System.

It is also clear, undisputed as documented above (see Part II.B.4 above), that the FERC and MADEP consider the fish passage facilities at the Holyoke Dam to provide fish passage protection for the Hydro Facilities located on the Canal System. HG&E's goal, affirmed by the federal and state agencies, has been and continues to be to provide for fish to migrate upstream and downstream right at the Dam site on the River without wandering into the Canal System and thereby being deflected from their migration.

For downstream fish passage, as confirmed in the Stipulation (page 4), the full depth Louver System/Bypass directs downstream migrating fish away from entering the Canal System and to the Dam tailrace, allowing continued movement downstream. During normal flows fish migrating downstream on the River are attracted (due to the hydraulics of the hydro facility at the Dam) to the full-depth louver structure. The louver structure guides the fish to the louver bypass pipe which leads the fish back into the River (at the tailrace below the Dam). To facilitate

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<sup>48</sup> As confirmed in Stipulation Appendix A (also included in Appendix A to this Brief at pages A-2 through A-11), HG&E documented its fish passage in 2009 in its submittal to this Commission in this proceeding on June 28, 2010 (response to PUC Staff Request Item #7). In that response (see Appendix A to this Brief at pages A-5 through A-11), HG&E submitted a copy of its 2010 Annual Report to the FERC on upstream fish passage pursuant to the Holyoke Project, License Article 414, confirming that during the 2009 anadromous fish passage season HG&E's facilities collected or passed over 160,000 American shad, 18,000 sea lamprey, 670 striped bass, 60 gizzard shad, 60 Atlantic salmon, and 40 blueback herring. In addition, in the spring 2009 season HG&E counted and passed upstream over 600 fish of 21 species through its fish passage facilities; the most common of these species were American eel, smallmouth bass, white sucker, walleye, and channel catfish. The HG&E fish passage facilities are also designed to handle passage for shortnose sturgeon, although none passed through the Project in 2009. Both Atlantic salmon and eel were specifically mentioned in the legislative history of the NH RPS Law.

additional downstream fish passage during higher flows, HG&E regulates flows over the Dam (by adjusting the Rubber Dam segments and by releasing flows through the Bascule Gate, allowing fish to migrate directly into the bypass reach below the Holyoke Dam.

For upstream fish passage, as confirmed in the Stipulation (page 3), the Hydro Facilities are configured to prevent upstream migrating fish from entering the Canal System. Fish arriving at the base of the Holyoke Dam move into one of two tailrace fish lift entrances or the spillway fish lift entrance, with the attraction water system distributing flows to the various parts of the fish passage facilities to enhance the ability of the fish to find the fish lift entrances and to navigate. The fish move through the appropriate transport channel (with the assistance of the crowder channel) into the fish lift hopper; and then (after the hopper is raised approximately 40 feet) the fish are released into the exit flume and into the River approximately 100 feet above the Dam. Additional facilities on both sides of the Holyoke Dam provide upstream fish passage specifically for American eels. These facilities include specially designed ramps to enhance the ability of the eels to move over the Dam.

**F. Certification is Consistent with the Language and Intent of the Law.**

The language of the NH RPS Law specifically requires that upstream and downstream fish passage facilities be installed and operating in connection with a hydro facility for which Class IV certification is requested. There is no requirement that the fish passage facilities must be directly attached to the hydro facility at issue. Clearly the fish passage facilities at the Holyoke Dam, which were constructed, enhanced and operated by HG&E – the owner and operator of the fourteen facilities



at issue in this proceeding – provide effective and efficient upstream and downstream passage for diadromous fish as contemplated by the RPS law. Further, the language in the NH RPS law specifically acknowledges that FERC's view of such fish passage facilities is important, requiring that the fish passage facilities be approved by that agency. As documented in the Stipulation (page 4), the FERC licenses for the Hydro Facilities and the MADEP's WQC expressly acknowledge that the fish passage facilities at the Holyoke Dam provide upstream and downstream fish passage with respect to the Hydro Facilities. In close coordination with the federal and state resource agencies, for nearly a decade the focus of fish passage enhancements at this point on the Connecticut River has been at the Holyoke Dam, rather than at specific stations on the Canal System (*i.e.*, rather than at the fourteen Hydro Facilities stations at issue in this proceeding). The reason for this strategy is that facilitating effective fish passage at the Dam (*i.e.*, directly on the River) provides the best result for the fish. Installation of additional, duplicative fish passage facilities at the Hydro Facilities in the Canal System would be redundant and unnecessary, as acknowledged by the FERC and the federal and state resource agencies. With all involved federal and state agencies agreeing that the best strategy is to focus fish passage facilities at the Holyoke Dam, the intent and purpose of the RPS law to require fish passage protections at the fourteen Hydro Facilities has been met.

The stated goal of the fish passage requirement in the NH RPS Law, as affirmed by GSHA in a April 2007 letter incorporated into the legislative record, is "to recognize that projects with such facilities [both upstream and downstream fish

passages] have gone to great capital expense and incur meaningful operating costs by virtue of supporting the migration of fish [both eel and anadromous fish].”<sup>49</sup> Since its acquisition of the Holyoke Project in 2001, not only has HG&E expended monies in maintaining and continuing to operate the fish passage facilities in place at the time of acquisition, but also HG&E has expended substantial monies in seeking to improve the upstream and downstream fish passage facilities for all types of fish (including diadromous fish and eels). Working with Federal and State resource agencies and other stakeholders, HG&E has implemented a multi-year program of additional research and analysis to address further potential enhancements to diadromous fish passage at the Holyoke Dam.

HG&E’s operation of the Hydro Facilities provides renewable energy to the New England region, while at the same time providing for diadromous fish passage, as intended by the NHA RPS Law. Without eligibility for credits for the power generated from these small hydro including under the NH RPS Law HG&E may find it necessary to cease production from at least some of these small hydro facilities.

**G. The *PSNH* and *FPLE* Cases are Distinguishable from this Proceeding.**

At the Prehearing Conference in this proceeding, the Commission Staff again argued that the Hydro Facilities do not meet the Class IV requirements because both upstream and downstream fish passage facilities must be installed at the Facilities “regardless of whether FERC requires them or not.”<sup>50</sup> In support of that position, the Commission Staff cited the Commission’s prior decision in the *PSNH* and *FPLE*

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<sup>49</sup> April 2007 Hearing, Transcript at Attachment 14, page 2, included in Stipulation Appendix D (also included in Appendix D to this Brief at page D-12).

<sup>50</sup> See, e.g., Statement of Suzanne Amidon, Prehearing Conference, Transcript at 15.

cases.<sup>51</sup> However, the *PSNH* and *FPLE* cases are clearly distinguishable on the issue of fish passage from the undisputed facts presented in this proceeding.

In the *FPLE* case, *FPLE* sought Class IV certification for two facilities – both facilities only contained downstream fish passage facilities. In the *PSNH* case, *PSNH* sought Class IV certification for eight facilities – seven of which did not have both downstream and upstream fish passage facilities. In fact several of the *PSNH* facilities had neither upstream, nor downstream, fish passage facilities. In contrast, in this proceeding, *HG&E* has demonstrated that it has both upstream and downstream fish passage facilities – as stipulated to by the parties to this proceeding (Stipulation, pages 3-4).

*HG&E* has installed and operates extensive and costly fish passage facilities. Those facilities meet the letter and intent of the NH RPS Law.

#### IV.

##### **This Proceeding Presents a Unique Factual Situation.**

Furthermore, approval of Class IV certification for the Hydro Facilities will not open the flood gates to new applications for certification due to the unique facts presented. To *HG&E*'s knowledge, there is no other canal system in New England with similar characteristics to the *HG&E* Canal System and there is certainly no canal system related to the type of fish passage facilities as presented in this proceeding. The Hydro Facilities at issue in this proceeding are unique, particularly given their locations, *i.e.*, off of the River itself.

Specifically, as discussed above and demonstrated on Figures 1 and 3 in the

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<sup>51</sup> *Id.* at 14-15.

original Application (see Stipulation Appendix B), HG&E's cascading Canal System was constructed in the late 1800's and consists of three levels. The First Level Canal is over a mile long and discharges water into the Second Level Canal through nine separate hydroelectric generating stations located along its length; seven of these stations are currently operational.<sup>52</sup> The No. 1 Overflow structure is located immediately downstream of the Hadley Falls Station gatehouse and provides attraction flow for the fishlifts as well as discharging into the Connecticut River. The Second Level Canal is over 2 miles long and includes eleven in-service generating stations, the No. 2 Overflow structure<sup>53</sup> that discharges into the Holyoke Project's Hadley Falls Station tailrace (i.e., into the River), and Overflow Nos. 3 and 5<sup>54</sup> that discharge into the Third Level Canal. The Third Level Canal, approximately 4000 feet long, is supplied with water from the Holyoke No. 3 Station and the No. 3 Overflow. It is located largely at the low-lying southern end of the Canal System, mostly parallel to the bank of the River. The Third Level Canal includes the No. 4 Overflow structure located between the Canal System and the River.

There are few such cascading Canal Systems in the United States which makes HG&E's Application for Class IV certification for these facilities unique. Certification of the Hydro Facilities in this proceeding will have limited, if any, impact on the ability of any other hydro facility to be certified.

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<sup>52</sup> There is also a facility owned by Hart Top Manufacturing, which is used as process water and is not a hydroelectric generating facility.

<sup>53</sup> Note that the structures designated as "overflow structures" (i.e., No. 2 Overflow) do not pond any water – they maintain the stable elevation of the respective Canal Level.

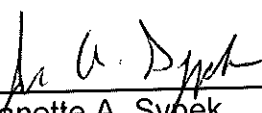
<sup>54</sup> Overflow No. 5 is no longer used because the Canal has been filled in that area.

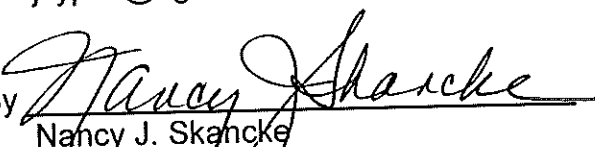
V.

Conclusion

WHEREFORE, HG&E requests that the Commission reverse its August 2010 determination and confirm that the HG&E's fourteen Hydro Facilities at issue in the Application are certified as Class IV facilities under the NH RPS law.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on the date written below, she has today served an electronic copy of the "Brief of the City of Holyoke Gas & Electric Department" in PUC Docket No. DE 10-151 on all persons on the Commission's service list for this proceeding, as required by PUC Rule 203.11(c).

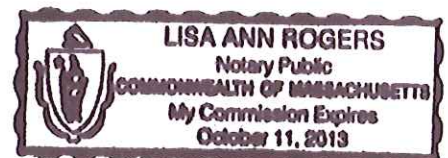
Date: March 10, 2011

By *Jeanette A. Sypek*  
Jeanette A. Sypek

STATE OF MA, COUNTY OF HAMPDEN

Signed before me on March 10, 2011, personally appeared Jeanette A. Sypek, provided to me through satisfactory evidence, personally know acknowledged to me that she signed it voluntarily for its stated purpose.

*Lisa A Rogers*  
Notary Public - State of MA.



THE STATE OF NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION

Docket No. DE 10-151

**The City of Holyoke Gas & Electric Department  
Application for Certification of Class IV for the Existing  
Small Hydroelectric Facilities Pursuant to RSA 362-F**

**BRIEF OF THE CITY OF HOLYOKE GAS  
& ELECTRIC DEPARTMENT**

**APPENDICES**

**Appendix A – Facility Information**

**Appendix B – Figures**

**Appendix C – FERC License Orders and Water Quality Certifications**

**Appendix D – Legislative History**

**Appendix E – Connecticut Department of Public Utility Control Orders**

Holyoke Gas & Electric Department Facility Information Table																	
Name	Commencial Operation Date	Gross Name Plate Capacity (MW)	Water Quality Certification	ISO- NE Asset ID	NEPOOL GIS Facility Code	FERC Project Number	FERC License Number	FERC License Issuance Date	River	Grid Voltage at Point of Interconnection	Station Address	Latitude	Longitude	CT Class II CERT #	Date Eligibility	RI Existing CERT #	Date Eligibility
Beebe Holbrook Station	January 1, 1948	0.220	February 14, 2001	812	MSS812	2004	88 FERC 61,186 (1989 FERC License)	August 20, 1989	1st Level Canal	13.6 kV	388 Dwight St. Holyoke, MA 01040	-42° 12' 18.05"	-72° 36' 14.83"	CT00089-04	April 1, 2004	RI-4128-E10	February 1, 2010
							90 FERC 62,283 (Transfer of License)	September 20, 2001									
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
							88 FERC 61,186	August 20, 1989									
							88 FERC 62,283 (Transfer of License)	September 20, 2001									
Boatlock Station	January 1, 1924	3.220	February 14, 2001	859	MSS859	2004	88 FERC 61,186 (Transfer of License)	September 20, 2001	1st Level Canal	13.6 kV	28 Catehouse Rd. Holyoke, MA 01040	-42° 12' 31.91"	-72° 36' 1.06"	CT00100-04	April 1, 2004	RI-4124-E10	February 1, 2010
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
							88 FERC 61,186	August 20, 1989									
							88 FERC 62,283 (Transfer of License)	September 20, 2001									
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
Chemical Station	January 1, 1935	1.800	February 14, 2001	862	MSS862	2004	88 FERC 61,186 (Transfer of License)	September 20, 2001	3rd Level Canal	13.6 kV	228 South Water St. Holyoke, MA 01040	-42° 11' 31.96"	-72° 36' 31.19"	CT00101-04	April 1, 2004	RI-4120-E10	February 1, 2010
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
							88 FERC 61,186	August 20, 1989									
							88 FERC 62,283 (Transfer of License)	September 20, 2001									
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
Riverside 4-7 Station	January 1, 1921	3.040	February 14, 2001	1034	MSS1034	2004	88 FERC 61,186 (Transfer of License)	September 20, 2001	2nd Level Canal	13.6 kV	30 Water St., Holyoke, MA 01040	-42° 12' 2.80"	-72° 35' 38.81"	CT00103-04	April 1, 2004	RI-4125-E10	February 1, 2010
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
							88 FERC 61,186	August 20, 1989									
							88 FERC 62,283 (Transfer of License)	September 20, 2001									
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
Riverside 8 Station	January 1, 1931	4.000	February 14, 2001	1035	MSS1035	2004	88 FERC 61,186 (Transfer of License)	September 20, 2001	2nd Level Canal	13.6 kV	30 Water St., Holyoke, MA 01040	-42° 12' 3.82"	-72° 35' 38.31"	CT00104-04	April 1, 2004	RI-4121-E10	February 1, 2010
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
							88 FERC 61,186	August 20, 1989									
							88 FERC 62,283 (Transfer of License)	September 20, 2001									
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
Skinner Station	January 1, 1924	0.300	February 14, 2001	878	MSS878	2004	88 FERC 61,186 (Transfer of License)	September 20, 2001	1st Level Canal	13.6 kV	64 Bigelow St. Holyoke, MA 01040	-42° 12' 10.30"	-72° 36' 28.57"	CT00105-04	April 1, 2004	RI-4123-E10	February 1, 2010
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
							88 FERC 61,186	August 20, 1989									
							88 FERC 62,283 (Transfer of License)	September 20, 2001									
							111 FERC 61,108 (Revised License per Settlement Agreement)	April 19, 2005									
Ablon Mill A	January 1, 1919	0.312	CWA Section 401- 33091989	12188	MSS12188	2788	47 FERC 62,296	June 29, 1989	2nd Level Canal	13.8 kV	15 Water St., Holyoke, MA 01040	-42° 12' 31.02"	-72° 35' 37.21"	CT00268-00A	June 1, 2008	RI-4127-E10	February 1, 2010
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
Ablon Mill D	January 1, 1919	0.450	CWA Section 401- 33091987	12188	MSS12188	2788	47 FERC 62,296	June 29, 1989	2nd Level Canal	13.8 kV	15 Water St., Holyoke, MA 01040	-42° 12' 30.80"	-72° 35' 36.72"	CT00268-00B	June 1, 2008	RI-4127-E10	February 1, 2010
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
Gill Mill D	January 1, 1919	1.282	CWA Section 401- 33091987	12188	MSS12188	2775	47 FERC 62,296	June 29, 1989	2nd Level Canal	13.8 kV	15 Water St., Holyoke, MA 01040	-42° 12' 17.44"	-72° 35' 34.13"	CT00268-00D	June 1, 2008	RI-4127-E10	February 1, 2010
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
Total	January 1, 1919	2.881	CWA Section 401- 33091987	12188	MSS12188	2775	47 FERC 62,296	June 29, 1989	2nd Level Canal	13.8 kV	15 Water St., Holyoke, MA 01040	-42° 12' 17.44"	-72° 35' 34.13"	CT00268-00D	June 1, 2008	RI-4127-E10	February 1, 2010
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
							47 FERC 62,297	June 29, 1989									
Holyoke No. 1	January 1, 1923	1.056	CWA Section 401- 33091987	12188	MSS12188	2388	46 FERC 62,229	February 28, 1989	1st Level Canal	4.8 kV	104 Cabot St., Holyoke, MA 01040	-42° 12' 1.10"	-72° 36' 37.39"	CT00102-04	April 1, 2004	RI-4119-E10	February 1, 2010
							46 FERC 62,229	February 28, 1989									
							46 FERC 62,229	February 28, 1989									
							46 FERC 62,229	February 28, 1989									
							46 FERC 62,229	February 28, 1989									
Holyoke No. 2	January 1, 1923	0.800	CWA Section 401- 33091987	12188	MSS12188	2387	44 FERC 62,310	September 28, 1988	1st Level Canal	4.8 kV	83 Sargent St., Holyoke, MA 01040	-42° 11' 58.02"	-72° 36' 39.20"	CT00102-04B	April 1, 2004	RI-4119-E10	February 1, 2010
							44 FERC 62,310	September 28, 1988									
							44 FERC 62,310	September 28, 1988									
							44 FERC 62,310	September 28, 1988									
							44 FERC 62,310	September 28, 1988									
Holyoke No. 3	January 1, 1923	0.450	CWA Section 401- 33091987	12188	MSS12188	2388	44 FERC 62,309	September 28, 1988	2nd Level Canal	4.8 kV	230 South Race St., Holyoke, MA 01040	-42° 11' 43.02"	-72° 36' 48.49"	CT00102-04C	April 1, 2004	RI-4119-E10	February 1, 2010
							44 FERC 62,309	September 28, 1988									
							44 FERC 62,309	September 28, 1988									
							44 FERC 62,309	September 28, 1988									
							44 FERC 62,309	September 28, 1988									
Holyoke No. 4	January 1, 1923	0.376	CWA Section 401- 33091987	12188	MSS12188	7758	111 FERC 62,126	March 19, 1987	1st Level Canal	4.8 kV	100 Cabot St., Holyoke, MA 01040	-42° 12' 2.03"	-72° 36' 38.15"	CT00102-04D	April 1, 2004	RI-4119-E10	February 1, 2010
							111 FERC 62,126	March 19, 1987									
							111 FERC 62,126	March 19, 1987									
							111 FERC 62,126	March 19, 1987									
							111 FERC 62,126	March 19, 1987									
Total	January 1, 1923	2.881	CWA Section 401- 33091987	12188	MSS12188	7758	111 FERC 62,126	March 19, 1987	1st Level Canal	4.8 kV	100 Cabot St., Holyoke, MA 01040	-42° 12' 2.03"	-72° 36' 38.15"	CT00102-04D	April 1, 2004	RI-4119-E10	February 1, 2010
							111 FERC 62,126	March 19, 1987									
							111 FERC 62,126	March 19, 1987									
							111 FERC 62,126	March 19, 1987									
							111 FERC 62,126	March 19, 1987									
Valley Hydro (Station No. 5)	November 1, 1994	0.760	CWA Section 401- 8191989	14023	MSS14023	10000	51 FERC 62,314	June 29, 1990	2nd Level Canal	4.8 kV	4 Valley Mills Road, Holyoke, MA 01040	-42° 12' 32.85"	-72° 35' 45.80"	CT00100-06	December 1, 2005	RI-4122-E10	February 1, 2010
							111 FERC 62,317	June 29, 2005									
							111 FERC 62,317	June 29, 2005									
							111 FERC 62,317	June 29, 2005									
							111 FERC 62,317	June 29, 2005									





gas | electric | steam | telecom

Commissioners:  
Francis J. Hoey, III  
Robert H. Griffin  
Raymond H. Feyre  
  
Manager:  
James M. Lavelle

June 28, 2010

Ms. Maureen L. Reno  
Utility Analyst III  
New Hampshire Public Utilities Commission  
21 South Fruit Street, Suite 10  
Concord, NH 03301-2429

Dear Ms. Reno:

SUBJECT: DE 10-151, Holyoke Gas & Electric Department Certification Application for the Existing Small Hydroelectric Facilities Pursuant to RSA 362-F – Request for Information

Please find below HG&E's responses to the New Hampshire Public Utilities Commission (Commission) request for additional information relating to HG&E's application requesting certification for fourteen (14) hydroelectric facilities as Class IV renewable energy sources. This information is in reference to Docket DE 10-151.

1. Pursuant to NH Code of Administrative Rule Puc 2505.02 (b) (8), please provide the documentation that HG&E is a party to a currently effective interconnection agreement for each of the 14 facilities mentioned in your application

HG&E's existing small hydro facilities are all interconnected into our distribution system which we own and maintain. All of the hydro facilities are owned, operated and maintained by HG&E and are located within the City of Holyoke. The generation stays within the City of Holyoke. Each facility has commercial operation dates from the early 1900's. Harris Energy was registered with ISO-NE effective December 1, 2006. Valley Hydro (Station No. 5) was registered effective April 1, 2008 and all other hydro facilities listed in this application have been registered with ISO-NE prior to 1999. HG&E has never been required by ISO-NE to undertake interconnection agreements for any of its hydro facilities. Only new units that are determined to be FERC jurisdictional require an interconnection agreement with ISO-NE for HG&E.

2. Please define the term "physically and electrically separate facilities", which is used to describe some of the facilities listed in your application.

During the registration process with ISO-NE, HG&E aggregated several small hydro facilities into one ISO-NE Asset (Harris Energy, ISO-NE Asset ID #12168 and HG&E Hydro/Cabot 1-4, ISO-NE Asset ID #957).

HG&E Hydro/Cabot 1-4 is the ISO-NE Asset comprised of four separate Run-of-River Project Facilities (Holyoke No. 1, Holyoke No. 2, Holyoke No. 3 and Holyoke No. 4 as described in the application of which each have separate FERC licenses).

Harris Energy is the ISO-NE Asset comprised of eight separate run-of-river Project Facilities with only three of the eight currently active (Albion Mill A, Albion Mill D and Gill Mill D as described in the application of which have separate FERC licenses).

The application is requesting certification for each of the four **hydro facilities** comprising the ISO-NE HG&E Hydro/Cabot 1-4 Asset and not the ISO-NE Asset itself. And similarly, certification is requested for each of the three active **hydro facilities** comprising the ISO-NE Harris Energy Asset.

The term "Physical" was to distinguish that materially these ISO-NE Assets are comprised of separate facilities with their own intake, penstock, powerhouse and tailrace facilities and that are located on different areas of the canal system (See figure 3 of the application).

The term "Electrically" was also used to clarify that the energy produced is from the separate hydro facilities and not the one single ISO-NE Asset. Each hydro facility has separate electrical systems and is metered separately. The separate meters are summed and then reported to ISO-NE as one total.

3. Are the Albion Mill A and Albion B facilities "physically and electrically" separate facilities?

Yes. See response to Question 2. Although they share the name Albion, these two facilities do have separate intake, penstock, powerhouse, tailrace and electrical facilities.

4. The FERC licenses for the facilities prescribe spilling water over the Holyoke Dam during high water flow periods to prevent migrating fish populations from entering the canal system. Please provide documentation, if available, that such mitigation measures have minimized the amount of fish from being trapped in the canal.

This appears to be a reference to a condition in the FERC license (pre 1998). In October 2002, HG&E installed the downstream Louver Bypass Facility (including the Full Depth Louvers and Louver Bypass Discharge Pipe) located in the Canal System. The purpose of the Louvers is to create hydraulic conditions that guide the approaching fish migrating downstream to the entrance of the bypass. The downstream fish passage Louver Facility begins 554 ft downstream of the Canal Gatehouse. The Louver extends across the First Level canal at an angle and is 440ft long. The Louver diverts fish from entering the Canal System into a pipe that bypasses the generating units and transports fish into the Hadley Station tailrace (see figure 2 of application).

Since the installation of the Louver Bypass Facility in October 2002, this condition doesn't exist.

DE 10-151 Class IV Facility Information Application G&E Existing Small Hydro Facilities  
June 28, 2010

5. Is there any documented fish migration during low water flow periods? If yes, what measures are taken during these periods.

No. There is no documented fish migration during low water flow periods.

6. Has HG&E installed upstream and downstream fish passages at any of the other facilities besides the Hadley Falls Station?

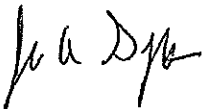
No. The downstream Louver Bypass Facility mentioned in Question 4 prevent fish from entering the Canal System. The design, water flow, and height of the Canal tailraces that discharge back into the Connecticut River, make it impossible for upstream migrating fish from entering the Canal System.

7. Please provide the latest fish monitoring reports from the Hadley Falls Station and any other facility's fish passages, if installed.

Please see attached.

Please contact me if you have any questions or require additional information.

Sincerely,



Jeanette A. Sypek  
Holyoke Gas & Electric Department  
Sr. Energy Resources Coordinator  
99 Suffolk Street  
Holyoke, MA 01040  
(413) 536-9373  
[jsypek@hged.com](mailto:jsypek@hged.com)



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Commissioners:  
Neil J. Moriarty, Jr.  
Francis J. Hoey, III  
Robert H. Griffin  
  
Manager:  
James M. Lavelle

February 23, 2010

Ms. Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, DC 20426

Re: The City of Holyoke Gas & Electric Department  
Holyoke Project, FERC Project No. 2004  
2009 Monitoring Report of Upstream Fish Passage, and  
Notice of Upstream Fish Passage Construction Activities Planned for 2010

Dear Ms. Bose:

The City of Holyoke Gas & Electric Department (HG&E) hereby submits its 2009 Monitoring Report of Upstream Fish Passage at the Holyoke Project and its notice of upstream fish passage construction activities planned for 2010. Specific as to this notice, HG&E hereby reports the construction activities relating to upstream fish passage facilities that are planned for 2010. This notice fulfills the annual reporting requirement under License Article 414 as to such construction plans for 2010.

The enclosed Monitoring Report of Upstream Fish Passage for 2009 is being submitted pursuant to License Article 411(d) [111 FERC ¶ 61,106 (April 19, 2005)]. On December 10, 2009, HG&E distributed a draft of this report to the Federal and State resource agencies and other stakeholders including: U.S. Fish and Wildlife Service; U.S. Department of Commerce, National Oceanic and Atmospheric Administration's National Marine Fisheries Service; Massachusetts Department of Environmental Protection; Massachusetts Division of Fisheries and Wildlife; Trout Unlimited; and the Connecticut River Watershed Council. Documentation of consultation with those agencies and stakeholders on the Report is included in Appendices B and C.

If there are any questions concerning these matters, please contact me at (413) 536-9453.

Sincerely,

Richard F. Murray Jr.  
Hydro Electric Engineer

Enclosure

Ms. Kimberly D. Bose, FERC Secretary  
FERC Project No. 2004

February 23, 2009  
Page 2 of 2

cc: John Warner, USFWS (w/ encl.)  
Julie Crocker, NOAA Fisheries Service (w/ encl.)  
Robert Kubit, MADEP (w/ encl.)  
Caleb Slater, MADFW (w/ encl.)  
Don Pugh, TU (w/ encl.)  
Andrea Donlon, CRWC (w/ encl.)

MONITORING REPORT:  
UPSTREAM FISH PASSAGE AT HG&E'S HOLYOKE DAM  
FISHWAY, SPRING AND FALL, 2009

Prepared for

***CITY OF HOLYOKE GAS & ELECTRIC DEPARTMENT***  
99 Suffolk Street  
Holyoke, MA 01040

Prepared by

***NORMANDEAU ASSOCIATES, INC.***  
917 Route 12, #1  
Westmoreland, NH 03467

*Normandeau Project Number 21528.000*

February 2010

## EXECUTIVE SUMMARY

Upstream fish passage activities were conducted for the Holyoke Project (FERC Project No. 2004) at Holyoke Dam, Holyoke, MA from April 14 through July 24, 2009, and weekdays September 15 through November 15, 2009 (except September 21 - 25 when fishway attraction flows were not available due to a scheduled maintenance outage of the Holyoke Canal System), pursuant to Holyoke Gas & Electric Department's (HG&E) updated Upstream Passage Evaluation and Monitoring Plan [approved by the Federal Energy Regulatory Commission (FERC); order issued May 19, 2006 (115 FERC ¶ 62,204), Updated Plan]. The Updated Plan was submitted on December 29, 2004, and supplemented on March 17, 2006, pursuant to the comprehensive Settlement Agreement [filed in 2004 and approved by FERC in April 2005 (111 FERC ¶ 61,106) which revised the License Articles applicable to the Project (2005 License Articles)] and pursuant to the Upstream Fish Passage Plan [filed in September 2005 as required by 2005 License Article 411(a), and approved by order issued September 7, 2006 (116 FERC ¶ 62,193)]. Per Section 4.6 (d)(2)(C) of the Settlement Agreement [2005 License Article 411(c)(4)] and amended article 411 (c) and (d)] HG&E filed it's final cumulative results report for studies of effectiveness of the upstream passage facilities with FERC on February 27, 2009 with the concurrence of the Cooperative Consultation Team (CCT). The report was accepted by FERC by letter dated June 11, 2009.

The report contained herein fulfills the annual reporting requirements for upstream fish passage monitoring activities in 2009 and plans for 2010 activities per Section 5.5 of the Updated Plan, that incorporated the requirements of Section 4.6(e) of the Settlement Agreement [2005 License Article 411(d)] and Condition 15 of the WQC for submittal of annual reports of the previous year's activities relative to the operation of the upstream passage facilities including the number of fish lifted relative to the target design populations for upstream fish passage as described in Condition 12 of the WQC and plans for next year's activities.

Specific objectives of the approved Updated Plan were addressed in 2009; these included:

- Monitoring upstream fish passage, spring:
  - 160,669 American shad, 18,996 sea lamprey, 671 striped bass, 68 gizzard shad, 61 Atlantic salmon, and 40 blueback herring were passed or collected in the upstream fishways in 2009.
  - 603 fish of 21 resident species (including American eel) were counted and passed upstream.
- Monitoring upstream fish passage for Atlantic Salmon and shortnose sturgeon, fall:
  - Fall 2009 passage operations done from September 15 – November 15 did not result in any Atlantic salmon or shortnose sturgeon collections.
- Shortnose sturgeon monitoring and handling:
  - No shortnose sturgeon were recorded using the fish passage facilities in spring/summer 2009. The handling and reporting protocol for shortnose sturgeon was maintained pursuant to the Shortnose Sturgeon Handling Plan as required under 2005 License Article 416(d). Daily observations for stranded shortnose sturgeon on the spillway apron yielded no occurrences of stranding on the apron, but a dead shortnose sturgeon was found on an emergent rock shelf just downstream of the spillway fish lift entrance on August 20. After examination, it was determined that there were no wounds consistent with downstream passage related collision. Additionally, bypass reach water surface level had been consistent within the prior 24 h, the period when the fish was believed to have been stranded (M. Keiffer, Conte Anadromous Fish Research, Laboratory, USGS) suggesting that stranding as a result of rapidly receding water surface elevation was not likely

- Fish trapping, sampling, and handling
  - The trap-and-haul facility continued to function well, providing over 4,000 American shad and 38 sea lamprey to state and federal agencies in 21 days of use.
  - Biological samples, including scale samples for aging analysis and samples for a UFSWS fish health survey were collected from 571 American shad.
  - Sixty one adult Atlantic salmon were collected during the 2009 spring passage season. Ten fish were tagged with a radio-transmitter and passive integrated transmitter (PIT tag) and released upstream of the project, and the remainder were transferred to the United States Fish and Wildlife Service (USFWS) for hatchery spawning.
- Monitoring of water surface elevations, attraction water volume, and gate settings pertinent to fish passage:
  - Water surface elevations, gate positions, and flows relevant to fishway entrances and approaches to entrances were monitored either by manual observation or electronic data recording via the Supervisory Control and Data Acquisition (SCADA) system.
  - Water surface elevations in the spillway (bypass reach) as measured at the Texon gauge were maintained at or above the requisite 62.85 ft (+/- 0.1 ft) National Geodetic Vertical Datum (NGVD) throughout the fish passage season as the zone-of-passage (ZOP) flow. Higher bypass reach elevations resulted from flood discharges, including modifications of run-of-river operations pursuant to 2005 License Article 405 (b)-(c).

Pursuant to 2005 License Article 411(d) and WQC Condition 15, HG&E will monitor fish passage and provide a report to the CCT by December 31, 2010, and December 31 in each subsequent year.



### **3.0 2009 RESULTS**

#### **3.1 Annual Fish Passage**

##### **3.1.1 Anadromous Fish Passage**

Fish lift operations for 2009 commenced on April 14. The first anadromous fish, a blueback herring, was passed on April 22, and the first American shad was passed on April 23. Operations continued daily every other hour from 0900 – 1500 h through May 5 when the cumulative American shad passage reached 1,370. Beginning May 6 operations were done at least hourly from 0900 – 1700 h. Beginning May 15 the operational day was extended to 0800 – 1800 h. Operations were continued through 1900 h on May 20, 22, and 23 and through 2000 h on May 21 when the extended operations protocol was invoked.

During the 2009 anadromous fish passage season 160,669 American shad, 18,996 sea lamprey, 671 striped bass, 68 gizzard shad, 61 Atlantic salmon, and 40 blueback herring were collected or passed upstream. American shad passage was similar to that of the previous three years, remaining below the long-term (1975 – 2009) mean of 295,683 (Table 3-1, Figure 3-1). Atlantic salmon collections were the lowest since 2004, falling well below the long-term mean of 160. Blueback herring passage was again negligible with only 40 fish passed (long term mean = 167,983). Appendix A (Table A-2) contains a listing of common and taxonomic names of all species observed during 2009 fish passage monitoring.

Hourly passage counts of American shad were distributed throughout the day with highest hourly mean passage occurring between 1400 – 1800 h (Table 3-2, Figure 3-2). Note that the high mean passage calculated for 1900 h was biased because limited operations in that time period were done only on specific dates when passage remained high in the evening and the protocol to extend the passage day was invoked. Additionally, the high mean count for 1800 h is somewhat biased as well because the last count cycles typically occurred during that hour. More time and effort were expended during the last count cycle to clear all remaining fish from the exit flume. Substantial American shad passage (2,542) first occurred on May 6 when mean water temperature was 13.6° C. During the period of active American shad passage (encompassing the entire time period when daily passage was greater than 1% of the seasonal total), May 6 – June 13, mean water temperature ranged from 13.6 – 19.3° C and 94% of American shad passage occurred. During the period of peak passage (encompassing the time period when daily passage was greater than 4% of the seasonal total), May 15 – May 24, water temperature ranged from 14.5 – 17.9° C and 54% of American shad passage occurred (Table 3-3, Figure 3-3). Appendix A (Table A-3) includes hourly American shad count data.

##### **3.1.2 Resident Species Upstream Passage**

From April 14 – July 24, 603 fish of 21 species (including American eel) were counted and passed upstream (Table 3-4). The most common species were smallmouth bass (50% of resident fish count), American eel (14%), white sucker (12%), walleye (6%), and channel catfish (3%). Refer to Appendix A (Table A-2) of this report for taxonomic names of fish counted.

##### **3.1.3 Fall Atlantic Salmon Collection Operations**

During fall fish lift operations, no Atlantic salmon and no shortnose sturgeon were collected.

#### **3.2 Physical and Mechanical Data**

Appendix A contains tabular physical and mechanical data recordings. Table A-4 contains daily observations of Salmon Gate settings, Bascule Gate settings, attraction flow volume, and attraction flow distribution gate settings. Table A-5 contains hourly rubber dam positions. Table A-6 contains daily average water surface elevations. Table A-7 contains daily mean Hadley Falls Station generation data and total river discharge.

### 3.3 Fish Trapping Facilities

#### Summary of trap usage

The exit flume traps were used to collect 61 Atlantic salmon for hatchery broodstock collection and radio telemetry tagging and 571 American shad for population dynamics sampling (scale samples) and USFWS fish health survey samples. Salmon trapping protocols were adhered to throughout. Ten of the trapped Atlantic salmon were tagged with radio transmitters and released upstream of the project as part of a TransCanada Deerfield River Project license requirement (Normandeau Associates, in preparation), the remainder were transferred to the United States Fish and Wildlife Service (USFWS) Cronin Fish Hatchery for spawning. Atlantic salmon biological data are available from USFWS. The trap-and-haul facility was used to collect 4,794 American shad and 38 sea lamprey. American shad were trapped and transferred to transport trucks in 51 loads on 21 days from May 18 – June 16. American shad were transported by Connecticut Department of Environmental Protection (CT DEP, 802), New Hampshire Fish and Game Department (317), USFWS (1,347), Rhode Island Department of Environmental Management (1,132) and the United States Geological Survey (USGS) Conte Anadromous Fish Laboratory (1,196, Table 2-5). Thirty-eight sea lamprey were also transported by USGS. American shad biological data, including length, weight, sex, and scale samples were collected for 571 fish on 34 dates representing 0.4% of the annual passage. Those data and samples were transferred to the CT DEP.

### 3.4 Shortnose Sturgeon

No shortnose sturgeon were collected during 2009. The spillway pools and dam apron were examined in accordance with the handling plan and 2000 Biological Opinion (B.O.) as required for monitoring for stranding of shortnose sturgeon. A dead shortnose sturgeon was found on an emergent rock shelf just downstream of the spillway fish lift entrance on August 20. Reporting was done according to the handling plan (Figure 3-5). The fish was retrieved, examined, and salvaged by Dr. M. Kieffer (CAFRL, USGS, Figure 3-6)). The fish was a 110.4 cm long (total length), 11.8 kg gravid female with an existing PIT tag. External damage consistent with downstream passage related collision was not evident. Additionally, bypass reach water surface level had been consistent for the period when the fish was believed to have been stranded (within prior 24 h) suggesting that stranding as a result of rapidly receding water surface elevation was not likely.

## 4.0 2009 ANNUAL REPORT AND 2010 CONSTRUCTION PLAN

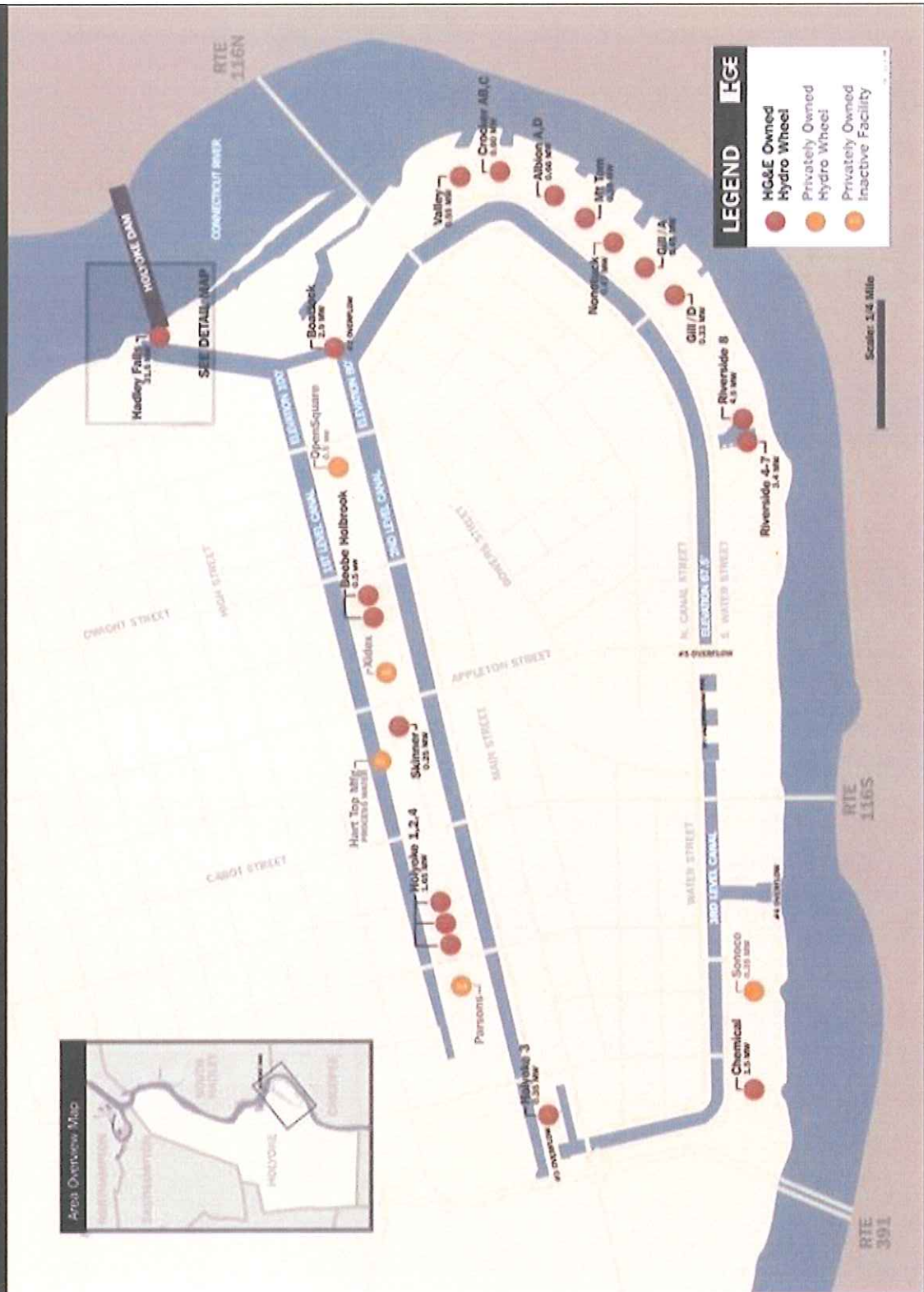
Annual Report: Data contained in this report comprise the annual reporting requirement specified in the Settlement Agreement, Section 4.6(e) [2005 License Article 411(d) and WQC Condition 15].

Construction Activity: No Construction activities regarding upstream fish passage facilities are planned prior to the start of the 2010 passage season. This fulfills the annual reporting requirements specified in the Settlement Agreement, Sections 4.6(e) and 4.9 [2005 License Articles 411(d) and 414].

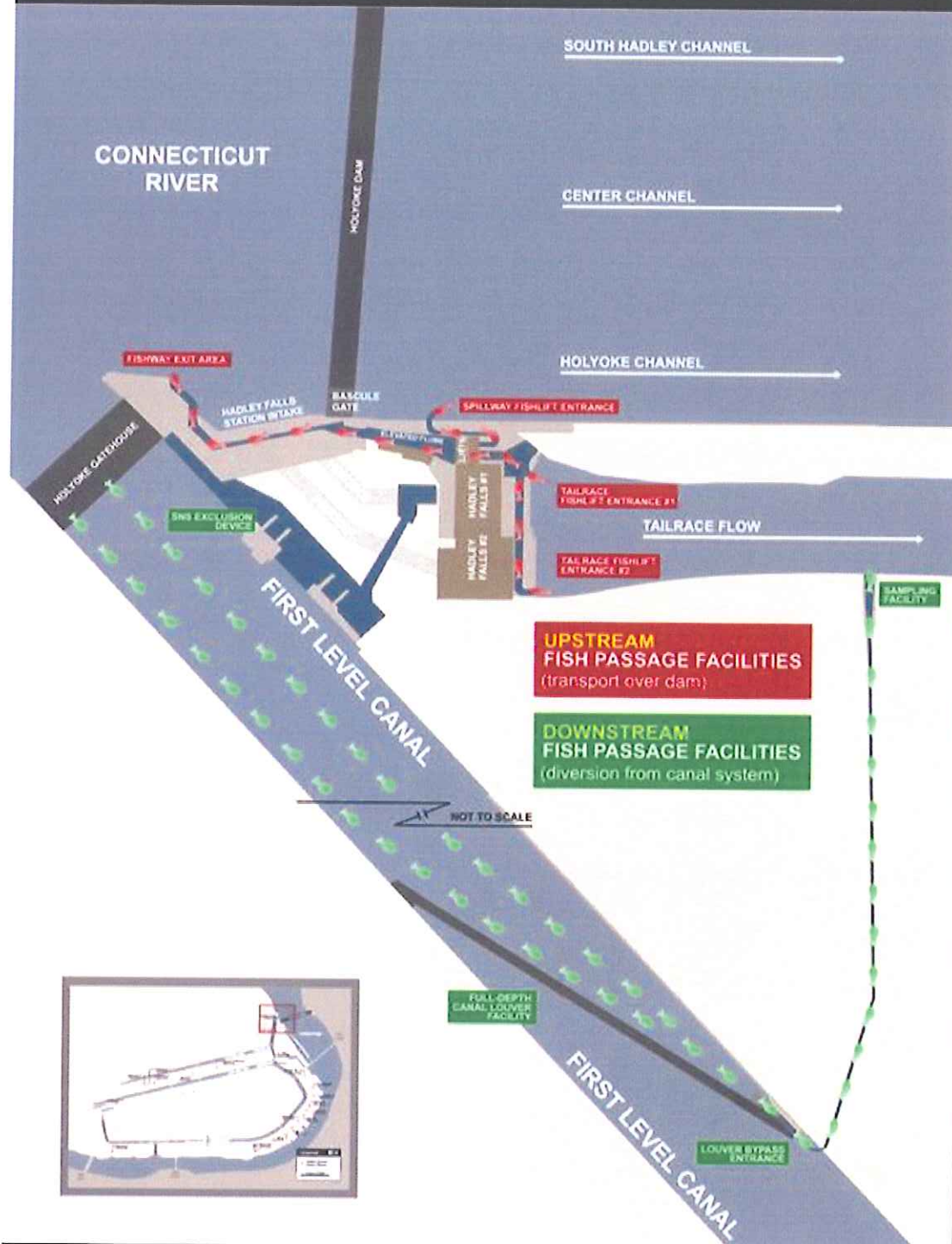
## 5.0 2010 FISH PASSAGE MONITORING AND SAMPLING

Fish passage and monitoring activities in 2010 will be conducted pursuant to 2005 License Article 411 and Conditions 14(d) and 15 of the WQC. Activities will include fish counting; American shad biological sampling, trapping, and loading; shortnose sturgeon handling and reporting; Atlantic salmon monitoring, trapping, and holding; and observations relative to Fish Monitoring Work as described in Condition 15(a) of the WQC. A Report of 2010 activities will be submitted to the CCT by January 31, 2011 per 2005 License Article 411(d) and Condition 15 of the WQC. HG&E will file the monitoring report with the FERC by February 28, 2011.

# City of Holyoke - Canal System Overview

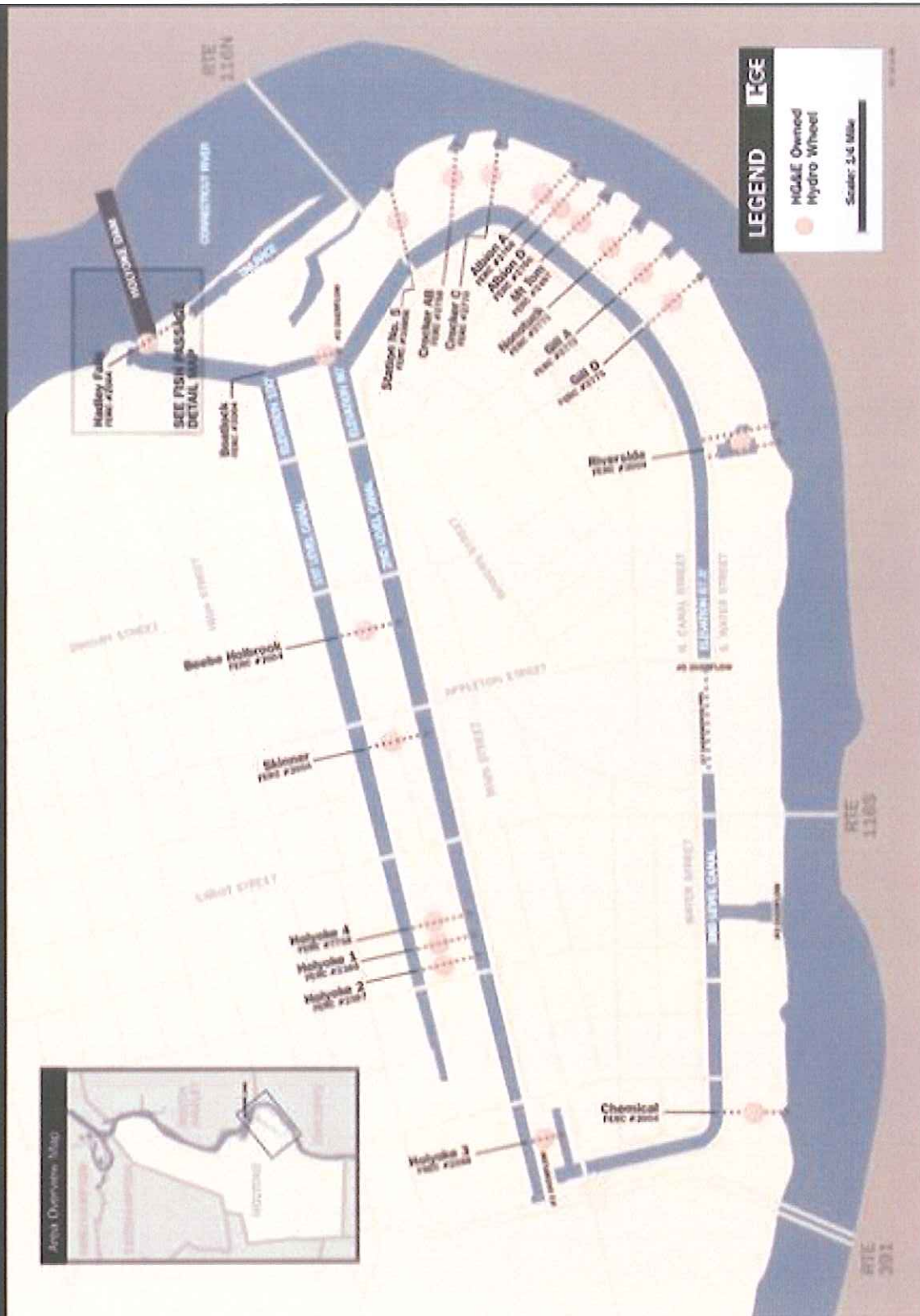


## Fish Passage Facilities at Holyoke Hydroelectric Project





# Flow Map of Holyoke Hydroelectric Facilities



5. the applicant's tariff has operational safeguards such as Starks proposal to give third party shippers scheduling priority.

These conditions would permit the applicant to optimize the use of its storage facility by bundling its storage capacity and gas commodity, but only where the applicant has no market power over both the storage product and the sale of gas. Under these conditions, I believe the unbundling requirements purpose of preventing unduly discriminatory behavior is preserved.

For the first time, we attach conditions to the use of the *Tetco* waiver. We limit Starks' use of the *Tetco* waiver to the geographic area covered by Starks' market study and require Starks to make an annual informational filing detailing its use of the *Tetco* waiver. We attach these conditions without explanation. These conditions strike me as solution in search of a problem. In response to Staff Data Request 5b, Starks states that it "views the acquisition of capacity on other pipelines purely as an alternative to extending its header to other point of physical interconnection." Given how Starks plans to use the *Tetco* waiver, I have no objection to the geographic area limitation. However, the order fails to explain the nexus between the relevant geographic market for storage service and third-party transportation service. In the order, we do note that the annual information filing detailing Starks' use of the *Tetco* waiver is necessary to satisfy our responsibility to monitor and prevent the exercise of market power. I do not take issue with that statement. It strikes me, however, that the larger issue is approving market-based rates for storage service without some type of periodic update of the underlying market power analysis.

For these reasons, I concur with today's order.

Joseph T. KELLIHER, Commissioner, *concurring*:

In its application to construct and operate a salt dome natural gas storage facility Starks sought, among other things, a waiver of the Commission's Order No. 636 unbundling requirements so that

Starks may store and sell its own gas when its system is undersubscribed. Today's order grants the authorizations sought by Starks, but denies the request for a waiver of the Order No. 636 unbundling requirements.

I support this order, including the decision to deny the request for a waiver of the Order No. 636 unbundling requirements. In doing so, I wish to note, however, that I am not unsympathetic to the arguments in favor of granting a waiver of the Order No. 636 requirements in the context of an independent storage project.

Natural gas storage is vitally important to the meet the nation's energy needs and I believe that additional storage will assume ever greater importance in this era of higher natural gas prices and apparently declining production. While the Commission has an excellent record of approving such projects, I also believe that we need to consider what we might do to facilitate the addition of new storage in the future.

Currently, the Commission has a generic proceeding underway to examine policy options to encourage the development of new storage. In October 2004 the Commission convened a conference to examine these issues and thereafter it solicited and received comments which it currently has under consideration. The Commission has not yet concluded what actions it should take as a result of the information it received in that proceeding.

The principles embodied in Order No. 636 have been the bedrock of Commission policy in the natural gas arena for nearly 15 years; a decision to change those principles should not be undertaken lightly. Before deciding this significant issue, I believe the Commission should first conclude its comprehensive deliberations in the generic storage proceeding and decide there what steps should be taken to facilitate the development of additional storage. I believe those deliberations will inform our decisions as to the need for actions such as that proposed by Starks here.

[¶ 61,106]

Holyoke Gas & Electric Department, Project No. 2004-075

Holyoke Gas & Electric Department, Ashburnham Municipal Light Plant, and Massachusetts Municipal Wholesale Electric Company, Project No. 11607-002

Order Approving Settlement Agreement, Amending License, and Dismissing Stay Request

(Issued April 19, 2005)

Before Commissioners: Pat Wood, III, Chairman; Nora Mead Brownell, Joseph T. Kelliher, and Sudeen G. Kelly.

FERC Reports

¶ 61,106

1. Holyoke Gas & Electric Department (Holyoke G&E)<sup>1</sup> has filed an offer of settlement resolving issues relating to the new license issued by the Commission to Holyoke G&E's predecessor, Holyoke Water Power Company (Holyoke Water Power), authorizing the continued operation of the Holyoke Hydroelectric Project No. 2004. This order approves the offer of settlement and amends the project license accordingly. It also dismisses a stay request rendered moot by the amendment of the license. This order is in the public interest because it resolves issues regarding the project license in a manner consistent with the public interest and with the intent of the parties to the licensing proceeding.

#### Background

2. The 43.8-megawatt Holyoke project is located on the Connecticut River in Hampden, Hampshire, and Franklin Counties, Massachusetts. In an order issued on August 20, 1999,<sup>2</sup> the Commission issued a new license (1999 License) for the project to Holyoke Water Power and denied a competing license application filed jointly by Holyoke G&E, Ashburnham Municipal Light Plant (Ashburnham), and the Massachusetts Municipal Wholesale Electric Company (Massachusetts Electric).<sup>3</sup> The new license included a water quality certification that had been issued by the Massachusetts Department of Environmental Protection (Massachusetts DEP) on July 28, 1999, but was pending on appeal before that state body. The license was also issued before completion of consultation on threatened and endangered species, but with a requirement that the licensee file a threatened and endangered species protection plan based on consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NOAA Fisheries).<sup>4</sup>

3. Requests for rehearing were filed by Holyoke Water Power; the City of Holyoke, Massachusetts (on behalf of Holyoke G&E); Ashburnham, Massachusetts Electric;<sup>5</sup> the United States Department of the Interior (Interior); NOAA Fisheries; Trout Unlimited, and the Town of South Hadley. In addition, Holyoke Water Power requested a stay of certain license conditions contained in the water quality certification

pending completion of Massachusetts DEP's administrative process and pending rehearing before the Commission. Objections to the stay motion were filed by the Commonwealth of Massachusetts (Massachusetts), and jointly by Interior and the Department of Commerce (Commerce).

4. On rehearing, the parties argued that the Commission had erred by issuing the license: (1) before completion of the state's proceeding concerning Holyoke Water Power's appeal of the state's water quality certification; and (2) before consultation on threatened and endangered species had been completed by the Commission's receipt of a biological opinion (BO) containing incidental take conditions. They also made various arguments taking issue with the Commission's determinations related to recommendations filed pursuant to Section 10(j) and prescriptions filed under Section 18 of the FPA.<sup>6</sup> In addition, the City of Holyoke, Ashburnham, and Massachusetts Electric argued that the Commission erred in choosing Holyoke Water Power's application over theirs. Finally, the Town of South Hadley (South Hadley) requested its inclusion as a consulting party in Articles 403, 404, 407 and 417 of the license, and correction of the location of a trail referenced in Article 418.

5. Subsequently, Holyoke Water Power transferred its license to Holyoke G&E.<sup>7</sup> As the transferee, Holyoke G&E has stepped into the shoes of Holyoke Water Power in relation to all matters related to the new license, including the rehearing proceeding.<sup>8</sup>

6. On March 12, 2004, Holyoke G&E filed an offer of settlement, in which it was joined by Interior, through FWS; NOAA Fisheries; the Commonwealth of Massachusetts, Department of Environmental Protection (Massachusetts DEP); the Commonwealth of Massachusetts, Division of Fisheries and Wildlife (Massachusetts DFW); Trout Unlimited; Connecticut River Watershed Council; and South Hadley. Holyoke G&E asks the Commission to approve the settlement and incorporate its terms and conditions, as set out in the proposed modified license articles (Articles 301-422) contained in Appendix A to the settlement, without material change or modification.

<sup>1</sup> Holyoke G&E is a department of the City of Holyoke.

<sup>2</sup> 88 FERC ¶ 61,186.

<sup>3</sup> Holyoke G&E and Ashburnham are municipal electric departments. Massachusetts Electric is a corporate and political subdivision of the State of Massachusetts, with cities and towns as members, which is empowered to own and operate electric power facilities, and buy and sell power on behalf of its members. See 88 FERC at p. 61,601 n.4.

<sup>4</sup> See Article 416, 88 FERC at p. 61,634.

<sup>5</sup> Ashburnham's and Massachusetts Electric's requests were simply short statements supporting City of Holyoke's rehearing request.

<sup>6</sup> 16 U.S.C. §§ 803(j) and 811, respectively.

<sup>7</sup> See 96 FERC ¶ 62,283 (2001). By letters filed July 27, 2001, the City of Holyoke, Ashburnham, and Massachusetts Electric withdrew their rehearing requests, subject to the

Commission's approval of the transfer to Holyoke G&E, and subject to closing of the sale of the project from Holyoke Water Power to Holyoke G&E. The transfer was approved on September 20, 2001, and on December 28, 2001, Holyoke G&E filed its acceptance and conveyance documents and a letter noting that the sale had been closed on December 14, 2001. Receipt of the acceptance sheet and instruments of conveyance was acknowledged by a letter issued on February 7, 2002. Accordingly, the rehearing requests of City of Holyoke, Ashburnham, and Massachusetts Electric are deemed withdrawn.

<sup>8</sup> *Id.* at p. 64,565, Ordering Paragraph (C). However, because Holyoke G&E is a municipality, it is not required to establish and maintain an amortization account. See *City of Hamilton*, 98 FERC ¶ 61,295 (2002). Accordingly, we have deleted Article 203 of the 1999 License, which contained that requirement.

leave open the possibility of modifying the bypass minimum flows based on additional study, and could lead to identification of a lower flow providing the same or similar levels of protection to aquatic habitat and organisms.<sup>15</sup>

12. Articles 410 through 413, dealing with upstream passage, downstream passage, eel passage, and the monitoring of such passage, are consistent with the requirements of the 1999 License, but set out the licensee's obligations with greater specificity. They also expand and clarify the schedule for implementation of the articles' required measures.<sup>16</sup>

13. All of the consultation requirements of the license are set out in proposed Article 420. The article also states that the licensee must comply with the conditions imposed on it by Part IV of the settlement, and the appendices referenced therein. Part IV of the settlement references Part III of the settlement, as well as settlement appendices related to the operating protocol for a downstream sampling facility, a description of the settlement's proposed research and construction activities related to downstream fish passage, a shortnose sturgeon handling plan, and overflow operating procedures. Parts III and IV of the settlement, and the settlement appendices which their reference are appended to the license, for clarity and informational purposes, as Appendices C through G to this order.<sup>17</sup>

#### B. Water Quality Certification Conditions

14. Under Section 401(a) of the Clean Water Act (CWA),<sup>18</sup> the Commission may not issue a license for a hydroelectric project unless the state water quality certifying agency has either issued water quality certification for the project or has waived certification by failing to act on a request

for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that state certification shall become a condition on any license that is issued.<sup>19</sup>

15. The Massachusetts DEP timely issued a water quality certification for the Holyoke project on July 28, 1999. On August 18, 1999, Holyoke Water Power filed with the Massachusetts DEP an appeal of the certification. While that appeal was pending, the Commission issued the new license for the Holyoke project, attaching, as an appendix, 30 conditions contained in the July 28, 1999 Certification.<sup>20</sup>

16. On March 19, 2001, the Massachusetts DEP filed with the Commission water quality certification provisions revised in accordance with a settlement agreement approved by the DEP in the state's appellate proceeding.<sup>21</sup> The revised certification provisions, which are consistent with the terms of the settlement, will be substituted for the July 28, 1999 Certification. They are attached to this order as Appendix A and required by Article 421.

#### C. Threatened and Endangered Species

17. On April 19, 1999, Commission staff issued letters to FWS and to NOAA Fisheries, concluding that expanding, operating, and maintaining the project, with the staff's recommended measures, is not likely to adversely affect the shortnose sturgeon (in the letter to NOAA Fisheries), or the American bald eagle or Puritan tiger beetle (in the letter to FWS). The letters asked FWS and NOAA Fisheries to concur in staff's conclusion that formal consultation under Section 7 of the Endangered Species Act (ESA)<sup>22</sup> was not required.

18. FWS did not respond to staff's request for concurrence. NOAA Fisheries advised that it did

<sup>15</sup> Article 406(f) requires monitoring consistent with Articles 407 and 408. However, the text of Article 408 has been incorporated in Article 407, and we have revised Article 406(f) to reflect that fact.

<sup>16</sup> Article 412(a) requires the licensee to provide interim measures for upstream eel passage consistent with an interim upstream eel passage plan supposedly filed with the Commission on December 31, 2003. We have not been able to document that this plan was filed. However, it appears that the provisions to which the proposed Article 412 refers are contained in the upstream fish passage plan approved pursuant to Article 411. We will revise Article 412(a) accordingly. (The licensee did file a request to install interim eel ladders at the project, which the Commission's New York Regional Office approved on August 6, 2003.)

<sup>17</sup> See Appendix C (Parts III and IV of the Settlement Agreement); Appendix D (downstream sampling facility operating protocol); Appendix E (detailed description of Holyoke G&E proposed settlement downstream research and construction); Appendix F (shortnose sturgeon handling plan); and Appendix G (No. 2 overflow operating procedures).

<sup>18</sup> 33 U.S.C. § 1341(a)(1).

<sup>19</sup> 33 U.S.C. § 1341(d).

<sup>20</sup> 88 FERC at p. 61,639. The Massachusetts DEP had originally issued one certification for both Holyoke Water Power's and Holyoke G&E's proposals. That certification con-

tained a total of 37 conditions but, seven of them were applicable only to Holyoke G&E's proposal, not to that of Holyoke Water Power, who was granted the new license.

<sup>21</sup> The revised certification imposes 23 conditions on the license for this project, including conditions which require: (1) an instantaneous run-of-river mode, stabilizing the impoundment to within 0.2 feet of normal pond elevation (*i.e.*, 0.2 feet below the elevation of the new rubber dam crest) (Condition 9); (2) minimum flows for the bypassed reach (Condition 11); (3) project flows, including specified flow distribution prioritizations for the canal, the bypassed reach, the fish passage attraction facilities, zone of passage flows, and the Hadley Falls Station, during the Atlantic salmon downstream migratory period (April 1 through June 15 of each year), and during juvenile clupeid downstream migration period (September 1 through November 15 of each year) (Condition 12); (4) implementation of a canal system operation plan, a plan for protection and monitoring of aquatic resources in the canal system, and a plan to exclude shortnose sturgeon and other fish from the fishlift attraction water (Condition 13); (5) redesign and reconstruction of the project's upstream and downstream fish passage facilities, as well as requirements related to operation of the fish passage facilities (Condition 14); fish monitoring and counting (Condition 15); and submission to Massachusetts DEP of a riparian management plan (Condition 19).

<sup>22</sup> 16 U.S.C. § 1531-43.



sets DFW, Massachusetts DEP, TU, and the Water Council. The licensee shall implement the modified run-of-river operating protocol as approved by the Commission.

*(d) Emergencies and Short Period Modifications.*

The run-of-river mode of operation and minimum impoundment surface elevation requirements may be temporarily modified if required by operating emergencies, so long as the emergency is beyond the control of the licensee, is not reasonably foreseeable, and could not have been avoided by the exercise of due care by the licensee. Further, releases may be temporarily modified because of an emergency for short periods upon mutual agreement between the licensee, FWS, NOAA Fisheries, Massachusetts DEP, and Massachusetts DFW. If Project operations are so modified, the licensee shall notify the Commission and FWS, NOAA Fisheries, the Massachusetts DEP and Massachusetts DFW in advance if knowable or as soon as possible otherwise, but no later than 24 hours after each such incident, and shall provide the reason for the modified flow. The licensee shall also comply with the additional requirements in Condition 9(b) of the Water Quality Certification issued by Massachusetts DEP on February 14, 2001 (as incorporated in Article 421).

*(e) Consultation with Resource Agencies and Other Parties.* The licensee shall follow the consultation process described in License Article 420, and shall distribute all reports to the resource agencies and other parties listed in that article.

**Article 406. Flow Releases to the Holyoke Bypassed Reach.** The licensee shall release seasonally-adjusted minimum flows into the bypassed reach and into the canal system for the protection and enhancement of water quality and aquatic and fisheries resources as described in this License Article. The flows released into the bypassed reach when the fish lifts are not operational shall be of an amount that is determined to ensure an adequate water level in all bypassed channels for fish habitat and that protects the federally and state endangered shortnose sturgeon from injury or significant impairment to essential behavioral patterns (Bypass Habitat Flows). Additionally, the flows released into the bypassed reach when the fish lifts are operational shall be of an amount that is determined to ensure safe and successful passage of fish without injury or significant impairment to essential behavioral patterns (Bypass Zone-of-Passage Flows).

*(a) Bypass Zone-of-Passage Flows.* Within 60 days after the date this order is issued, and after consultation (as described in (i) below), the licensee shall file with the Commission, for approval, an amendment to the Comprehensive Operations and Flow Plan (as approved by the Commission on June 24, 2003 (103 FERC ¶ 62,178) (COFP)) to provide for the release of flows into the bypassed reach, when the fish

lifts are operational (as described in (a)(2) below), of an amount that ensures the safe and successful passage of diadromous fish (including the federally and state endangered shortnose sturgeon, when such passage is determined to be appropriate, as described below) and resident fish (when such passage is determined to be necessary, as described below), without injury or significant impairment to their essential behavioral patterns. All flows into the bypassed reach shall be correlated to the Texon Gage. The following provisions shall achieve that goal:

(1) A provision for the release of flows to the bypassed reach sufficient to achieve the water surface elevations in the bypassed reach which correspond to the 1997 Barnes & Williams IFIM Study of 1,300-cfs flow, as measured in the bypassed reach. Flows achieving a water surface elevation of 62.85 +/- 0.1 feet National Geodetic Vertical Datum (NGVD) at the Texon Gage (as defined in (a)(3) below) satisfy this requirement;

(2) A provision stipulating that the fish lifts at the Project shall be operational for the period April 1 through November 15 of each year, as refined by U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NOAA Fisheries), Massachusetts Division of Fisheries and Wildlife (Massachusetts DFW), Massachusetts Department of Environmental Protection (Massachusetts DEP) on an annual basis; provided, however, that the fish lifts shall not be operational during the period July 15 through September 15 until such time as: (A) NOAA Fisheries determines that upstream passage of the federally and state endangered shortnose sturgeon over the dam is appropriate; or (B) Massachusetts DFW and FWS determine that resident fish passage is necessary; and

(3) A provision describing the Texon Gage as the benchmark to measure water surface elevations for the purposes of determining the Bypass Habitat Flows and the Bypass Zone-of-Passage Flows through: (A) the correlation of NGVD elevations to the readings on the existing Texon Staff Gage (located on the Texon Building); (B) the use of NGVD elevations as confirmed on an electronic gage to be located adjacent to the Texon Building; or (C) the use of an equivalent mechanism for determining NGVD elevations in the future as agreed to by the licensee and the resource agencies in consultation pursuant to Paragraph (i) below.

*(b) Bypass Habitat Flows.* Within 60 days after the date this order is issued, and after consultation (as described in (i) below), the licensee shall file with the Commission, for approval, an amendment to the COFP to provide for the release of flows into the bypassed reach, when the fish lifts are not operational (as described in (a)(2) above), of an amount that ensures an adequate water level in all bypassed channels

for fish habitat and that protects the federally and state endangered shortnose sturgeon from injury, stranding, or significant impairment to their essential behavioral patterns. All flows into the bypassed reach shall be correlated to the Texon Gage. The following provisions shall achieve that goal:

(1) A provision for Interim Bypass Habitat Flows for the release of flows to the bypassed reach sufficient to achieve the water surface elevations in the bypassed reach which correspond to the 1997 Barnes & Williams IFM Study of 840 cfs flow, as measured in the bypassed reach. Flows achieving a water surface elevation of 62.3 +/- 0.1 feet NGVD at the Texon Gage [as defined in (a)(3) above] satisfy this requirement; and

(2) A plan to establish Permanent Bypass Habitat Flows for normal operations and maintenance conditions at the Project based on the Interim Bypass Habitat Flows adjusted and modified based on flow demonstrations performed for normal operating conditions (*i.e.*, with releases through the Bascule Gate) and for maintenance conditions (*i.e.*, with releases through Rubber Dam Section No. 1 (section at South Hadley end of dam), when the Bascule Gate is out of service): (A) the evaluation of water surface elevations and the distribution of flows in the bypassed reach after the Spring 2004 fish passage season, and (B) determination if any channel modifications for flow distributions or changes to the Interim Bypass Habitat Flows are necessary to achieve the water surface target elevations from the 1997 Barnes and Williams study for each of the three bypassed channels in the bypassed reach to provide an adequate water level for fish habitat and to prevent any adverse impacts to the federally and state endangered shortnose sturgeon, including injury, stranding, or significant impairment to essential behavioral patterns. If it is determined that there is a need for modifications to the Holyoke (West) Channel or a need for changes to the Interim Bypass Habitat Flows, after consultation [as described in (i) below], the licensee shall file an application to amend the license for the Project to the extent required by the Commission's regulations. Any changes proposed under such an application for license amendment shall be coordinated with changes based on the modified run-of-river operations set forth under License Article 405.

(c) *Canal Minimum Flows.* Within 60 days after the date this order is issued, and after consultation (as described in (i) below), the licensee shall file with the Commission, for approval, an amendment to the COFP, as necessary, to provide for the release of seasonally-adjusted minimum flows into the canal system that include all of the following provisions:

(1) A provision for interim canal system minimum flows into the canal system, downstream

of the lower bypass facility, of 400 cfs consistent with the Comprehensive Canal Operations Plan (as approved by the Commission on June 5, 2003 (103 FERC ¶ 62,130) (CCOP)) and the COFP. The licensee shall use generation records (consistent with the form and content of the filings made at the Commission for the period in question) and unit rating curves as an interim compliance measure; and

(2) The plan to establish permanent canal system minimum flow compliance measures to ensure a 400 cfs continuous minimum flow into the canal system downstream of the lower facility, as filed with the Massachusetts DEP in December 2003. The plan includes—

(A) The use of head gate openings and pond elevations to determine the quantity of flow (calculated from gate opening/discharge relationships) and flow measurements in the first level canal (using new flow measurement equipment installed in the first level canal) to ensure adequate flow distribution;

(B) The filing with the Commission and Massachusetts DEP on or before June 30 2004, of permanent compliance measures as a revision to the CCOP as necessary; and

(C) A provision that if significant modifications are made by the licensee or any other entity on the canal, after establishment of the permanent canal system minimum flows, that could change leakage or the distribution of flow in the canal system, the licensee shall evaluate the magnitude and distribution of flows in the canal system. Then, in consultation [as described in (i) below], the licensee shall file a proposed revision to the permanent canal system minimum flow compliance measures contained in the CCOP as necessary to achieve the resource management objectives and the minimum flow requirements set forth in this License Article and agreed to by the resource agencies and other parties [pursuant to consultation as described in (i) below].

(d) *Canal System Outage Procedures.* Within 60 days after the date this order is issued, and after consultation (as described in (i) below), the licensee shall file with the Commission for approval an amendment to the COFP, as necessary, to provide canal system drawdown procedures and operation of weirs in the canal to protect and enhance mussel species including the federally and state listed endangered dwarf wedgemussel and the state listed endangered yellow lampmussel as follows:

(1) To provide interim canal system outage procedures that provide for:

(A) Maintenance of minimum flows through the headgates sufficient to ensure that the pool between Boatlock and Riverside remains at an elevation equal to the Riverside Station intake sill elevation and at ambient river temperature throughout the drawdown period;

(B) Maintenance of sufficient flows from the Project headgates to provide water in the first level canal (once maintenance is completed) to protect the state listed endangered yellow lampmussel at the lower end of the louvers;

(C) Keeping the No. 3 Overflow closed until the end of the canal system outage period, at which time it may be opened for inspection and maintenance;

(D) Maintenance of measures for the protection of mussels if heavy machinery is used in the canal during the canal system outage period;

(E) A plan for evaluation of the experimental weir in the first level canal to determine if it retains water and develop and implement plans to modify as required; and

(F) A plan to evaluate the need for additional weirs to keep mussel habitat areas watered.

(2) To provide permanent canal system outage procedures that stipulates the following:

(A) Based on the evaluations of the Spring and Fall 2004 canal system outages, the licensee shall consult pursuant to (i) below to modify the interim canal system outage procedures (including the drawdown procedures, experimental weir, and any additional weirs) to the extent necessary to protect and enhance mussel species including the federally and state listed en-

dangered dwarf wedgemussel and the state listed endangered yellow lampmussel, and to generally ensure sufficient flows into the canal system during the outages for the protection and enhancement of water quality and aquatic and fisheries resources;

(B) On or before January 31, 2005, the licensee shall file with the Commission, for approval as an amendment to the CCOP, a permanent canal system outage plan for canal drawdowns that addresses the following: Provisions implemented in the Spring and Fall 2004 canal system outage (as stated in (d)(2)(A) above), the evaluation and potential installation of a permanent weir in 2005 and/or additional weirs as necessary, and an update of the matters addressed in the interim canal system outage procedures;

(C) The licensee shall notify all canal water users and FWS, NOAA Fisheries, Massachusetts DEP, Massachusetts DFW, Trout Unlimited, and the Connecticut River Watershed Council prior to any canal system outage; and

(D) The licensee shall implement the plan as approved by the Commission.

(e) *Flow Prioritization.* The licensee shall operate the Holyoke Project according to the following flow prioritization plan:

Minimum Project Flow Prioritization During Fish Passage		
Priority	Spring Passage	Fall Passage
1	Canal to 400 cfs (plus 150 cfs for louvers)	Canal to 400 cfs (plus 150 cfs for louvers)
2	Bypassed Reach Habitat Flows	Bypassed Reach Habitat Flows
3	Fishway Attraction Water up to 440 cfs	Fishway Attraction Water up to 440 cfs
4	Bypassed Reach Zone-of-Passage Flows	Bypassed Reach Zone-of-Passage Flows
5	Hadley Falls Unit 1	Hadley Falls to capacity, as long as canal has at least 3,000 cfs
6	Canal to 2,000 cfs	
7	Hadley Falls to capacity	

The licensee shall file any proposed modification to that flow prioritization plan as a proposed revision to the COFP after consultation (as described in (i) below).

(f) *Monitoring.* The licensee shall specify the methods for operating and releasing bypassed reach and canal system minimum flows and shall monitor compliance with the minimum flows, as required by License Article 407.

(g) *Emergencies.* Releases from the Holyoke Project may be temporarily modified if required by operating emergencies, so long as the emergency is beyond the control of the licensee, is not reasonably foreseeable, and could not have been avoided by the exercise of due care by the licensee. Further, releases may be temporarily modified because of an emergency for short periods upon mutual agreement between the licensee, the FWS, NOAA Fisheries, Massachusetts DEP, and Massachusetts DFW. If the

flows are so modified, the licensee shall notify the Commission, FWS, NOAA Fisheries, Massachusetts DEP and Massachusetts DFW in advance if knowable or in advance or as soon as possible otherwise, but no later than 24 hours after each such incident, and shall provide the reason for the modified flow.

(h) *Changes.* If the information reported pursuant to this License Article indicates that a different flow regime is needed to protect and enhance water quality or aquatic and fisheries resources in the Project vicinity of the Connecticut River, the Commission may require such changes.

(i) *Consultation with Resource Agencies and Other Parties.* The licensee shall follow the consultation process described in License Article 420, and shall distribute all reports to the resource agencies and other parties listed in that article.

*Article 407. Comprehensive Operations and Flow Plan.*

(a) The licensee shall implement the Comprehensive Operations and Flow Plan as approved by the Commission on June 24, 2003 (103 FERC ¶ 62,178) (COFP), including run-of-river operation, bypass flows, and fish passage operational flows.

(b) With respect to any proposed modifications to the COFP, the licensee shall follow the consultation process described in License Article 420.

(c) The Commission reserves the right to require changes to any proposed modifications to the COFP. Construction of any flow release mechanism(s) or structure(s) shall not begin until the Commission notifies the licensee that the proposed modifications to the COFP are approved. The licensee shall implement the modified COFP as approved by the Commission, including any changes required by the Commission. Any flow release mechanism(s) or structure(s) constructed by the licensee shall be shown on the as-built drawings filed pursuant to License Article 303 of this license.

(d) If the information reported pursuant to License Articles 404, 408, and 410 indicates that a different flow regime or method of achieving the flow regime is necessary to provide adequate protection and enhancement of water quality or aquatic and fisheries resources in the Project vicinity of the Connecticut River, the Commission may require such changes.

*Article 408. Holyoke Canal Operations.* The licensee shall operate the Project to protect and enhance water quality and mussel populations in the canal system.

(a) *General Canal Operations.* The licensee shall implement the Comprehensive Canal Operations Plan, as approved by the Commission on June 5, 2003 (103 FERC ¶ 62,130) (CCOP) [with the amendments to the CCOP contained in the Comprehensive Operations and Flow Plan, as approved by the Commission on June 24, 2003 (103 FERC ¶ 62,178)] to protect and enhance water quality and mussel populations in the canal system. With respect to any proposed modifications to the CCOP, the licensee shall consult with the resource agencies and the other parties as specified in Paragraph (d) below.

(b) *Operation of the Full Depth Louvers and Exclusion Racks.* The licensee shall continue to operate, clean and otherwise maintain the full depth louvers, installed in the first level of the canal system in Fall 2002 and the exclusion racks at the attraction water intake gates to ensure efficient and reliable operation of these facilities for the protection of aquatic resources. The licensee shall annually inspect the full depth louvers and exclusion racks, and repair them as necessary. In the event the full depth

louver facility is out of service during the fish passage season as described in License Article 411(a)(2), the canal system shall not be operated and the headgates shall be closed to seal flows into the canal. If necessary, at the end of the fish passage season a slow drain of the canal shall be performed to return any fish to the Connecticut River. In the event of a failure of the canal louver bypass system, the licensee shall shut the canal down. If there is a structural failure of the louver panels, the licensee shall notify Massachusetts Division of Fisheries and Wildlife (Massachusetts DFW), U.S. Fish and Wildlife Service (FWS), and the National Marine Fisheries Service (NOAA Fisheries) within 24 hours, and shall implement a slow drain procedure to allow any fish in the canal downstream of the louver facility to return to the River.

(c) *Effectiveness Studies of Full Depth Louvers.* The licensee shall implement the effectiveness study plan for the full depth louvers, as they affect surface migrants, pursuant to the effectiveness study plan outlined in Section 4.3(g) of the Settlement (included as Appendix C to this license order). In consultation (as described in (d) below), the licensee shall prepare and file an effectiveness study plan for the full depth louvers, as they affect bottom migrants (as addressed in Section 4.7(c)(1)(B) of the Settlement), with the Commission and Massachusetts Department of Environmental Protection (Massachusetts DEP) on or before July 1, 2004. The effectiveness of the full depth louvers shall be evaluated based on the overall downstream fish passage goal of safely and successfully passing the fish without injury or significant impairment to essential behavioral patterns. The study results regarding facility effectiveness shall be circulated to FWS, NOAA Fisheries, Massachusetts DFW, Massachusetts DEP, Trout Unlimited, and the Connecticut River Watershed Council, and filed with the Commission and Massachusetts DEP no later than December 31 of the year of completion of the study. If, based on the louver effectiveness studies and any other relevant information in the record of this proceeding, the licensee, the resource agencies and the other parties [in consultation as described in (d) below] determine that the full depth louvers are effective, the licensee may close the Boatlock Station Bypass.

(d) *Consultation with Resource Agencies and Other Parties.* The licensee shall follow the consultation process described in License Article 420, and will distribute all reports to the resource agencies and other parties listed in that Article.

(e) The Commission reserves the right to require changes to any proposed modification to the CCOP. The licensee shall implement the modified CCOP as approved, including any changes required by the Commission. If the results of monitoring indicate that changes in

Project structures or operations are necessary to protect and enhance water quality and mussel populations in the canal system (e.g., canal operations and/or structures), the Commission may direct the licensee to modify Project structures or operations.

*Article 409. Fish and Aquatic Habitat Plan.*

(a) The licensee shall implement the Fish and Aquatic Habitat Plan, as approved by the Commission on June 24, 2003 (103 FERC ¶ 62,175), to monitor fish and aquatic habitat and fish populations within the bypassed reach and the Holyoke canals. The licensee shall propose to modify the plan, if necessary, based on the 2003 and 2004 canal system outages and to track the 12-year plan in the Fish and Aquatic Habitat Plan (as addressed in Section 4.11(e) of the Settlement). In addition, the licensee shall implement the provision of the Comprehensive Canal Operations Plan, as approved by the Commission on June 5, 2003 (103 FERC ¶ 62,130), with respect to monitoring of canal mussel populations.

(b) The licensee shall follow the consultation process described in License Article 420 with respect to any proposed modifications to, or reporting, under the Fish and Aquatic Habitat Plan.

(c) The Commission reserves the right to require changes to any proposed modifications to the Fish and Aquatic Habitat Plan. Implementation of the modified plan shall not commence until the Commission notifies the licensee that the filing is approved. The licensee shall implement the modified plan as approved by the Commission, including any changes required by the Commission.

(d) If the results of the monitoring plan indicate that changes in Project structures or operations [including any measures identified by the licensee, the resource agencies and the other parties in consultation as described in (b) above] are necessary to protect aquatic and fisheries resources, the Commission may direct the licensee to modify Project structures or operations accordingly.

*Article 410. Downstream Fish Passage Facilities.*

The licensee shall install, operate, and maintain downstream fish passage facilities at the Holyoke Project that safely and successfully pass diadromous and resident fish without injury or significant impairment to essential behavioral patterns. The licensee shall further implement and enhance downstream fish passage in several phases as described below. The downstream fish passage facilities are to be designed, constructed and operated to: (i) prevent entrainment or impingement in the Project intake system; (ii) prevent injury to fish if passed over or through the dam onto the spillway; and (iii) ensure that all downstream migrating diadromous and resident fish that appear on the upstream side of the dam shall be passed

downstream without injury or significant impairment to essential behavioral patterns.

Operational deadlines for new downstream fish passage facilities shall depend on whether Phase 2A or Phase 2B is implemented, as determined by the licensee in consultation with the resource agencies [U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NOAA Fisheries), Massachusetts Division of Fisheries and Wildlife (Massachusetts DFW), and Massachusetts Department of Environmental Protection (Massachusetts DEP)] and other parties [Trout Unlimited (TU) and the Connecticut River Watershed Council (Watershed Council)] pursuant to (c) below. If, in consultation with the resource agencies, the licensee implements Phase 2A, then the complete downstream passage facilities shall be operational no later than April 1, 2010, although the licensee shall provide interim (and potentially long-term) facilities to prevent entrainment and impingement in the intake system by April 1, 2006. If, in consultation with the resource agencies, the licensee implements Phase 2B, then the complete downstream passage facilities shall be operational no later than April 1, 2009. Regardless of the Phase implemented, the licensee shall monitor effectiveness of the facilities and make additional improvements as provided for below.

(a) *Downstream Fish Passage.* The licensee shall implement the Downstream Fish Passage Plan as approved by the Commission on June 19, 2003 (103 FERC ¶ 62,165), to cover the operation, maintenance, and evaluation of the existing downstream fish passage facilities at the Holyoke Project until modification of that plan is authorized by the Commission under Paragraph (b) below. With respect to any proposed modifications to the Downstream Fish Passage Plan, the licensee shall consult with the resource agencies and the other parties as specified in Paragraph (c) below.

(b) *Downstream Fish Passage Enhancements—* Within 60 days after the date this order is issued, and after consultation [as described in (c) below and in Article 420], the licensee shall file with the Commission and Massachusetts DEP, for approval, a plan to enhance the existing downstream fish passage facilities at the Holyoke Project that includes:

(1) *Phase 1—2004-2005.* During the period 2004 through 2005, in consultation with the agencies and other parties pursuant to Paragraph (c) below, the licensee shall implement modifications to the Downstream Sampling Facility; shall potentially implement modifications to the Louver Bypass Discharge Pipe (as set forth below); shall implement operational changes to prioritize flows from the Hadley Falls units to the canal during Fall evening hours; and shall conduct research and studies (as set forth below). Based on such research, on or before December 31, 2005, the licensee

[in consultation pursuant to Paragraph (c) below], shall determine whether to implement Phase 2A or Phase 2B (as described below in Paragraphs (c) and (d) below). The Phase 1 work shall include:

(A) To minimize the potential for injury to federally and state endangered shortnose sturgeon if they enter the Downstream Sampling Facility, after initial consultation pursuant to Paragraph (c) below, the licensee shall develop a plan to modify the Downstream Sampling Facility with such modifications to be completed by April 15, 2004, and to test the effectiveness of such modifications thereafter in 2004. The plan shall be filed with the Commission and Massachusetts DEP on or before March 1, 2004. The licensee shall implement the plan as approved in writing by the Commission. If, after such modifications, evidence of injury to shortnose sturgeon is found, the licensee shall consult with the resource agencies and other parties pursuant to Paragraph (c) below to determine if any additional modifications are appropriate. The licensee shall operate the Downstream Sampling Facility in accordance with the Downstream Sampling Facility Operating Protocol, attached as Appendix D to this license order.

(B) The licensee shall evaluate the effect of the height of the drop from the Louver Bypass Discharge Pipe to the tailrace on shortnose sturgeon through a radio tracking study. If, in consultation pursuant to Paragraph (c) below, the licensee determines it is necessary to reduce the height of the drop from the Louver Bypass Discharge Pipe to the tailrace to enhance the survival of shortnose sturgeon, the licensee shall propose how best to modify the Louver Bypass Discharge Pipe in a plan to be filed [after consultation pursuant to Paragraph (c) below] that provides for such modifications to be implemented in 2005, to be operational for the Spring 2006 Upstream Passage Season, and effectiveness testing of the modifications in 2006 after the modifications are implemented. The licensee shall file the plan with the Commission and Massachusetts DEP on or before April 1, 2005, and shall implement the plan as approved in writing by the Commission.

(C) To reduce entrainment, the licensee shall develop a plan [in consultation pursuant to Paragraph (c) below] to change flow prioritization from the Hadley Falls units to the Canal during nighttime periods from October 1 through the later of: (i) the time when the River temperature reaches 5° C.; or (ii) November 30 [unless the resource agencies and other parties, in consultation pursuant to Paragraph (c) below, agree to an earlier time], with prioritizing the Canal first and then regulating the Hadley Falls Station. The licensee shall file the plan with the Commission and Massachusetts DEP on or before December 31, 2004, and shall implement the plan as approved in writing by the Commission.

The licensee shall also consult with the resource agencies and other parties [pursuant to Paragraph (c) below] to determine if additional or alternative operational changes will enhance downstream passage.

(D) In consultation pursuant to Paragraph (c) below, the licensee shall conduct a Louver Field Study in 2004: (i) to evaluate effectiveness of the full depth louvers to guide shortnose sturgeon and American eels; and (ii) to evaluate the behavior of shortnose sturgeon and American eels at the ramp and the entrance to the bypass pipe.

(E) In consultation pursuant to Paragraph (c) below, the licensee shall conduct CFD Modeling in 2004: (i) of the Hadley Falls unit's intakes to evaluate the potential of modifying the existing Hadley Falls unit's intake racks to be an effective interim (and potentially long term device to prevent entrainment and impingement of fish at the Hadley Falls; and (ii) of a potential bottom weir to evaluate if such a weir would produce flow patterns conducive to guide bottom migrants into the Canal.

(F) In consultation pursuant to Paragraph (c) below, the licensee shall conduct a USGS Flume Study in 2004: (i) to determine the swimming depth and behavior of yearling, juvenile and adult shortnose sturgeon at a bar rack structure; (ii) to determine the threshold velocity for avoidance of impingement/entrainment of yearling, juvenile, and adult shortnose sturgeon at conditions present at the proposed modified Hadley Falls intake racks with 2-inch spacing; and (iii) to determine if yearling, juvenile, and adult shortnose sturgeon can avoid impingement/entrainment at conditions present at a potential alternative bar rack facility (2-inch spacing and velocities of 2 fps).

(G) In consultation pursuant to Paragraph (c) below, the licensee shall conduct a USGS Flume Study in 2005: (i) to determine how shortnose sturgeon would respond to a bottom weir for guidance; and (ii) to determine how shortnose sturgeon would respond to a bypass entrance, integral with a rack structure.

(H) In consultation pursuant to Paragraph (c) below, the licensee shall conduct a Bascule Gate and Rubber Dam Section No. 5 Analysis (comprised of a desk-top study) in 2005: (i) to identify potential solutions to the interference of the Bascule Gate discharge on the entrance to the spillway fishway; (ii) to evaluate the feasibility of using/modifying the Bascule Gate and/or modifying the spillway in the vicinity of Rubber Dam Section No. 5 (adjacent to the Bascule Gate) to pass shortnose sturgeon, American eels and other migratory fish; and (iii) to investigate modifications to the Bascule Gate and/or the spillway in the vicinity of Rubber Dam Section No. 5 to safely and successfully pass the fish without injury or significant impairment to essential behavioral patterns down the spillway and over the apron into the Bypassed Reach.

(I) In consultation pursuant to Paragraph (c) below, the licensee shall conduct an Eel Study in 2004 to determine the timing of migration of silver-phase American eels at the Project.

(J) In consultation pursuant to Paragraph (c) below, the licensee shall conduct a Spawning Study in 2005 to identify potential spawning sites for shortnose sturgeon downstream of the Dam.

(2) *Decision Point—2005.* Based on the results of the Phase 1 research, on or before September 30, 2005, the licensee shall distribute to the resource agencies and other parties [as provided in Paragraph (c) below] a recommendation on whether to implement Phase 2A or Phase 2B, as described below. The licensee shall implement Phase 2A as set forth in Paragraph (b)(3) below if: (i) the results of the Phase 1 studies (described above) demonstrate that the licensee can modify the existing Hadley Falls intake racks to be an effective interim (and potentially long term) exclusion device while achieving the threshold velocity for avoidance of entrainment and impingement of fish; and (ii) there is a potential solution to the Bascule Gate discharge interference on the spillway fishway and a means of providing safe passage down the spillway and over the apron have been identified. If the two elements (i) and (ii) above are not confirmed by the FWS, NOAA Fisheries, Massachusetts DEP and Massachusetts DFW pursuant to the process described below, then the licensee shall implement Phase 2B.

The process for determining whether the licensee implements Phase 2A or Phase 2B shall be as follows: After circulation by the licensee of the study results and the licensee's recommendation for Phase 2A or Phase 2B, the licensee shall consult pursuant to Paragraph (c) below. On or before December 31, 2005, FWS, NOAA Fisheries, Massachusetts DEP and Massachusetts DFW are to notify the licensee if they all agree with the licensee's recommendation; in which case, the licensee shall implement that recommendation. If FWS, NOAA Fisheries, Massachusetts DEP and Massachusetts DFW do not all agree with the licensee's recommendation, they are to notify the licensee by December 31, 2005, and the licensee shall then implement Phase 2B.

(3) *Phase 2A—2006-2010.* Based on the Phase 1 research, consistent with the decision made pursuant to Paragraph (b)(2) above, and in consultation pursuant to Paragraph (c) below, the licensee shall implement the work and research as outlined below for further enhancements of the downstream fish passage facilities. Under Phase 2A the licensee shall: (i) continue to implement operational changes commenced in 2005 to enhance downstream passage of shortnose sturgeon; (ii) construct and install an interim (and potentially long term) device by the end of 2006 that prevents entrainment and impingement at the Project based on modifications

of the Hadley Falls intake racks and installation of a new trash rake structure connected with the intake racks; (iii) prepare a functional design drawing of the selected option to modify the Bascule Gate to safely and successfully pass fish without injury or significant impairment to essential behavioral patterns and to solve interference of Bascule Gate discharge on the spillway fishway, then build a prototype and field test (if necessary) in 2006, with engineering/permitting in 2007 and construction in 2008; (iv) undertake additional research during the period 2006 to 2010 to ensure that the downstream passage facilities are effective for exclusion and safe and successful passage of fish over the dam; (v) design, engineer, and permit in 2008: (A) an alternative exclusion and (B) an alternative passage device in the vicinity of Rubber Dam Section No. 5 (if the modifications to the Hadley Falls intake racks are determined not to be successful as a long-term exclusion device), to safely and successfully pass fish without injury or significant impairment to essential behavioral patterns, with construction of these facilities completed in 2009, and with the start of effectiveness testing of these facilities in 2010; and (vi) implement a long-term monitoring program for shortnose sturgeon from 2011 to the end of the Project License. The specific schedule is as follows:

#### 2006

- The licensee shall design, engineer, permit, build and complete the modifications to existing Hadley Falls intake racks and installation of a new trash rake structure, as agreed to at the Decision Point 2005 above, as an exclusion device for downstream migrating fish including shortnose sturgeon to prevent entrainment and impingement at the Hadley Falls intakes. The modifications to the Hadley Falls intake racks and the installation of the new trash rake shall be completed by the end of 2006 (or earlier if possible depending on River conditions and obtaining necessary permits).
- The licensee shall continue to implement operational changes commenced in 2005.
- The licensee shall prepare a functional design drawing of the selected option to modify the Bascule Gate for safe passage and to solve interference of Bascule Gate discharge on spillway fishway; build prototype and field test (if necessary).
- The licensee shall conduct effectiveness studies of the modifications to the Louver Bypass Discharge Pipe if implemented in 2005, and shall distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.
- The licensee shall perform radio tracking studies of shortnose sturgeon and silver-phase American eels, and shall distribute the results to the resource agencies and

other parties pursuant to Paragraph (c) below.

#### 2007

- The licensee shall engineer, design and permit modifications to the Bascule Gate to provide safe and successful passage for the fish without injury or significant impairment to essential behavioral patterns and to solve the interference of Bascule Gate discharge on the spillway fishway.
- The licensee shall continue to perform radio tracking studies of shortnose sturgeon and use such studies to evaluate the effectiveness of the modifications to the Hadley Falls intake racks completed in 2006; shall continue to perform radio tracking studies of silver-phase American eels, if necessary; and shall distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.

#### 2008

- The licensee shall provide to the resource agencies and other parties (consulted pursuant to Paragraph (c) below) the results of the effectiveness testing of the modifications to the Hadley Falls intake racks and other measures in 2006-2007, and the licensee's conclusion whether those modifications and other measures achieve the goals for Phase 2A as stated above. Based on that information the licensee, in consultation with the resource agencies and other parties (through the decisional process described in Appendix F, Part III, Decision Point—2005, of the Settlement), shall determine if it is necessary to build an alternative exclusion device.

○ If (through the decisional process described in Appendix F, Part III, Decision Point—2005, of the Settlement) the resource agencies (FWS, NOAA Fisheries, Massachusetts DEP and Massachusetts DFW) determine that it is not necessary for the licensee to build an alternative exclusion device, then the licensee shall design, engineer, permit and construct the modifications to the Bascule Gate, for fish passage.

○ If (through the decisional process described in Appendix F to the Settlement) the resource agencies (FWS, NOAA Fisheries, Massachusetts DEP and Massachusetts DFW) determine that it is necessary for the licensee to build an alternative exclusion and passage device(s), then the licensee shall design, engineer and permit: (i) an alternative exclusion device; and (ii) an alternative passage device (in the vicinity of Rubber Dam Section No. 5), as determined by the resource agencies and other parties (in consultation pursuant to Paragraph

(c) below) that would not only exclude fish from the Hadley Falls intakes without impingement, but would also provide for safe and successful downstream passage of fish without injury or significant impairment to essential behavioral patterns.

- The licensee shall continue to perform radio tracking studies of shortnose sturgeon, and distribute results to the resource agencies and other parties pursuant to Paragraph (c) below.
- The licensee shall conduct a Population Survey for shortnose sturgeon in the Connecticut River, from Long Island Sound to Turners Falls (as described more fully in Appendix F to the Settlement Agreement and Appendix E to this license order), and distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.

#### 2009

- As determined to be necessary in 2008, the licensee shall bid, build and complete construction of device(s) designed and permitted in 2008 (in consultation with the resource agencies and other parties pursuant to Paragraph (c) below).
- The licensee shall continue radio tracking studies of shortnose sturgeon and distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.

#### 2010

- The licensee shall commence operation of the device(s) constructed in 2009 prior to April 1, 2010.
- The licensee shall, in consultation pursuant to Paragraph (c) below, develop a plan to study the effectiveness of the exclusion and passage device(s) completed in 2008-2009; shall implement that plan; and shall distribute the results to the resource agencies and other parties by January 31, 2011, pursuant to Paragraph (c) below.
- The licensee shall consult [pursuant to Paragraph (c) below] to develop long-term monitoring protocol for shortnose sturgeon during the term of the License for the Project, with distribution of the results annually to the resource agencies and other parties pursuant to Paragraph (c) below. If after 2010 the licensee determines, in consultation pursuant to Paragraph (c) below, that shortnose sturgeon are not passing safely downstream of the Project, the licensee shall consult further with the resource agencies and other parties pursuant to Paragraph (c) below to determine a plan for re-evaluating the downstream passage facilities.



Plans to implement each part of Phase 2A above shall be prepared and submitted to the resource agencies and other parties pursuant to Paragraph (c) below. The licensee shall consult with the resource agencies and other parties, and/or obtain the concurrence and/or approval of that plan, pursuant to Paragraph (c) below. Thereafter, the licensee shall file such plans with the Commission and Massachusetts DEP, and shall implement such plans as approved in writing by the Commission.

(4) *Phase 2B—2006-2009.* Based on the Phase 1 research, consistent with the decision made pursuant to Paragraph (b)(2) above, and in consultation pursuant to Paragraph (c) below, the licensee shall implement the work and research as outlined below for further enhancements of the downstream fish passage facilities. Under Phase 2B the licensee shall: (i) continue to implement operational changes commenced in 2005 to enhance downstream passage of shortnose sturgeon; (ii) continue studies and research to determine the appropriate alternative exclusion and passage device(s), including an angled bar rack; (iii) design/permit measures and modifications in 2007 for: (A) an alternative exclusion device, and (B) an alternative passage device (in the vicinity of Rubber Dam Section No. 5) to safely and successfully pass fish without injury or significant impairment to essential behavioral patterns and avoid any potential flow interference problems with the spillway fishway, construct these facilities in 2008, and start effectiveness testing of these facilities in 2009; (iv) undertake additional research and additional measures from 2006 to 2009 to ensure that the downstream passage facilities are effective for exclusion and guidance as described below; and (v) implement a long-term monitoring program for shortnose sturgeon from 2010 to the end of the Project License. The specific schedule is as follows:

#### 2006

- The licensee shall perform a full feasibility study of options for an alternative passage device (in the vicinity of Rubber Dam Section No. 5) to: (i) safely and successfully pass the fish without injury or significant impairment to essential behavioral patterns down the spillway over the apron and into the Bypassed Reach; and (ii) avoid any potential flow interference problems with the spillway fishway. Build prototype and field test (if necessary).
- The licensee shall continue to implement operational changes commenced in 2005.
- The licensee shall consult pursuant to Paragraph (c) below to develop a research and study program to evaluate alternative exclusion and passage device(s).
- The licensee shall perform radio tracking studies of shortnose sturgeon and silver-

phase American eel; and shall distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.

- The licensee shall conduct effectiveness studies of the modifications to the Louver Bypass Discharge Pipe if performed in 2005, and shall distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.

#### 2007

- In consultation with the resource agencies and other parties pursuant to Paragraph (c) below, the licensee shall design/engineer/permit: (i) an alternative exclusion device; and (ii) an alternative passage device (in the vicinity of Rubber Dam Section No. 5), determined in 2006 by the licensee, the resource agencies and the other parties (in consultation pursuant to Paragraph (c) below) to safely and successfully pass the fish without injury or significant impairment to essential behavioral patterns down the spillway over the apron and into the Bypassed Reach, avoiding any potential flow interference problems with the spillway fishway, that would not only exclude fish from the Hadley Falls intakes without impingement, but also provide for safe and successful downstream passage of migratory and resident fish.
- The licensee shall continue to implement operational changes commenced in 2005.
- The licensee shall continue radio tracking studies of shortnose sturgeon, and shall distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.

#### 2008

- As designed and permitted in 2007, in consultation with the resource agencies and other parties pursuant to Paragraph (c) below, the licensee shall bid, build and complete construction of: (i) the alternative exclusion device; and (ii) the alternative passage device.
- The licensee shall continue to implement operational changes commenced in 2005.
- The licensee shall continue radio tracking studies of shortnose sturgeon and shall distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.
- The licensee shall conduct a Population Survey for shortnose sturgeon in the Connecticut River, from Long Island Sound to Turners Falls (as described more fully in Appendix F to the Settlement Agreement and in Appendix E to this license order), and distribute the results to the resource agencies and other parties pursuant to Paragraph (c) below.

## 2009

- The licensee shall commence operation of the device(s) constructed in 2008 prior to April 1, 2009.
- The licensee shall, in consultation pursuant to Paragraph (c) below, develop a plan to study the alternative exclusion and passage devices completed in 2008; shall implement the plan; and shall distribute the study results to resource agencies and other parties by January 31, 2010, pursuant to Paragraph (c) below.
- The licensee shall consult resource agencies and other parties pursuant to Paragraph (c) below to develop long-term monitoring protocol for shortnose sturgeon during the term of the License for the Project, with distribution of the results annually to the resource agencies and other parties pursuant to Paragraph (c) below. If after 2009 the licensee determines, in consultation pursuant to Paragraph (c) below, that shortnose sturgeon are not passing safely downstream of the Project, the licensee shall consult further with the resource agencies and other parties pursuant to Paragraph (c) below to determine a plan for re-evaluating the downstream passage facilities.

Plans to implement each part of Phase 2B above shall be prepared and submitted to the resource agencies and other parties pursuant to Paragraph (c) below. The licensee shall consult with the resource agencies and other parties, and/or obtain the concurrence and/or approval of that plan, pursuant to Paragraph (c) below. Thereafter, the licensee shall file such plans with the Commission and Massachusetts DEP, and shall implement such plans as approved in writing by the Commission.

(c) *Consultation and the Filing of Plans.* The licensee shall follow the consultation process described in License Article 420.

(d) The Commission reserves the right to require changes to any plan filed. Implementation of any provision outlined in a plan shall not commence until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. Any structure built in accordance with a plan shall be shown on the as-built drawings filed pursuant to License Article 303.

*Article 411. Upstream Fish Passage Facilities.* The licensee shall install, operate, and maintain upstream fish passage facilities at the Holyoke Project that ensure that all upstream migrating diadromous and resident fish are able to safely and successfully pass upstream of the Project without injury or significant impairment to essential behavioral patterns. Upstream passage shall include the federally and state endangered

shortnose sturgeon and resident fish only when the resource agency(ies) determines it is necessary or appropriate as described more fully below. The licensee shall implement and enhance upstream fish passage as outlined in Phase 1 and Phase 2A/2B described below.

(a) *Upstream Fish Passage—Phase 1.* Within 60 days after the date of this order (as described in License Article 420), and after consultation [as described in (e) below], the licensee shall file with the Commission and the Massachusetts Department of Environmental Protection (Massachusetts DEP), for approval, an amendment to the Upstream Fish Passage Plan as approved by the Commission in an order issued on June 24, 2003 (103 FERC ¶ 62,177), and amended on March 18, 2004 (106 FERC ¶ 62,213), to cover the operation, maintenance, and evaluation of the existing upstream fish passage facilities (including the enhancements completed since issuance of the 1999 License Order) at the Holyoke Project that includes:

(1) The upstream passage facilities listed as including: (A) the attraction water system; (B) the tailrace entrance and lift tower; (C) the spillway entrance and lift tower; (D) the spillway transport channel; (E) the entrance flume with the fish trapping and viewing station; (F) the exit flume; (G) trapping and hauling system; and (H) the fish exit channel.

(2) The following enhancements already performed to the upstream passage facilities (completed after issuance of the 1999 License Order) listed as including: (A) modification of the gate insert in the west tailrace entrance to improve flows for fish passage; (B) modifications to the Holyoke (West) Channel in the bypassed reach to reduce stranding of upstream migrants; (C) improvement to the "V Gate" in the tailrace entrance gallery to reduce shad milling; and (D) increased elevation of the area above the Hadley Falls Station draft tubes to provide for operation up to 40,000 cfs river flow.

(3) The continued operation of the tailrace and spillway fish lift facilities, as described herein during the Upstream Passage Season (to be defined as from April 1 through November 15 of each year), as refined by the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NOAA Fisheries), Massachusetts DEP and the Massachusetts Division of Fisheries & Wildlife (Massachusetts DFW) on an annual basis; provided, however, that the fish lifts shall not be operational for the period from July 15 to September 15 of each year until such time as: (A) NOAA Fisheries determines that upstream passage of shortnose sturgeon over the Dam is appropriate; or (B) Massachusetts DFW and FWS determine that resident fish passage is necessary. The specific dates and hours of operation of the fish lifts during these periods would be determined by Massachusetts DFW in consultation with the licensee, in accordance with Condition 14(d) of the Water Quality

Certification issued by Massachusetts DEP in February 2001, and in consultation with NOAA Fisheries once upstream passage of shortnose sturgeon is implemented;

(4) A provision that, except for Fall 2004, the licensee not interrupt fish lift operations during the Upstream Passage Season; and a functioning trap for salmon and the ability to trap and truck shad is available during the Upstream Passage Season before and after construction in 2004;

(5) A provision that when shortnose sturgeon appear at the fish lift facilities but are not to be lifted, the licensee follow the Shortnose Sturgeon Handling Plan (attached as Appendix F to this license order);

(6) A provision that the licensee implement measures and procedures to operate the No. 2 Overflow in such a manner to avoid releasing water during Upstream Passage Season when the fish lifts are operational pursuant to the No. 2 Overflow Procedures (attached as Appendix G to this license order);

(7) Provisions for: (A) maintaining the fish passage facilities in proper order and keeping such facilities clear of trash, logs, and material that would hinder passage; (B) performing maintenance such that the fish passage facilities would operate effectively prior to and during the Upstream Passage Season; and (C) developing a fish passage maintenance plan describing the anticipated maintenance, a maintenance schedule, and contingencies; and

(8) A provision to allow agency personnel access to the project site and to pertinent project records, for the purpose of inspecting the fish passage facilities.

(b) *Upstream Fish Passage—Phase 2.* Within 90 days after the date this order is issued, and after consultation (as described in (e) below and in Article 420), the licensee shall file with the Commission and Massachusetts DEP, for approval, a plan to enhance the existing upstream fish passage facilities at the Holyoke Project that includes:

(1) Completion of the installation of the following improvements by the Spring 2005 Upstream Passage Season, with development of final detailed plans and schedule in consultation [as described in (e) below], and submittal of final detailed plans and schedule to the Commission for approval:

(A) Replacement of the tailrace lift tower, auxiliary equipment and hopper to accommodate 33 cubic feet per minute capacity;

(B) Replacement of the spillway tower, auxiliary equipment and hopper to accommodate 46 cubic feet per minute capacity;

(C) Increase of the width of the spillway transport channel to an average width of 6 feet;

(D) Modifications to the exit flume to accommodate the new spillway lift location;

(E) Increase of the width of the fish exit channel up to a maximum of 14 feet between the lift towers and the fish counting station;

(F) Installation of a high capacity adjustable drain valve in the flume;

(G) Addition of a second fish trap and viewing window in the exit flume;

(H) Expansion of the fish counting station to include both fish traps;

(I) Modification of the fish trapping and hauling system to improve the work area and minimize hoisting and netting of fish; and

(J) Modification of the attraction water supply system to provide up to 200 cfs at the spillway entrance and 120 cfs at each of the tailrace entrances.

(2) A schedule that provides for construction to begin in 2004 and be completed prior to the start of the Spring 2005 Upstream Passage Season;

(3) Milestones to identify target completion dates for key components to ensure compliance with Spring 2005 Upstream Passage Season requirements; and

(4) Contingency plans for unexpected delays in construction. If, by November 1, 2004, it is determined that the licensee would not meet the start of the operation of the fish lifts pursuant to (a)(1) above, or the planned construction is substantially behind schedule, then the licensee shall promptly consult with the resource agencies and other parties (no later than November 30, 2004) to develop and agree on alternatives for fish lift operations for the Spring 2005 Upstream Passage Season.

(c) *Effectiveness Testing of Upstream Fish Passage Facilities.* The licensee shall evaluate and monitor the effectiveness of the upstream fish passage facilities for diadromous and resident fish as follows:

(1) On or before September 30, 2004, the licensee shall circulate to the resource agencies and the other parties [as described in (e) below], a proposed plan for the evaluation and monitoring of the effectiveness of upstream fish passage facilities. Such plan shall include, but not be limited to, the following:

(A) Evaluation of operation and attraction flows;

(B) Evaluation of the adequacy and effectiveness of the 7-foot-wide exit channel upstream of the counting station, the existing 4.5-foot-wide spillway entrance, and the existing 6-foot-wide spillway entrance channel to provide upstream fish passage;

(C) Evaluation of the ability to achieve the target design populations for upstream fish passage at the Project (1,000,000 each for American

shad and blueback herring; 6,000 for Atlantic salmon; unquantified for American eels, and an estimated 500 shortnose sturgeon); and

(D) Annual reports to be distributed to the resource agencies and other parties [as described in (e) below] by December 31<sup>st</sup> of each year.

After consultation as described in (e) below, on or before November 30, 2004, the licensee shall file that plan with the Commission and Massachusetts DEP, and shall implement the plan as approved by the Commission.

(2) By December 31, 2006, the licensee shall distribute a cumulative report of the study results of the effectiveness testing to the resource agencies and other parties [as described in (e) below], and the report shall include conclusions and recommendations as to whether the goal as stated at the first sentence of this License Article has been achieved. Within three months after distribution of the report, the licensee shall consult [as described in (e) below] with respect to the study results.

(3) If, based on the study plan and the study results described in (c)(1) and (c)(2) above, the report concludes that the upstream passage facilities and measures are not accomplishing the objective stated above, or if the study does so conclude but Massachusetts DEP, Massachusetts DFW, FWS and/or NOAA Fisheries do not concur with the conclusions in the report, in consultation with the licensee and the other parties [as described in (e) below], the licensee shall develop plans to modify the upstream fish passage facilities including, if necessary:

(A) Increasing the width of the exit channel upstream of the counting station to 10 feet;

(B) Increasing the width of the spillway entrance to 8 feet; and/or

(C) Increasing the width of the spillway entrance channel to 8 feet.

The licensee shall circulate such plans and a schedule for the implementation of the modifications to the resource agencies and the other parties [as described in (e) below] and shall propose any modifications as a result of comments. After consultation [as described in (e) below], the licensee shall file the final plans and schedule with the Commission (in the form of an application to amend the License for the Project) and with Massachusetts DEP (for approval consistent with Condition 14(c) of the Water Quality Certification issued by Massachusetts DEP on February 14, 2001, as incorporated in Article 421) that addresses the proposed changes to fishway operations or structures determined to be necessary to protect and enhance fish passage for diadromous and resident fish. The licensee shall implement the plan as approved by the Commission.

(4) If, based on the effectiveness study results, Massachusetts DEP, Massachusetts DFW,

FWS and NOAA Fisheries, in consultation with the licensee and the parties [as described in (e) below], are unable to determine whether or not the new upstream fish passage facilities are effective or what modifications are necessary to the facilities in order to meet the goal of safe and successful upstream fish passage as described above, the licensee shall extend the plan for evaluation and monitoring of the effectiveness of such facilities for diadromous and resident fish (as described in (c)(1) and (c)(2) above) for an additional year, with a report distributed to the resource agencies and other parties [as described in (e) below]. Based on the extension of the study, on or before December 31, 2007, the licensee shall prepare a cumulative report and follow the procedures in (c)(2) above. If, after this one-year extension of the study, the licensee, the resource agencies and the other parties are unable to determine whether or not the new facilities are effective or what modifications are necessary to the facilities in order to meet the goal of safe and successful upstream fish passage as described above, then the licensee shall extend or schedule additional evaluation and monitoring as determined to be needed pursuant to consultation described in (e) below.

(5) Following completion of construction under (c)(3) above, the licensee shall consult with the resource agencies and other parties [as described in (e) below] whenever necessary and as requested by the resource agencies to assess the effectiveness of the upstream fish passage facilities to pass shortnose sturgeon and other diadromous and resident, including an evaluation of the ability to achieve the target design populations for upstream fish passage as described in (c)(1)(C) above. If NOAA Fisheries, FWS, and/or Massachusetts DFW determine, based on the study results under (c)(1) above, that modifying the spillway entrance to the upstream passage facilities and/or an adjustment to the attraction flows is necessary to meet the goal of safe and successful upstream passage of shortnose sturgeon and other diadromous and resident, the licensee shall implement the modifications as directed by NOAA Fisheries, FWS and Massachusetts DFW, and as approved in writing, as necessary, by the Commission.

(d) *Annual Report and Monitoring of Upstream Fish Passage Facilities.* On or before January 31 of each year, the licensee shall submit to the resource agencies and other parties [as described in (e) below] and the Connecticut River Atlantic Salmon Commission a report of the previous year's activities relative to the operation of the upstream fish passage facilities [including the number of fish lifted, relative to the target design populations for upstream fish passage as described in (c)(1)(C) above and plans for the next year's activities]. The licensee shall monitor upstream passage for diadromous and resident fish including, but not limited to, counting, trapping, monitoring, and collection of bio-

logical data consistent with Condition 15 of the Water Quality Certification issued by Massachusetts DEP on February 14, 2001 (as incorporated in Article 421).

(e) *Consultation and the Filing of Plans.* The licensee shall follow the consultation process described in License Article 420.

(f) The Commission reserves the right to require changes to any plan filed. Implementation of any provision outlined in a plan shall not commence until the Commission notifies the licensee that the plan is approved. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission. Any structure built in accordance with a plan shall be shown on the as-built drawings filed pursuant to License Article 303.

*Article 412. American Eel Passage Facilities.* The licensee shall install, operate, and maintain appropriate upstream and downstream fish passage facilities at the Holyoke Project to facilitate safe and successful passage for American eels.

(a) *Interim Upstream Eel Passage.* The licensee shall operate pursuant to the Upstream Fish Passage Plan, approved by the Commission on June 24, 2003 (103 FERC ¶ 62,177). As stated in that plan, the licensee shall do the following in furtherance of eel passage at the Project; all activities shall be undertaken in consultation as described in (e) below:

(1) By July 1, 2004, the licensee shall: (i) construct and implement modified eel collectors on the Holyoke side of the Project; (ii) construct and install a ramp and an eel collector on the South Hadley side of the Project; (iii) move eels upstream and collect data on how upstream migrants approach the dam; and (iv) conduct a marking study to determine if backdrop is an issue; and

(2) In 2005, the licensee shall: (i) continue to move eels upstream and collect as much data as possible on how upstream migrants approach the dam; and (ii) study where to locate the entrance passage on the Holyoke side of the Project.

(b) *Permanent Upstream Eel Passage.* The licensee shall file with the Commission and the Massachusetts Department of Environmental Protection (Massachusetts DEP) on or before March 31, 2006, a permanent upstream eel passage plan that includes the following activities by year; all activities shall be conducted in consultation as described in (e) below:

(1) In 2006, the licensee shall implement permanent measures and shall construct permanent facilities for upstream eel passage on both the Holyoke and South Hadley sides of the Project and shall conduct effectiveness studies; and

(2) In 2007, the licensee shall complete additional effectiveness studies if determined neces-

sary based on effectiveness studies conducted in 2006.

(c) *Annual Reports of Upstream Eel Passage.* Commencing on March 1, 2005, the licensee will distribute annual reports to U.S. Fish and Wildlife Service, the National Marine Fisheries Service, Massachusetts Division of Fisheries and Wildlife, Massachusetts DEP, Trout Unlimited, the Connecticut River Watershed Council, and the Connecticut River Atlantic Salmon Commission describing the actions taken in the prior year and the results of data collection at the eel facilities on the South Hadley and Holyoke sides of the Project. The licensee shall file the annual reports with the Commission and Massachusetts DEP on or before March 1 of each year.

(d) *Downstream Eel Passage.* The licensee shall implement and monitor downstream eel passage at the Holyoke Project as part of the downstream fish passage plan and facility enhancements under License Article 410.

(e) *Consultation with Resource Agencies and Other Parties.* The licensee shall follow the consultation process described in License Article 420, and distribute all reports to the resource agencies and other parties listed in that Article. The licensee shall also provide copies of all reports to the Connecticut River Atlantic Salmon Commission.

(f) The Commission reserves the right to require changes to the proposed upstream eel passage plan. Implementation of any provision outlined in the plan shall not commence until the Commission notifies the licensee that the filing is approved. The licensee shall implement the plan as approved by the Commission, including any changes required by the Commission. Any structure built in accordance with this plan shall be shown on the as-built drawings filed pursuant to License Article 303.

*Article 413. Upstream and Downstream Fish Passage Facilities Monitoring.*

(a) Upon completing construction of new, or modifications to existing upstream and downstream fish passage facilities required by License Articles 410-412, the licensee shall monitor the use and effectiveness of those fish passage facilities, pursuant to the plans developed under those License Articles, to ensure effective fish and eel passage. In addition, the licensee shall monitor effectiveness of: (i) the channel modifications [as specified in the Comprehensive Operations and Flow Plan, as approved by the Commission on June 24, 2003 (103 FERC ¶ 62,178)]; and (ii) the full depth louvers in the first level of the canal system, pursuant to a plan to be filed with the Commission on or before July 1, 2004 [as specified in License Article 408(c) above].

The effectiveness monitoring plans shall include the specific provisions for monitoring the effec-

tiveness of the specific facility, as well as a schedule for: (1) implementation of that plan; (2) consultation as described in (b) below concerning the results of the monitoring; and (3) filing the results, the resource agencies' and other parties' comments, and the licensee's response to the comments, with the Commission and the Massachusetts Department of Environmental Protection.

(b) The licensee shall follow the consultation process described in License Article 420, and shall also provide copies of all reports to the Connecticut River Atlantic Salmon Commission.

(c) The Commission reserves the right to require changes to the effectiveness monitoring plans. Implementation of any provision outlined in the plans shall not commence until the Commission notifies the licensee that the filing is approved. The licensee shall implement the plan(s) as approved by the Commission, including any changes required by the Commission.

**Article 414. Annual Fish Passage Construction Plans.**

(a) Except as otherwise provided in License Articles 410-412 above, the licensee shall prepare an annual construction plan for fishway construction to be undertaken in that coming year, in consultation as described in (b) below. A draft of that construction plan shall be provided to the resource agencies and other parties on or before January 31 of each year, containing the detailed plans and schedule for fishway construction to be undertaken during that calendar year; the construction plan shall be designed to avoid interruption of the operation of the fish lifts at the Project. The licensee shall file the construction plan with the Commission and Massachusetts Department of Environmental Protection on or before February 28 before the applicable construction period commences.

(b) The licensee shall follow the consultation process described in License Article 420.

(c) The Commission reserves the right to require changes to the proposed annual construction schedule. The licensee shall implement the annual construction plan(s) as approved by the Commission, including any changes required by the Commission.

**Article 415. Section 18 Fishway Prescription.** Authority is reserved to the Commission to require the Licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of, such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate, pursuant to Section 18 of the Federal Power Act.

**Article 416. Threatened and Endangered Species Protection Plan.**

(a) The licensee shall implement the Threatened and Endangered Species Protection Plan (T&E Plan) as approved by the Commission

on June 6, 2003 (103 FERC ¶ 62,131) covering the federally and state endangered shortnose sturgeon (*Acipenser brevirostrum*), federally threatened and state endangered bald eagle (*Haliaeetus leucocephalus*), federally threatened and state endangered Puritan tiger beetle (*Cicindela puritana*), federally endangered and state endangered dwarf wedge mussel (*Alismidonta heterodon*), and state endangered yellow lampmussel (*Lampsilis cariosa*).

(b) The licensee shall follow the consultation process described in License Article 420, with respect to any proposed modifications to the T&E Plan.

(c) The Commission reserves the right to require changes to any proposed modifications to the T&E Plan. The licensee shall implement the modified T&E Plan as approved by the Commission, including any changes required by the Commission.

(d) In addition to implementing the provisions of the Commission-approved T&E Plan, the licensee shall implement measures consistent with the Terms and Conditions included in the Incidental Take Statement attached to the Biological Opinion for shortnose sturgeon (attached as Appendix B to this license order).

(1) The licensee shall handle shortnose sturgeon in accordance with the Shortnose Sturgeon Handling Plan (attached as Appendix F to this license order), and shall annually (by January 1<sup>st</sup>) consult with the National Marine Fisheries Service (NOAA Fisheries) regarding updates to the Handling Plan. Any updates to the Handling Plan shall be made annually by April 1<sup>st</sup>. The licensee shall file any such updates to the Handling Plan with the Commission.

(2) The licensee shall annually submit (by January 1<sup>st</sup>) a report to NOAA Fisheries and the Commission on the status of shortnose sturgeon at the Holyoke Project, including: (1) the number of sturgeon identified passing upstream (and downstream, if detected); (2) the number of sturgeon rescued from the apron pools immediately downstream from the Holyoke dam; (3) the relative effectiveness of the fish passage facilities; and (4) mortality from the previous year.

(3) The licensee shall notify NOAA Fisheries and the Commission when the Holyoke Project reaches 75 percent of the incidental take levels for shortnose sturgeon at the project.

(4) The licensee shall monitor water quality in the holding tanks used at the Downstream Sampling facility. The licensee shall ensure that: (1) no shortnose sturgeon is held for more than 12 hours; (2) water depth in the holding tanks is sufficient; and (3) water temperature in the holding tanks does not exceed 27°C and dis-

[¶ 62,128]

**City of Holyoke Gas & Electric Department, Project No. 7758-004**  
**Order Issuing Subsequent License**

(Issued August 15, 2006)

**J. Mark Robinson, Director, Office of Energy Projects.**

*Introduction*

1. On February 25, 2005, pursuant to Part I of the Federal Power Act (FPA),<sup>1</sup> the City of Holyoke Gas & Electric Department (HG&E) filed an application for a subsequent license to continue to operate the existing 750-kilowatt (kW) Holyoke No. 4 Hydroelectric Project No. 7758. The project is located on the Holyoke Canal System, which is adjacent to the Connecticut River, in the City of Holyoke, Hampden County, Massachusetts.<sup>2</sup> The Holyoke No. 4 Project does not occupy federal land. As discussed below, I am issuing a subsequent license for the project.

*Background*

2. The Commission issued the original license for the project on March 19, 1987, effective March 1, 1957,<sup>3</sup> for a 50-year period expiring on February 28, 2007.

3. Notice of application was published in the *Federal Register* on June 8, 2005. No protests or motions to intervene were filed.

4. On September 27, 2005, the Commission issued public notice that the project was ready for environmental analysis and solicited comments, recommendations, terms and conditions, and prescriptions. In response, comments were filed by the U.S. Department of the Interior (Interior).

5. An environmental assessment (EA) was prepared by Commission staff and issued on May 18, 2006. No comments were filed on the EA. The

comments and recommendations have been fully considered in determining whether, and under what conditions, to issue this license.

*Project Description*

6. The Holyoke No. 4 Project is located within the Holyoke Canal System, which contains 20 hydropower developments. Six of the developments, and the Holyoke Canal System itself, are licensed under the adjacent Holyoke Project No. 2004 (Hadley Falls Hydro Station).<sup>4</sup> The other developments, including the Holyoke No. 4 Project, are licensed separately. However, the operation of the Holyoke No. 4 Project is dependent on the operation of the Holyoke Project No. 2004, as discussed below.

7. The Holyoke No. 4 Project facilities are located between the first and second levels of the three-level Holyoke Canal System. The project draws water from the first level and releases it into the second level. The Holyoke No. 4 Project consists of: (1) two 7-foot-diameter, 76-foot-long penstocks drawing water from the first level canal of the Holyoke Canal System into; (2) a powerhouse with two 375-kW generating units with a total installed capacity of 750 kW leading to; (3) two 13-foot-wide, 300-foot-long tailraces discharging into the second level canal; (4) a 25-foot-long, 4.8-kilovolt (kV) transmission line; and (5) appurtenant facilities.<sup>5</sup> The proposed project boundary encloses all of the above facilities except the transmission line, but in this order I am requiring the

<sup>1</sup> 16 U.S.C. §§ 791a-825r (2000).

<sup>2</sup> The project is located on the Holyoke Canal, which receives water from the Connecticut River, a navigable waterway of the United States. 2 FPC 380, 387 (1941).

<sup>3</sup> 38 FERC ¶ 62,270 (1987). This project was required to have been licensed on March 4, 1941, the date when the Connecticut River was determined to be a navigable waterway of the United States. Therefore, when the Commission li-

censed the project in 1987, it backdated the license to 1957, consistent with Commission practice at that time, thus allowing the maximum possible license term (50 years), but giving the licensee 20 years to operate under the license before it expired.

<sup>4</sup> 88 FERC ¶ 61,186 (1999); and 111 FERC ¶ 61,106 (2005).

<sup>5</sup> One of the generating units was destroyed in an October 2004 fire and is currently not operating.

inclusion of the transmission within the project boundary.

8. HG&E currently operates the Holyoke No. 4 Project only when sufficient flows are available in the first level of the canal. Flows into the Holyoke Canal System are regulated by HG&E through the operation of the Holyoke Project No. 2004 according to a Comprehensive Flow Plan (Flow Plan) and Comprehensive Canal Operations Plan (Canal Operations Plan), which were approved by the Commission on June 24, 2003, and January 11, 2006, respectively.<sup>6</sup>

9. Within the first level of the canal, HG&E prioritizes flows first to the Holyoke No. 2 Project (FERC No. 2387), located at the far west end of the first level and beyond the Holyoke No. 4 Project, in order to provide flow through as much of the first level as possible. Flows are next provided to the Holyoke No. 1 Project (FERC No. 2386), located between Holyoke No. 2 and Holyoke No. 4. As such, the Holyoke No. 4 Project is operated primarily during higher flow periods when both Holyoke No. 1 and No. 2 are operating or when those projects are out-of-service. If Holyoke No. 1 and No. 2 are out-of-service, HG&E uses the Holyoke No. 4 Project to pass flows from the first level to the second level of the canal system.

10. HG&E proposes to rehabilitate the damaged generating unit to its former 375-kW capacity, and to continue to operate the project consistent with the Canal Operations and Canal Flow Plans under the Holyoke Project No. 2004 license.

#### Water Quality Certification

11. Under Section 401(a)(1) of the Clean Water Act (CWA),<sup>7</sup> the Commission may not issue a license for a hydroelectric project unless the state water quality certifying agency either has issued a water quality certification (certification) for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that the certification shall become a condition of any federal license or permit that is issued.<sup>8</sup>

12. On February 24, 2006, HG&E requested a waiver of certification from the Massachusetts Department of Environmental Protection (Massachusetts DEP). By letter filed on April 19, 2006, the Massachusetts DEP waived certification for the project, explaining that the certification issued for Project No. 2004 and the Settlement Agreement

for the relicensing of that project "specify all the conditions necessary to meet State water quality standards for the Holyoke No. 4 Project."

#### Coastal Zone Management Act

13. Under Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),<sup>9</sup> the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 180 days of its receipt of the applicant's certification.

14. By electronic mail dated March 30, 2006, the Massachusetts Office of Coastal Zone Management stated that the activities associated with the project fall outside the geographical boundaries of the Massachusetts Coastal Zone<sup>10</sup> and described in the Massachusetts Coastal Management Plan, and, therefore, are not subject to federal consistency review. Therefore, no consistency certification is required.

#### Section 18 Fishway Prescriptions

15. Section 18 of the FPA<sup>11</sup> provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate. By letter filed November 22, 2005, Interior requested that the Commission reserve its authority to require fishways. Consistent with Commission policy, Article 402 of this license reserves the Commission's authority to require fishways that may be prescribed by Interior for the Holyoke No. 4 Project.

#### Threatened and Endangered Species

16. Section 7(a)(2) of the Endangered Species Act of 1973 (ESA),<sup>12</sup> requires federal agencies to ensure their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of their designated critical habitat.

17. The federally threatened bald eagle and Puritan tiger beetle, and the federally endangered dwarf wedgemussel and shortnose sturgeon are known to occur in the project area. However, the project does not provide habitat for the Puritan tiger beetle or the bald eagle; shortnose sturgeon are excluded from the Holyoke Canal System; and a recent survey of the Holyoke Canal System did

<sup>6</sup> 103 FERC ¶ 62,178 (2003), and 114 FERC ¶ 62,017 (2006). Pursuant to Article 406 of Project No. 2004 license (see 111 FERC ¶ 61,106), HG&E filed a revised Flow Plan in Project No. 2004 on September 6, 2005, which is currently pending before the Commission. Holyoke No. 4 will of course be operated consistent with any revised Flow Plan for Project No. 2004.

<sup>7</sup> 33 U.S.C. § 1341(a)(1) (2000).

<sup>8</sup> 33 U.S.C. § 1341(d) (2000).

<sup>9</sup> 16 U.S.C. § 1456(3)(A) (2000).

<sup>10</sup> See Chapter 5: Massachusetts Coastal Regions and an Atlas of Resources, June 1, 1977.

<sup>11</sup> 16 U.S.C. § 811 (2000).

<sup>12</sup> 16 U.S.C. § 1536(a) (2000).



is approved. Upon approval, the licensee shall implement the plan according to the approved schedule, including any changes required by the Commission.

**Article 401. Project Operation.** The project shall operate in accordance with Sections 2.0 and 3.0 (Appendix A of this license) of the Comprehensive Canal Operations Plan filed for the Holyoke No. 2004 Project on June 20, 2005, supplemented on October 11, 2005, and approved on January 11, 2006 (114 FERC ¶ 62,017), as that Plan may be modified from time to time.

Project operation may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement between the licensee and the Massachusetts Department of Fish and Wildlife and the U.S. Department of the Interior. If project operation is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

**Article 402. Reservation of Authority to Prescribe Fishways.** Authority is reserved by the Commission to require the licensee to construct, operate, and maintain, or to provide for construction, operation, and maintenance of, such fishways as may be prescribed by the Secretary of the U.S. Department of the Interior under Section 18 of the Federal Power Act.

**Article 403. Cultural Resources Management Plan.** Prior to rehabilitating the damaged generating unit at Holyoke No. 4 Project, the licensee shall follow the procedures provided in the Action Plan (Section IV) of the Cultural Resources Management Plan (CRMP) for the Holyoke No. 2004 Project, filed September 8, 2000, as modified and approved by the Commission on June 27, 2001 (95 FERC ¶ 62,274).

If rehabilitation of the project is found to affect historic properties, the licensee shall prepare a plan and include with the plan documentation of consultation; copies of comments and recommendations on the completed plan after it has been prepared and provided to the Massachusetts State Historic Preservation Officer (SHPO), and specific descriptions of how the SHPO's comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the SHPO to comment and to make recommendations before filing the plan with the Commission for approval. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on site-specific information. The licensee shall not commence rehabilitation of the damaged unit notified by the Commission that the plan is approved.

**Article 404. Use and Occupancy.** (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters, and to convey certain interests in project lands and waters for certain types of use

and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy are consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancy, for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are (much of this needs to be removed): (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancements. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this Paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this

designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

**Article 13.** So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: *Provided*, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

**Article 14.** In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon the request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

**Article 15.** The Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. All clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

**Article 16.** Material may be dredged or excavated from, or placed as fill in, project lands and/or waters only in the prosecution of work specifically authorized under the license; in the maintenance of the project; or after obtaining Commission approval, as appropriate. Any such material shall be removed and/or deposited in such manner as to reasonably preserve the environmental values of the project and so as not to interfere with traffic on land or water. Dredging and filling in a navigable water of the United States shall also be done to the satisfaction of the

District Engineer, Department of the Army, in charge of the locality.

**Article 17.** If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

**Article 18.** The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

**Article 19.** The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

#### Appendix A

The City of Holyoke Gas & Electric Department  
Comprehensive Canal Operations Plan  
Sections 2.0 and 3.0 Filed June 20, 2005

#### 2.0 Holyoke Canal System

The Holyoke canal system consists of three levels, referred to as First, Second, and Third Level Canals (see Figure 1-1). The typical water surface elevation of each of the canals is 97.47 ft, 77.47 ft and 64.97 ft, respectively (NGVD). Each level of the canal system provides water for industrial use and hydropower generation. During mean flow conditions, the canal system is operated at various total discharges up to its 6,600 cfs hydraulic design capacity, with a total generation flow of approximately 6,000 cfs. Some distribution

of flows between the various canal levels and project and non-project hydro stations on the canal is determined by long standing water use agreements. At all times the flow entering the canal system must be balanced with total canal flow returned to the river to maintain safe operating levels in the canal. Canal inflow is directed back to the river or to the next canal level through various generating stations, water conduits, overflow structures, and leakage.

There are a total of 20 hydroelectric generating stations currently in service on the Holyoke canal system (Table 2-1). The Hadley Falls station is located on the impoundment. The canal system begins with the canal gatehouse structure located between the Hadley Falls station and the western shore. The gatehouse discharges water into the First Level Canal, a subsystem about 6,500 ft long, running through the City of Holyoke. The No. 1 Overflow structure, which is located immediately downstream of the gatehouse, discharges water directly back into the river.

The First Level Canal discharges water into the Second Level Canal through nine generating stations located along its length; seven of these stations are operational.<sup>28</sup> The HG&E licensed projects (all operational) on the First Level Canal are: Boatlock, Beebe-Holbrook, and Skinner (all covered in FERC No. 2004); Holyoke 1 (FERC No. 2386); Holyoke 2 (FERC No. 2387); and Holyoke 4 (FERC No. 7758). The First Level Canal also includes two unlicensed projects—Aubin (also known as Anitec) and the out-of-service Parsons station—and the location of the former unlicensed Xidex station; none of these is owned or operated by HG&E. There is a downstream fish passage louver facility, which begins 554 ft downstream of the canal gatehouse. The louver is angled across the canal and is 440 ft long. It ends at a bypass facility and pipe which transports migrating fish to the Hadley Station tailrace.

The Second Level Canal includes eleven in-service generating stations, the No. 2 Overflow structure that discharges into the Hadley Falls Station tailrace, the No. 3 Overflow, and a pipe that discharge to the Third Level Canal. The following stations on the Second Level Canal are located between the Second Level Canal and the Connecticut River about 3,500 ft north of the Boston & Maine Railroad bridge: Riverside (FERC No. 2004), Station No. 5 (FERC No. 10806), Crocker Mill A and B (FERC No. 2758), Crocker Mill C (FERC No. 2770), Albion Mill D (FERC No. 2766), Albion Mill A (FERC No. 2768), Mt. Tom Mill (FERC No. 2497), Nonotuck (FERC No. 2771), Gillmill A (FERC No. 2772), and Gillmill D (FERC No. 2775).<sup>29</sup> The Holyoke 3 station (FERC No.

2388) is located between the Second and Third Level Canals.

The Third Level Canal is supplied with water from the Holyoke 3 station and the No. 3 Overflow. It is about 4,000 ft in length, and is located largely at the low-lying southern end of the canal system in the City of Holyoke, mostly parallel to the bank of the Connecticut River. The Third Level Canal includes the No. 4 Overflow structure located between the canal and the Connecticut River. The Chemical (FERC No. 2004) and Sonoco (unlicensed) stations are located between the Third Level Canal and the Connecticut River about 3,400 ft south of the railroad bridge.<sup>30</sup>

The Holyoke Canal District was listed in the National Register in 1980 and is eligible for listing as an historic district.

### 3.0 Canal Operations Plan

The Canal Operations Plan details HG&E's proposed methods to: (1) release and circulate the required 400 cfs continuous minimum flow through the canal system downstream of the louver bypass; and (2) achieve and maintain the minimum canal flow and protective requirements for aquatic resources, including mussels during canal maintenance drawdowns.

#### 3.1 Canal Operations and Flow Releases

Minimum project flows for the Holyoke Project, including flows into the canal system, are detailed in LA 406 from the Settlement Agreement and WQC Condition 12. HG&E's plan to provide minimum flows for the entire Holyoke Project is detailed in the COFP, which was developed in conjunction with this CCOP. Both LA 406 and the WQC call for a year-round continuous minimum flows of 400 cfs downstream of the louver bypass. As reflected in LA 406(e), this minimum canal flow is assigned the highest priority of any minimum flow, including flows into the bypass reach.

The Holyoke Project Canal system is typically operated by continuously maintaining the First Level Canal at Elevation 97.47 ft (NGVD) except during drawdowns, inspections, and emergencies. The number of open headgates, positions of each headgate, and headpond elevations, are used to regulate the amount of water entering the canal to maintain the canal system at a constant level. The position of the 12 headgates and headpond elevations are continuously monitored by the gatehouse operator, adjusted as necessary to maintain a constant canal elevation.

Water from the First Level Canal is discharged into the Second Level Canal or attraction water gates and louver bypass gates utilized to operate

<sup>28</sup> There is also a facility owned by Hart Top Manufacturing, which is used as process water and is not a generating facility.

<sup>29</sup> All of these stations are owned by HG&E. As noted above, the Crocker Mill A and B, Crocker Mill C, Albion Mill D, Albion Mill A, Mt. Tom Mill, Nonotuck, Gillmill A, and

Gillmill D stations were acquired by HG&E from Harris Energy and Realty Corporation, and are jointly referred to as "the Harris Projects." Further, as noted above, Station No. 5 has been recently re-acquired by HG&E.

<sup>30</sup> Only the Chemical station is owned by HG&E.

upstream and downstream fish passage facilities. Water in the Second Level Canal is discharged to either the Third Level Canal or directly to the river through turbines or canal drain gates.

Estimates of water flow through the canal turbines have been derived using turbine manufacturer data and/or correlating generation to hydraulic flows for the turbines on the canal system. All canal generation is monitored by the gatehouse operator and recorded hourly in a log. Drain and feed gate positions on the canal system are, and will continue to be, monitored and recorded hourly by the gatehouse operator along with the volume of water flow that passes through the gatehouse gates.

HG&E developed a series of matrices detailing project operations (including dispatch of the canal units) over a range of flows for habitat flows, and the Spring and Fall Bypass Zone of Passage (ZOP) flows for upstream and downstream fish passage seasons, pursuant to LA 406(a) under the Settlement. These matrices are included below as Figures 3-1, 3-2, and 3-3. In developing the project operations matrices, HG&E's goal was to dispatch the canal units in a manner that would maximize the amount and distribution of water throughout the canal system. Specific details on canal station dispatch are described below.

### 3.1.1 Spring Passage

During spring fish passage season (generally April 1–July 15), while water is first dispatched to the canal system, the amount that is allocated depends on the river flow (Figure 3-1). When river flows are below 5,400 cfs, 400 cfs will be circulated in the First Level Canal below the lower bypass and will normally be discharged through HG&E's Holyoke 2 station into the Second Level Canal. From there, the water will pass through the Holyoke 3 or No. 3 Overflow and Riverside Stations. Flow will split approximately evenly between the two stations, which in turn will maximize flow distribution throughout the Second Level Canal. Water discharged from Holyoke 3 will enter the Third Level Canal, while water discharged from Riverside Station will flow back into the Connecticut River. In the Third Level Canal, water will be discharged through the Chemical station, Sonoco station, and/or the No. 4 Overflow back into the river.

When river flows reach approximately 5,400 cfs, water in the canal system will increase from 400 cfs to 2,400 cfs. Station dispatch is as noted above, but on the First Level Canal, Parsons (or other units under HG&E control), Aubin and Boatlock stations are also brought online, if the stations are operational. On the Second Level Canal, Station No. 5 and all eight Harris Projects are brought online as a single block.

When river flows reach approximately 16,000 cfs, flow in the canal system will be increased to a maximum of 6,600 cfs is reached—6,000 cfs for generation and 600 cfs for fish passage operation.

At this point all available generating stations on all three canal levels are able to generate.

### 3.1.2 Fall Passage

During fall fish passage season (generally September 16–November 15), water is first dispatched to the canal system; the amount that is allocated will again depend on the river flow (Figure 3-2). When river flow is below 15,940 cfs, 400 cfs of water will be passed into the First Level Canal and be dispatched through HG&E's Holyoke 2 station into the Second Level Canal. From there, water will be passed through the Holyoke 3 and Riverside stations. Water from Holyoke 3 will enter the Third Level Canal, while flows from Riverside will be discharged into the Connecticut River. In the Third Level Canal flow will pass through the Chemical station and/or the No. 4 Overflow back into the river.

When river flows reach approximately 16,000 cfs, flows in the canal system will be increased to the maximum of 6,600 cfs—6,000 cfs for generation and 600 cfs for fish passage operation. At this point, all available generating stations on all three canal levels are able to generate.

### 3.1.3 Habitat Flows

During the period of habitat flows (generally July 15–September 15, and November 16–March 31), water is again first dispatched to the canal system and the amount that is allocated depends on the river flow (Figure 3-3). When river flows are less than 11,400 cft, 400 cfs will enter the First Level Canal and is dispatched through HG&E's Holyoke 2 station into the Second Level Canal. From there, water is passed through the Holyoke 3 and Riverside stations. Water from Holyoke 3 enters the Third Level Canal, while water from Riverside discharges back into the Connecticut River. In the Third Level Canal, water is passed through the Chemical station, Sonoco station, and/or the No. 4 Overflow back into the river.

When river flows reach 11,300 cfs, flow in the canal system is increased from 400 cfs to 2,200 cfs. Station dispatch is as noted above, but on the First Level Canal Parsons/Aubin and Boatlock Station are also brought online. On the Second Level Canal Station No. 5 and all eight Harris Projects are brought online as a single block.

When river flows reach approximately 15,000 cfs, flows in the canal system will be increased to a maximum of 6,000 cfs. At this point all available generating stations on all three canal levels are able to generate.

### 3.2 Canal Minimum Flow Plan

As noted above, LA 406 and the WQC requires that a minimum flow of 400 cfs be passed through the canal system downstream of the lower bypass system. Upstream of the lower bypass system, 440 cfs is required at the No. 1 Overflow during spring and fall upstream fish passage. The 440 cfs is the maximum flow for the upstream fish pas-

sage attraction facilities: up to 200 cfs at the spillway entrance and up to 120 cfs at each tailrace entrance. During downstream fish passage, 150 cfs bypass flow is required for the louver bypass system.

LA 406 and the WQC assigns the canal minimum flow the highest priority of any other flow release, including minimum flows into the bypass reach. Under low flow conditions, therefore, the first 400 cfs available will be passed through the canal system, as detailed in HG&E's Low Flow Contingency Plan, included in the COPF.

### 3.2.1 Canal Flow

After acquiring the project in December 2001, HG&E noticed that a significant amount of leakage existed in the canal system. Tests were performed to measure the leakage and HG&E has discovered approximately 300 cfs of leakage in the canal system. Most of the leakage appears to originate downstream of the louver bypass facility. The volume of the water that is leaking through the canal system was determined by shutting down all generation on the canal and observing the headgate settings.

Since canal flow receives the highest priority, this leakage is significant. If leakage were not accounted for, during low flow conditions, the first 700 cfs would be diverted from the river to the canal system before discharging any water to the bypass reach. Including leakage in calculating minimum flows in the canal system provides more water in the bypass reach.

After reviewing this issue with the stakeholders, HG&E developed a study plan to verify flow distribution using the leakage component to achieve the 400 cfs minimum flow. The primary objectives of this study was to (1) determine flow patterns in Holyoke Project canal system, and (2) measure water quality in the canal system downstream of the louver bypass. To confirm that water is moving through the three levels of the canals, HG&E took field measurements to determine detectable water movement at various locations in each canal. Leakage or water movement in the canal system primarily occurs as water passes through a unit's wicket and/or headgates or through overflow waste gates. Measurements were taken at various roadway and footbridge crossings located throughout the canal system to record detectable velocity.

The study was originally performed in the summer of 2002, and based upon a review of the results, stakeholders agreed to allow leakage to be used to meet the canal minimum flow requirement. The results of the study showed that a total canal headgate opening of 60 inches provides 400 cfs of inflow to the canal, and that the existing inter-canal leakage in the system provided enough flow distribution so that detectable water velocities were measured at every sampling point in the study. To provide a means of compliance tracking, HG&E installed an Acoustic Doppler Current

Profiler (ADCP) near Cabot Street nearly two-thirds of the way down the First Level Canal. The 2002 study results and conclusions were reflected in the Permanent Canal Minimum Flow Plan filed with FERC on June 30, 2004.

To ensure that the ADCP was calibrated properly, in the fall of 2004, HG&E recreated the minimum flow study that was performed in 2002. As described in the June 2004 Permanent Canal Minimum Flow Plan (at page 9), "[t]his allowed HG&E to document the exact discharge passing through the downstream end of the First Level Canal for future compliance. HG&E also observed the relative distribution of flows between the Second and Third Level Canals to verify acceptable conditions (i.e., that the majority of the flow remains in the Second Level Canal. The velocity meter at the Cabot Street Bridge was correlated to measure flow corresponding to the flow in the downstream end of the First Level Canal during the calibration exercise. The meter was tied to HG&E's gatehouse supervisory system, allowing constant monitoring and documentation of flow distribution within the canal system."

A total of 400 cfs was allowed into the canal (measured via canal headgate openings), and the velocity sampling points were again measured to prove that there was detectable water velocities throughout the canal system (see Figure 3.4). During this time, the portion of the canal near the ADCP was gauged to calculate the flow passing the sensor at that time. The reading from the ADCP and the gauging of the canal showed a flow of 111 cfs, a variance of only 5% from the calculated flow from the gauging. This variance is most likely due to irregular velocity paths at low flows in the canal.

The remaining 289 cfs of the 400 that entered the canal through the headgates passed through to the Second Level Canal via leakage paths between Boatlock Station and the sensor near Cabot Street.

### 3.2.2 Compliance Measures and Documentation

In accordance with LA 406(c)(1) and the WQC, HG&E will provide 400 cfs downstream of the louver bypass. This flow will be provided continuously, year-round, except during canal drawdown situations. The 400 cfs will be distributed through the canal system downstream of the louver bypass system via a combination of leakage and/or generation. In the future the amount of leakage may change as holes (wicket gate, headgate openings, overflow gate leakage, etc.) in the canal system, which may end up blocked and no longer leaking, or flow leaking through a faulty gate that suddenly closes and no longer leaks. For that reason, minimum flow in the canal system will be verified by maintaining a minimum flow 111 cfs at the ADCP. It has been shown that as long as 111 cfs passes the sensor near Cabot Street, there is adequate flow distribution throughout all three levels of the canal.

Compliance will be documented by maintaining logs of the readings of the canal flow sensor by Cabot Street on the First Level Canal. These readings are taken on a real-time basis, and are saved to the HG&E computer system in hourly increments.

As further stated in the Permanent Canal Minimum Flow Plan (filed in June 2004, at page 9): "As provided for under Section 4.3(c) of the Settlement, if significant modifications are made by HG&E or any other entity on the canal system that could change leakage or the distribution of flow in the canal system, HG&E will evaluate the magnitude and distribution of flows in the canal system, and then, in consultation with the stakeholders, will propose to MADEP a revision to the permanent canal system minimum flow compliance measures set forth herein, as necessary to achieve the resource management objectives and the minimum flow requirements."

### 3.3 Need and Frequency of Drawdowns

WQC Condition 13(d) contains a provision to evaluate "the frequency and necessity of canal drawdowns." Canal drawdowns are necessary to maintain facilities in the three-level system to ensure continued safe operation of the canal, the generating units, and fish passage facilities. HG&E typically performs two drawdowns each year, the first in the spring and the second in the fall.

The spring outage usually lasts one or two days and the longer fall outage typically lasts five to seven days. The spring drawdown has two purposes: (1) to prepare for the spring freshet via cleaning various structures and performing any emergency repairs, and (2) to inspect the canal system infrastructure and develop a scope of work for the fall drawdown. During the fall drawdown, HG&E typically performs maintenance to the gatehouse, four masonry canal overflows, sixteen active flow control gates, approximately four and one half (4.5) miles of canals (including eight miles of canal walls), the louver facility on the First Level Canal, and 31 active water wheel installations (see Table 2-1).

Based on the spring drawdown, HG&E will develop a scope of work, plan, and schedule the fall outage. To the extent possible, HG&E will include maintenance work planned by other owners on the canal system.

### 3.4 Canal Drawdown Procedure

HG&E will attempt to reasonably expedite work performed during future drawdowns, and will attempt to undertake such work in a manner that least impacts aquatic resources. Pursuant to LA 406(d)(2)(C) and Section 4.3(e) of the Settlement, HG&E will notify all canal water users and resource agencies prior to any scheduled (i.e., non-emergency) canal system outage. Below are HG&E's drawdown procedures for the First and Second Level Canals.

#### 3.4.1 Permanent Canal System Outage Plan

Pursuant to LA 406(d) and Section 4.3(e) of the Settlement Agreement, HG&E describes herein its permanent canal system drawdown procedures. HG&E will attempt to reasonably expedite work performed during future drawdowns, and will attempt to undertake such work in a manner that least impacts aquatic resources. HG&E will follow the procedures outlined below to maintain whatever flow is possible during the drawdowns. Below are HG&E's drawdown procedures for the First and Second Level Canals.

#### 3.4.2 First Level Canal

Stakeholders have expressed three concerns with conditions in the First Level Canal during drawdowns: (1) watering of mussel habitat, (2) removal of sediment in front of Boatlock Station, and (3) placement of heavy equipment in the canal. The following discussion reiterates the measures described in the mussels section of the Threatened and Endangered Species Protection Plan (T&E Plan, as approved by FERC on June 6, 2003; 103 FERC ¶ 62,131) at Sections 5.1 (Habitat Enhancement) and 5.4.1 (First Level Canal Drawdown).

Following recommendations from USFWS and Trout Unlimited (TU) at the June 14 and 27, 2002 meetings (Appendix A), HG&E has attempted to mitigate any effects that may be caused by the dewatering of the First Level Canal by building a weir at the beginning of that canal just upstream of the railroad bridge. The weir spans the entire width of the canal, and is approximately three feet high, maintaining watered conditions approximately 930 ft into the First Level Canal. The result in wetted area is approximately 0.85 acres.

Another concern of the stakeholders was the practice of the prior owners of the Holyoke Project of hauling sediment from in front of Boatlock station and depositing it into the head of the First Level Canal branch. HG&E will use a clamshell to clean the area in front of Boatlock Station and remove the sediment and debris from the canal.

With the installation of the full depth louvers and a trashrake before the Spring 2003 drawdown, the need for heavy machinery in the canal and time it takes to remove debris at Boatlock has been significantly diminished. If heavy machinery should be necessary in the future, HG&E will walk the area and clear the area of any visible mussels then install cones to mark boundaries available to vehicular traffic in front of Boat Station during maintenance drawdowns.

#### 3.4.3 Second Level Canal

The following discussion reiterates the measures described in the mussels section of the T&E Plan, Section 5.4.2 (Second Level Canal Drawdown).

During the Spring 2002 drawdown, modified procedures were utilized in an effort to provide the maximum amount of wetted canal floor in the

Second Level Canal downstream of Boatlock Station. Stakeholders were on-site to observe the effects of these procedures, and all present were generally satisfied with the conditions. Therefore, the drawdown procedures are being replicated for future outages. HG&E will attempt to coordinate drawdown efforts with other station owners to maintain maximum wetted area. Below are the general procedures HG&E will follow under normal (non-emergency) conditions:

- 1) Before the canal drain begins all HG&E and customer units except Boatlock and Riverside Stations must be shut down.
- 2) The canal headgates will be closed, beginning the canal drainage.
- 3) Boatlock Station units will be operated until the water level in the First Level Canal reaches approximately El. 92.5 (NGVD). After the water elevation reaches approximately El. 92.5 (NGVD), Boatlock feed gates will be opened to continue draining the First Level Canal.
- 4) One or more waste gates at the No. 1 Overflow will be opened to assist the draining process. These waste gates will have to be carefully regulated as to not overflow the fishway attraction system and/or allow the attraction water system and 4-ft diameter drain pipe to the Hadley tailrace to fill with debris.
- 5) The No. 2 Overflow will remain closed during the drawdown until the end, as maintenance activities require. Should HG&E find that the No. 2 Overflow does not maintain sufficient water levels, HG&E will consult with stakeholders about the feasibility of installing a weir in front of the No. 2 Overflow.
- 6) When the Second Level Canal reaches approximately El. 74.5 (NGVD), all but one of the Riverside station generating units will be secured. A unit on the Second Level will be operated at speed/no load to drain the Second Level Canal. This eliminates the previously employed step of securing all units at Riverside Station, opening penstock drain valves on Units 4 and 5. The waste gates at the No. 2 Overflow will be opened during the last 24 hours of the outage for inspection of both the civil works and safety on each unit. Drainage will occur slowly to allow for maximum wetting of the canal floor. Slow drainage typically takes 6-8 hours; emergency drainage lasts 2 hours.
- 7) The No. 3 Overflow will remain closed during the drawdown until the end, as maintenance activities require, maintaining pooled areas between Boatlock and Riverside.
- 8) The No. 4 Overflow gates will be opened to drain the Third Level Canal.

HG&E shall also develop a plan for evaluation of the experimental weir in the First Level Canal to determine if it retains water and to develop and implement plans to modify as required; and a plan for evaluation of the need for additional weirs to keep mussel habitat areas watered.

HG&E may need to occasionally deviate from the above drawdown procedure to perform essential maintenance work. This may include drawing the Second Level Canal down deeper to gain access to certain structures and equipment. These types of drawdowns are infrequent and HG&E will make all reasonable efforts to minimize the duration of the drawdowns.

Typically during drawdowns there is some leakage past the headgates, which serves to provide a minimal amount of flow through a portion of the canal system. To the extent it does not interfere with maintenance activities, HG&E will not completely seal off leakage past the headgates.

### 3.5 Full Depth Louver Operations

Pursuant to LA 408(b) in the April 2005 Order, HG&E shall continue to operate, clean and otherwise maintain the full depth louvers in the First Level Canal and the exclusion racks at the attraction water intake gates to ensure efficient and reliable operation of these facilities for the protection of aquatic resources. HG&E shall annually inspect the full depth louvers and exclusion racks, and repair them as necessary. In the event the full depth louver facility is out of service during the Upstream Passage Season [defined in LA 406(a)(2)], the Canal System will not be operated and the headgates will be closed to seal flows into the Canal. If necessary, at the end of the Upstream Passage Season a slow drain of the Canal will be performed to return any fish to the River. In the unlikely event of a failure of the canal louver bypass system, HG&E shall shut the Canal down. If there is a structural failure of the louver panels, HG&E shall implement a slow drawdown process to allow any fish in the Canal downstream of the louver facility to return to the River. As described below, the process consists of: (i) notification, and (ii) slow draining of the canal system:

- (i) Notification: HG&E shall notify MADFW, USFWS and NOAA Fisheries within 24 hours of the louver bypass system outage.
- (ii) Slow Drain: The No. 1 Overflow attraction water gate will be cracked to drain the First Level Canal; the No. 2 Overflow gates will be cracked to drain the 'upper' section of the Second Level Canal, and the Riverside Station sluice gate will be cracked to drain the 'lower' portion of the Second Level Canal. HG&E shall monitor the Canal System during the slow drain process and regulate the drain gates as required to allow fish to exit the Canal System.

In conjunction with the slow drain process, HG&E shall make all reasonable efforts to expe-

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Office Director Orders

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dite repairs to the louver bypass facility and return  
the facility to service.

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<sup>1</sup> 113 FERC ¶ 62,186.

<sup>2</sup> Detailed descriptions of measures and implementation  
schedules with timelines contained in the plan will not be  
repeated in this order.

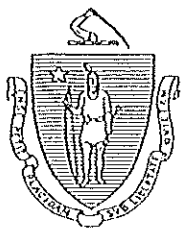
<sup>3</sup> The Oregon Department of Fish and Wildlife, the Na-  
tional Marine Fisheries Service, and the U.S. Fish and Wildlife  
Service.

<sup>4</sup> 116 FERC ¶ 62,077 (2006).

FERC Reports

¶ 62,129





COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Watershed Management, 627 Main Street 2nd Floor, Worcester, MA 01608

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IAN A. BOWLES  
Secretary

LAURIE BURT  
Commissioner

Richard Murray  
City of Holyoke Gas & Electric Department  
99 Suffolk Street  
Holyoke MA 01040-5082

May 14, 2009

RE: FERC Project No. 2772, 2775, 2771, 2487, 2768, 2766, 2758, 2770

Dear Mr. Murray,

The Massachusetts Department of Environmental Protection has received your request for water quality certifications for FERC Project No. 2772, Gillmill A; FERC Project No. 2775, Gillmill D; FERC Project No. 2771, Nonotuck; FERC Project No. 2497, Mt. Tom Mill; FERC Project No. 2768, Albion Mill A; FERC Project No. 2766, Albion Mill D; FERC Project No. 2758, Crocker Mill and FERC Project No. 2770, Crocker Mill C. A

Please note that within the water quality certification issued for FERC Project No. 2004, are conditions that require compliance for operations and flows within the Holyoke canal system. All eight Projects listed above are located within the Holyoke canal system. We consider the recently issued water quality certification for FERC Project 2004 to apply to these eight Projects.

Please call me at 508/767-2854 if there are any questions.

Sincerely,

Robert Kubit, P.E.  
Environmental Engineer





COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
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Paul Ducheny  
City of Holyoke Gas & Electric Department  
99 Suffolk Street  
Holyoke MA 01040-5082

April 10, 2006

Re: Holyoke No. 4 Project (FERC Project No. 7758)  
Request for Waiver of Water Quality Certification

Dear Mr. Ducheny,

The Massachusetts Department of Environmental Protection (the Department) is in receipt of your February 24, 2006 letter requesting a waiver of State 401 Water Quality Certification requirements for the Holyoke No. 4 Project (FERC Project No. 7758). This project is located within the Holyoke Canal System.

After consultation with the Massachusetts Division of Fisheries and Wildlife and Department staff it is the Department's opinion that the requirement for State 401 Water Quality Certification for this project be waived, contingent upon project execution in a manner consistent with the State 401 Water Quality Certification as issued for the Holyoke Dam Project (FERC No. 2004) and subsequent Settlement Agreement. This decision is based upon the fact that the Water Quality Certificate issued and subsequent Settlement Agreement for the Holyoke Dam Project (FERC No. 2004) specify all the conditions necessary to meet State water quality standards for the Holyoke No. 4 Project (FERC Project No. 7758).

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

MassDEP on the World Wide Web: <http://www.state.ma.us/dep>

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If you have any questions, please contact Robert J. McCollum at 413-755-2138.

Sincerely,

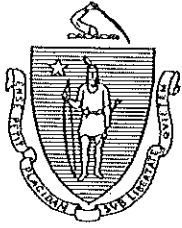


Steven Ellis  
Acting Regional Director

CERTIFIED MAIL 7005 1160 0003 7959 8339, return receipt requested

Cc:

Nancy Skancke/GKRSE  
Deirdre Desmond/DEP/OGC  
Lisa Jones/DEP/BWSC  
Janice Stone/South Hadley Con Com  
Pasquale Scida/NMFS  
Robert Kubit/DWM  
Paul Hogan/DWM  
Caleb Slater/MDF&G  
John Warner/USF&WS  
Donald Pugh/Trout Unlimited  
Chelsea Gwyther/CRWC  
Andrea F. Donlon/CRWC  
Patricia Vinchesi



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May 25, 2010

RE: FERC Project No. 2386, 2387, 2388, 10806

Dear Mr. Murray,

The Massachusetts Department of Environmental Protection has received your request for water quality certifications for FERC Project No. 2386, Holyoke 1; FERC Project No. 2387, Holyoke 2; FERC Project No. 2388, Holyoke 3 and FERC Project No. 10806, Valley.

Please note that within the water quality certification issued for FERC Project No. 2004, are conditions that require compliance for operations and flows within the Holyoke canal system. All four Projects listed above are located within the Holyoke canal system. We consider the recently issued water quality certification for FERC Project 2004 to apply to these four Projects.

Please call me at 508/767-2854 if there are any questions.

Sincerely,

Robert Kubit, P.E.  
Environmental Engineer



Date: April 17, 2007  
Time: 1:15 p.m.  
Room: State House Room 100

COPY

The Senate Committee on Energy, Environment and Economic Development held a hearing on the following:

HB 873-FN-L establishing minimum renewable standards for energy portfolios.

Members of Committee present:

- Senator Fuller Clark
- Senator Hassan
- Senator Cilley
- Senator Sgambati
- Senator Barnes
- Senator Odell

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Senator Martha Fuller Clark, D, 24: I'd like to have the attention of everyone here before I actually have Senator Hassan open the hearing on HB 873. We have allowed two hours for this bill. You will know that the House Committee had an all-day hearing on this legislation, at which the members heard overwhelming support for the RPS bill. So far, looking at our list, that no one has signed up in opposition to this bill. So when many of you might like to speak, it's really important that we bring this hearing to a close around quarter of three, if at all possible. So I really would encourage you, if you have written testimony, to hand it in; but we'd like to be able to move this bill forward.

And so I just wanted -- and the first part of the hearing testimony will be an explanation for the Committee members from both Joanne Morin, from the Department of DES, who has provided extraordinary leadership as we have shaped and reshaped and reshaped this legislation, and also then from Ross Gittell, who will provide the information that looks at the economic impact. And then, after, but we'll let the sponsors or co-sponsors to be able to speak first, just to open the hearing, and then we will call on other individuals. So just so that you have a sense of how we're going to proceed, I wanted to lay that out at the very beginning. And now I would like Senator Hassan to open the hearing.

WHEREUPON, the hearing was formally opened by Vice-Chair, Senator Margaret Hassan, who recognized Senate sponsor, Senator Martha Fuller Clark, to introduce the legislation.

Senator Martha Fuller Clark, D. 24: I'd like to ask Susan -- Suzanne Harvey to come up with me, since we are the lead sponsors in both the House and the Senate.

Senator Margaret Wood Hassan, D. 23: And I should have said the prime -- Senate sponsor; Representative Harvey is the prime sponsor. Thank you.

Senator Martha Fuller Clark, D. 24: Representative Harvey and I are here today to speak in favor of HS 873-FN-L. I wanted to let you know that the five other New England states have had a renewable portfolio standards legislation on their books for a number of years. There has been an effort in the past for New Hampshire to also provide such incentive as part of state policy. I believe that our current legislation, which has really been crafted after looking at the successes and strengths of the other RPS legislation, not only in New England but in New Jersey and New York, that this is an excellent piece of legislation, because there were fourteen months put into crafting this legislation and many, many meetings with a variety of stakeholders to bring forth a very complex bill that we have before you today.

I think it's important to understand that the purpose of the bill is to spur economic development, reduce our dependence on imported fuel, mitigate energy prices and supply volatility, and reduce air emissions from our energy supply. I also think it's important to realize that the credits, that they have been formulated in this bill are directed so that New Hampshire can take maximum advantages of the many renewable energy resources that are available in this state. And that was a key component as we moved forward in this bill.

As I said to you, we have had excellent input from the Department of Environmental Services. In moving this bill forward, I have had extraordinary education, as I'm sure Suzanne feels as well, about this whole initiative and how, um, and why it's so necessary that we bring it forward to you at this time. Certainly, we saw last year what happened with our over-dependence on natural gas and home-heating oil from foreign sources, and we had no, or very limited alternatives in place to address this. It also clearly fits it in with the Governor's plan to have us move our energy availability, in terms of generation, to come from "25 x 25" of renewable resources.

You will see at the end of the bill as amended in the House that there is a fiscal note attached to it, and I would just like to point out to you the

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language in that fiscal note at the beginning ... on page 12, which says that: "The Public Utilities Commission and the Department of Environmental Services states that this bill may increase state, county and local expenditures by an indeterminable amount in FY2008 and each year thereafter." And whether or not this bill will have no fiscal impact on state and county and local revenues, the issue is that, that this bill will only begin to have a financial impact in the year 2010, more than likely, and so that currently there is no impact on the state budget.

You will have the opportunity to hear from Professor Gittel from the UNH Whittamore School of Business and Economics, that shows how a small short-term cost is part of this legislation. But the whole purpose is to position us in the long term to be able to have lower energy costs in this state. There is no perfect bill, and we recognize that there may be the need to review this legislation in the future and make some changes or adjustments, and you will see that there is language in the bill that calls upon the PUC to re-evaluate this program in the year 2013.

So, with that, I'm going to conclude my testimony and turn it over to Suzanne Harvey, Representative Harvey, who has done a most admirable job of shepherding this bill through the House. So, thank you very much, and thank you, Suzanne.

Representative Suzanne Harvey, Hills/21: Thank you, Madam Chair, members of the Committee. For the record, I'm Representative Suzanne Harvey from Hillsborough 21, which is Nashua's Ward 2. And I, without trying to repeat anything that the Senator said, I do want to point out that I think HB 873 and the RPS is one important piece, one part of the solution to New Hampshire's energy future. There's a lot of different parts that have to fall together before New Hampshire is really secure with its energy, but this is a big part of it. And to me, a vote to pass this RPS is a vote for clean, renewable energy in the Granite State; a vote for in-state economic development, and a vote for energy diversity and less dependence on imported fuels.

As the Senator said, we had hours and hours of stakeholder meetings over many, many months. And among the people who participated in that, including the sponsors and other representatives, we had representatives from the utilities, trade associations, renewable developers, energy suppliers and environmental groups, plus significant help from DES, the PUC, the Office of Energy Planning, and the Office of Consumer Advocate. So we had a real big cross-section of stakeholders from all different angles coming to say what they would like in the bill, every one was listened to, all input was

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considered, and we looked at what was the best for the interests of the Granite State. It was truly a collaborative effort in the truest sense.

The House Science, Technology and Energy Committee, of which I am vice-chair, held a full-day hearing for the bill in Reps' Hall, where we heard overwhelming support for the bill. Especially in terms of a New Hampshire RPS; there wasn't anyone who spoke against having an RPS in the state. The Committee voted 14 to 1, Ought to Pass, and then the House passed it, 253 to 37, which we were all very, very pleased with.

And, also, since New Hampshire is the only state in New England not yet to have an RPS, we had the benefit of reviewing other states' RPS plans and looking at what was working, what wasn't working, and structuring our bill to try to make it as best as we can for the future, for now and the future. We also had the economic analysis which was a great help, and you'll hear more about that later.

The RPS, what is it? Simply stated, it requires the state's electricity providers to offer a specific percentage of their energy from renewable energy sources. And the providers qualify for RECs, or renewable energy certificates, for each megawatt hour generated from renewable sources. This is where we hope to see a big incentive to our existing renewable sources so that they can be players in the regional market, and also to incent newcomers to come develop renewable facilities in the state. This is a regional market program, administered by ISO-New England, which tracks each megawatt of energy generated onto the electrical grid and issues the certificate. The certificates can be sold to other entities that cannot meet their renewable requirement.

So our proposed RPS program starts at a baseline percentage of renewables required, starting in 2008, and goes out to 2025, going up in percent where we reach almost 24 percent of our energy coming from renewable. And by including a broad selection of renewable sources, such as wind, solar, geothermal, biomass, hydroelectric and others, as eligible for RECs, the New Hampshire RPS maximizes our natural resources, giving parity to our existing sources by incenting management to add incremental capacity. And, again, just as important, we hope this will encourage new projects to be built. Personally, I have been getting calls from people out of state, really interested in this and wondering what's happening with the bill.

In conclusion, I hope that you will support HB 873 and allow New Hampshire to join the regional RPS market and ensure that Granite-Staters will have the benefit of increased use of clean, renewable energy, will have good jobs coming with this, and tax revenue. Joining the House in its Ought-to-Pass



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The New Hampshire version of this RPS -- again, there's 23 other states that have done this already -- looks at not only incentivizing new renewable projects, but the thought was to also make sure that existing renewable energy providers here in the state are viable, also. There didn't seem much sense in incenting new development if the old development doing the same thing goes away.

This is not a free ride. For biomass plants, and again, I can talk about air pollution, New Hampshire has strict particulate matter and NOx controls that are required in order to certify for the New Hampshire program. And, similarly, even for the hydroelectric facilities that qualify, there's requirements for fish ladders. So these are expenditures, and there's a requirement for these sources to go above and beyond what they normally perhaps would be required.

As I mentioned, the REC market is a regional market. And with that, other states, facilities in other states, may be able to qualify and purchase New Hampshire credits. Similarly, (indiscernible) right now, Whitefield Power & Light in Whitefield, New Hampshire, and the new Northern Wood Project in, at Portsmouth, the old Schiller Station, both are selling into other states' markets right now. But that's where, again, what we tried to do, this bill has by some been criticized being: gee, this is a little complicated. Well, one of the reasons is the bill attempts to strike a balance: on one level we want more renewable energy for all the reasons I just discussed; on the other hand, we want to direct as much as possible, keeping interstate commerce regulations in mind, to direct these same funds to New Hampshire where possible. So with that, we have different classes, different categories, and, yes, frankly, this complicates the bill a little bit, but the intention is to have New Hampshire money, as much as possible, go into New Hampshire facilities. And that's the balance. As a free-market economist -- and I won't speak for Ross Gittell who will speak soon here -- generally, they would say no barriers whatsoever and let the market do its thing. But there's the tension right there; and that's why the bill is a little bit more complicated than some might suggest.

To assure again, that we get the percentages right, how we do this right, as mentioned, there are three required review periods where the Public Utilities Commission is required to open a docket and look at the program and make sure it's doing what we expect it to do; make sure the percentages are correct, make sure the prices make sense for New Hampshire; the costs, if there are any, or the benefits. And that's required at three different times: 2011, 2018 and 2025; and they're required to make recommendations to the General Court. And it's our hope to be -- again, we know this is probably not perfect,

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Senator Martha Fuller Clark, D. 24: You're very welcome. Additional questions from members of the Committee? Seeing none, thank you so very much. And before we go forward to hear from Ross Gittel, I would like to call on Alice Chamberlin from the Governor's Office, who has a time constraint.

Ms. Alice Chamberlin, Governor Lynch: Thank you very much, Madam Chair. Members of the Committee, my name is Alice Chamberlin, and I'm a special policy assistant to Governor Lynch. I'm pleased to read a letter of support today on his behalf for HB 873:

"Dear Chairperson Fuller Clark and Members of the Committee: Thank you for your consideration of HB 873 that will establish standards requiring the use of renewable energy resources by providers of electricity for sale in New Hampshire. Establishing a Renewable Portfolio Standard for New Hampshire is an important strategic and timely step toward a more secure and cleaner renewable power supply. New Hampshire must put in place an energy policy for the long term that will support sustainable, reliable and clean energy supplies that provide a hedge against the volatility of current and future energy markets.

"As you know, I have joined the national '25 x 25' initiative which calls for 25 percent of our energy consumed in 2025 to be generated from renewable resources. A Renewable Portfolio Standard is one important tool in reaching that goal. An RPS will provide incentives for new renewable generation and will support existing renewable generation. Steady demand for wood chips will help to support our logging communities, and greater fuel diversity will strengthen our energy independence. A New Hampshire RPS will encourage investment in energy production in New Hampshire that will deliver economic and environmental benefits to the state and the region.

"The development of a Renewable Portfolio Standard is a complex undertaking, and I applaud the efforts of the sponsors and the stakeholders who have worked hard to develop the RPS legislation. Extensive consultation and negotiation have produced legislation that puts New Hampshire on the path to a more sustainable and economic energy policy. If we want to secure a more stable, cleaner electricity supply for future generations, the time to act is now. I urge the Committee, and the Senate, to pass HB 873. Sincerely, John Lynch, Governor."

Thank you very much, and thank you for accommodating my schedule.

Senator Martha Fuller Clark, D. 24: Thank you very much. Are there questions for Alice Chamberlin?

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Senator Jacalyn L. Cilley, D. 6: Thank you, Madam Chair. And nice to see you both again.

Dr. Ross Gittell: Yes, nice to see you.

Senator Jacalyn L. Cilley, D. 6: My question is, is the -- and I hope I frame this correctly -- is the market and the success of an RPS program driven in part, at least, by what is and is not included as a qualifying renewable? I noticed the condition in Connecticut, for example, where the RECs plummeted, if I understood that correctly, and they were using a portion of construction ... what do we call it, construction debris?

Several Voices: C&D.

Senator Jacalyn L. Cilley, D. 6: C&D? And some argue that there is a part of that that is renewable, that can be recycled; they took it out of their portfolio and that reduced supply, increased demand? Was that a political decision or -- there's sort of two questions in there.

Mr. Matt Magnusson: I mean, certainly ... that's one of the things that's really important, is to have these kind of definitions of classes and kind of stick to them, because if you're constantly changing them, it has a real significant impact. I mean, for Connecticut, they went from about \$45 a REC down to \$2 a REC because they changed the definition of renewable resource. So, you know, if you're a renewable energy developer, and you're counting on \$45 for a megawatt hour of electricity and instead you're only getting two, that's going to have a pretty significant impact. So that's one of the things to really be careful about, is when you're designing them, is to make sure that once you've kind of established them, be real careful about changing those definitions.

Dr. Ross Gittell: Yeah, and for planning and business development, it's hard to encourage investment in any particular technology if there's always the risk that the legislation could change and really change the returns, the potential returns on that investment. So keeping the requirements consistent, and also recognizing that it is a regional market, so as much as possible to be consistent, and hopefully, the other five New England states will keep consistency, because for investment, for long-term economic benefit, having that consistency would be helpful. Some of what you talked about, sort of changing the legislation at the margin, might not affect as much the overall economic benefits, but the distribution of those benefits across different industries, and creating opportunities for one type of renewable compared to another.

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Senator Jacalyn L. Cilley, D. 6: A quick follow-up.

Senator Martha Fuller Clark, D. 24: Certainly.

Senator Jacalyn L. Cilley, D. 6: So, is, is this bill, then, in terms of what we define as qualified renewables consistent with all of the other New England states at this point?

Mr. Matt Magnusson: I mean all the states are different, they all have -- you know, for example, you know Connecticut allows trash burning to qualify as new; I mean, Rhode Island has different definitions of what size hydropower qualifies, theirs are higher. Maine is very liberal in what they'll accept for their RPS. So I mean -- one of the things when we looked at the study was how do these, all these different RPS interact with each other, and that's how we came up with kind of our cost figures, based on the New Hampshire legislation, and looking at what's going on in the regional market, this is what we think the cost would be for New Hampshire.

Senator Jacalyn L. Cilley, D. 6: Thank you.

Senator Martha Fuller Clark, D. 24: Additional questions? Yes, Senator Barnes.

Senator John S. Barnes, Jr., D. 17: Thank you, Madam Chairman. You mentioned in 2025 you estimate the cost to a household would be 65 cents, is that what I heard?

Mr. Matt Magnusson: Hm-mm.

Senator John S. Barnes, Jr., D. 17: Did I hear \$5.15 for businesses?

Mr. Matt Magnusson: No. Sorry, that was kind of a worst ... the 65 cents was based on our model and what we think the average household would save. If supply of new renewable doesn't come on line, for example, if enough facilities don't get developed, then ... retail electricity providers would need to do the alternative compliance payment, and if they're doing that, REC prices would be very high, and then the household would expect to see around a \$5.53 increase.

Dr. Ross Gittel: That's the absolute ceiling, but I think what Matt had suggested was that before that came to be, there would be a re-evaluation of the legislation and so we -- that's the absolute maximum, but we're very, very unlikely to see that absolute maximum.

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Senator Bob Odell, D. 8: I mentioned to the Chairman of the Committee that Thomas Freidman has an article in the magazine section --

Dr. Ross Gittell: Yes, sir.

Senator Bob Odell, D. 8: -- of the *The New York Times*, which if you ever needed anything to --

Dr. Ross Gittell: Yeah.

Senator Bob Odell, D. 8: -- support this legislation, he's certainly summed it up from everything from cost and international security and prevention of future wars, every impact. So thank you very much.

Senator Martha Fuller Clark, D. 24: I'd just like to say that it's my understanding that when we came forward last year with renewable energy portfolio, we did not -- we had not completed this analysis. Is that correct? This analysis was completed when?

Dr. Ross Gittell: This analysis was completed just recent... -- I mean, I don't have -- it was completed this summer, we did a lot of the work, and that's why it's actually current and draws upon those RPS in place in 23 other states, and so we were able to take sort of best methodologies and practices and apply it to the New Hampshire data and the current data, and so it was just recent, it's very timely, and I think there is, you know, a need to continue this type of analysis to understand in great detail the relationship between our environmental policies and also our future economy.

Senator Martha Fuller Clark, D. 24: Thank you. Senator Cilley.

Senator Jacalyn L. Cilley, D. 6: A final question, thank you, Madam Chair. In thinking about this, the modeling and being based on projections of supply and demand and so on, is there anything in this that would depress the interest in, encouragement of, conservation efforts? As you well know, at the federal-state level we don't have an aggressive conservation effort; if that changes ...

Dr. Ross Gittell: You could argue the, you know, the negative side of the two percent increase, you know, and that's going to affect people, you know, and businesses. But on the positive side of the increase is there's more incentive for energy efficiency. So there's some, you know, built in by sort of market price, that people are more incented to be energy-efficient. You could argue, and maybe this will be subject to future discussion, is that there

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should be complementary policies to also encourage energy efficiency. But I don't think the energy efficiency issue really takes away any of the arguments that we highlight here with the economic cost and benefit. It's part of a, let's say, a portfolio of energy policies that I think we, as a state, should be considering at this point in time.

Mr. Matt Magnusson: Actually, a study by North Carolina looked at, you would have an energy-efficiency renewable energy class, meaning just, in the RPS, having energy efficiency qualify, for example, combine heat and power, not necessarily from a renewable resource, but they found that actually would lead to having no cost impact, it would decrease the cost of the RPS substantially, I guess, below what would be expected to ... the benefits would be greater than the cost by having an energy efficiency component. It kind of makes sense; if you're not using as much energy, you don't need to buy as many RECs, and that sort of thing.

Senator Jacalyn L. Cilley, D. 6: Thank you.

Senator Martha Fuller Clark, D. 24: Any further questions? Thank you very much, and I'd like especially to thank you for the excellent work that you did, and I know that you put in many hours and that there was a time frame within which we needed this report, and you met that, and I think it will be extremely beneficial as we go forward.

Dr. Ross Gittell: Thank you very much.

Mr. Matt Magnusson: Thanks.

Senator Martha Fuller Clark, D. 24: I'd like to call on Amy Ignatius from the Office of Energy and Planning. And then I will go the Reps. I'm sorry.

Ms. Amy Ignatius, Director, Office of Energy and Planning: Thank you very much. My name is Amy Ignatius. I'm the director of Office of Energy and Planning. And you have so many good speakers here today, I will not take up much time. I just wanted to state for the record that the Office of Energy and Planning is very supportive of this legislation and hopes that it is passed as it's currently written.

We've been participants in the many stakeholder forums, in working in meetings on definitions, trying to work through the details, which is a -- as you know, this is a complex issue and there's a lot to develop. Through the Session last year, a lot of wonderful work was done in bringing the stakeholders into a really strong working body, and I think the product this year that has gone fairly well, is really a sign that that effort has been

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April 17, 2007

COPY

Senator Martha Fuller Clark, Chairwoman  
Senator Margaret W. Hassan, Vice Chairwoman  
Senate Energy, Environment and Economic Development Committee  
State House  
107 North Main Street  
Concord, NH 03301

Re: HB 873-FN – Electric Renewable Portfolio Standard

Dear Chairwoman Fuller Clark, Vice Chairwoman Hassan, and Members of the Committee:

On behalf of The Granite State Hydropower Association ("GSHA"), thank you for the opportunity to comment in support of HB 873, the Electric Renewable Portfolio Standard ("RPS") legislation that you are now considering. As you may recall, GSHA is a non-profit trade association that represents approximately 45 New Hampshire hydroelectric facilities which have a total installed capacity of approximately 50 MW.

GSHA supports the legislation in its present form. Below, we highlight a topic concerning existing hydroelectric facilities on which we request that the Committee confirm the legislative intent; we also offer a brief explanation of the importance of this legislation to our members.

Intent of Class IV Language (362-F:4)

The Committee will note that there are a number of requirements for a hydroelectric project to meet in order to be classified within Class IV in HB 873. These are that:

- (i) "the source began operation prior to January 1, 2006";
- (ii) the "gross nameplate capacity" of the project is "5 MWs or less";
- (iii) the project "has installed upstream and downstream dianadromous [sic] fish passages that have been required and approved under the terms of its license or exemption from the Federal Energy Regulatory Commission"; and
- (iv) the project "when required, has documented applicable state water quality

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PRODUCING ELECTRICITY FROM A RENEWABLE RESOURCE. \_\_\_\_\_

certification pursuant to section 401 of the Clean Water Act."

GSHA thinks that requirements (i), (ii) and (iv) are clear and straightforward. However, requirement (iii) warrants two comments on changes made during the concluding meetings of the House Science, Technology and Energy Committee concerning this proposed legislation.

First, the word "diadromous" is misspelled and should be changed. This was a technical drafting error.

Second, the future administration of the RPS will benefit to the extent the legislative intent of requirement (iii) is clear.

The goal of limiting eligibility to hydroelectric projects with both upstream and downstream fish passages is to recognize that projects with such facilities have gone to great capital expense and incur meaningful operating costs by virtue of supporting the migration of fish. Importantly, stakeholder discussions regarding the significant capital and operating costs of certain fish passages focused on fish passages designed to facilitate the upstream migration of salmon, shad, herring, and other "anadromous" fish.

In the course of its review, GSHA learned that some small projects in New York State have upstream and downstream fish passages designed solely for eels. Although the eel passages at those projects are relatively inexpensive to install and operate, the projects would have qualified under the Class IV definition, as originally drafted. To correct the problem, at GSHA's request, the House Committee changed the referenced definition concerning fish passages to read: ". . . has installed upstream and downstream diadromous fish passages that have been required . . . ." By adding the word "diadromous," the projects that will potentially benefit from Class IV eligibility will be as the stakeholders and the Bill's sponsors intended, i.e. those that went to the substantial expense of installing at least anadromous fish passages.

In summary, it is GSHA's understanding that the Legislature intends the Class IV definition in HB 873 to apply to any hydroelectric project which has been required to and has provided, at a minimum, upstream and downstream anadromous fish passages, and, in the event that catadromous fish passages also happen to be required by the regulatory agencies, then the project must also have upstream and downstream catadromous fish passages. Conversely, if a project has fish passages only for catadromous fish but not for anadromous fish, then the project will not qualify.

#### Importance of Legislation

GSHA owners and operators face a challenging scenario. On the one hand, there is growing public policy recognition of the value of emission-free, indigenous energy resources that can be priced in a stable manner. On the other hand, increasing numbers of GSHA projects are no longer covered by firm contracts and face the volatile wholesale electric energy market. In addition, most of the GSHA projects are approximately 20 years old and are incurring increased maintenance costs. Some projects face costly required upgrades for fishway and other improvements.

\_\_\_\_\_ PRODUCING ELECTRICITY FROM A RENEWABLE RESOURCE. \_\_\_\_\_



Date: April 9, 2009  
Time: 9:32 a.m.  
Room: LOB 102

JB

The Senate Committee on Energy, Environment and Economic Development held a hearing on the following:

HB 229                      clarifying the eligibility requirements for class IV  
renewable energy generating facilities.

Members of Committee present:              Senator Fuller Clark  
   Senator Merrill  
   Senator Lasky  
   Senator Odell

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The Chair, Senator Martha Fuller Clark, opened the hearing on HB 229 and invited the prime sponsor, Representative Suzanne Harvey, to introduce the legislation.

Representative Suzanne Harvey:      Good morning, again. I have some written testimony to... Senator, did you? Is this... Are we officially started?

Senator Martha Fuller Clark, D. 24:    Yes.

Representative Harvey: I want to start off with a little bit of background on the RPS, although everyone on the Committee was present when we passed it in 2007, Renewable Portfolio Standard, RPS, also know as the Renewable Energy Act. I was the prime sponsor, along with Senator Fuller Clark on the Senate side. Just to remind everybody, we worked together with the Air Division at DES, the PUC, the Office of Energy and Planning and many, many stakeholders over several months; I think it was more than a year, to design RPS that was right for New Hampshire. At the time, there were about 23 states that had RPS statutes. It is filled with detail and rightfully left much for PUC rulemaking. However, there was some confusion about the intent of one part of the law and that's the reason for HB 229, which I consider housekeeping for clarification purposes.

If you recall, the New Hampshire RPS includes hydroelectric power as one of the renewable classes that can qualify for renewable energy credits or the RECs. These were included because our State is rich in hydro, a non-

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emitting energy source. The Science and Tech House Committee spent a lot of time discussing exactly what category of hydro plants should qualify for RECs. The description of the existing statute, and I have written it down in this, but I am not going to read it, specific to this bill the hydro electric power plants have ladders for fish to ensure their safe journey through the water in order to spawn. You might wonder, as we did, what diadromous means and we spent a lot of time on that word. The word refers to the migration of fish between fresh and salt waters.

Class IV definition in HB 873, which is the RPS, was intended to apply to hydro electric projects that have been required to and have provided at a minimum up stream and down stream androgynous fish passages. That was from sea to fresh water. And, in the event catadromous fish passages from fresh to sea water are also required by regulators, then the project must also have up stream and down stream fish passages.

The intent of the RPS was to reward the plants and the owners that went to the trouble and expense of installing diadromous fish passages by deeming them eligible for the RECs and to specify the size of the plant for eligibility. So, that for instance, very large projects would not overwhelm the market for Class IV RECs. The text of the act was evidently not clear enough for Class IV renewable sources, and we want to make sure the intent of the law is followed in any future rulings.

You will hear in a few minutes that there is a suggested amendment coming that I am perfectly comfortable with; it's coming from the PUC. I think it will make things a lot easier if we at least have the part left in the law so that PUC will be really clear in the future going forward with Class IV. So, you will hear about that from the Commissioner, and I am very comfortable with what he's proposing. But, I think, just in the interest of making sure that the intent of the RPS is followed, that we go ahead with this little bit of housekeeping.

**Please see Attachment #1, Representative Suzanne Harvey's testimony.**

Senator Martha Fuller Clark, D. 24: Thank you so much for your very detailed and written explanation. We are very appreciative. Are there any questions for Representative Harvey? Yes, Senator Merrill?

Senator Amanda Merrill, D. 21: Thank you, Madam Chair. And, thank you, Representative. I had a couple of questions just about terminology and one is that, on line three, one of the changes is from the word source to facility. Then, in the new language, starting on line ten, the term sources is

Senator Bette R. Lasky, D. 13: I have a question.

Senator Martha Fuller Clark, D. 24: Yes, Senator Lasky.

Senator Bette R. Lasky, D. 13: Good morning.

Representative Harvey: Morning.

Senator Bette R. Lasky, D. 13: What prompted you to go about these changes? What alerted you to the fact that it wasn't working?

Representative Harvey: Right. The PUC had approved some RECs eligibility for some of the plants that we felt were not in, followed the intent of the RPS, and ultimately they agreed. So, you'll hear more about that.

Senator Bette R. Lasky, D. 13: Okay.

Senator Martha Fuller Clark, D. 24: Thank you.

Representative Harvey: Thank you.

Senator Martha Fuller Clark, D. 24: I'd like to call upon Joanne Morin.

Joanne Morin: Good morning. I am Joanne Morin from the New Hampshire Department of Environment Services. I am the Energy and Climate Programs Manager. I worked with Representative Harvey and other legislators on this bill. I simply just say we wanted to clarify some language that seemed to have some interpretation problems as the bill was being implemented by the PUC. Again, to reiterate the discussion of what hydro needed financial incentive, the RPS bill is that to try to provide additional financial incentive to those renewables that may require it.

And, it was identified that the small hydros, who have to have fish ladders, have a financial burden because of those fish ladders. And, the idea was to do small hydros. The idea of the facility was that less than five megawatts and that would include any turbine at the facility. And, there were some, those who felt that wasn't clear either, that you could actually get RECs for different turbines at one facility. So, we did want to correct that. And, then the other aspect was to indicate it was only those that had a total capacity of less than five megawatts and that also had installed fish ladders to some kind of acceptable level, not just something that was makeshift, but that the fish ladders would have met a FERC license or something similar in terms of being fairly substantial structures. So, I am going to stop there and see if you have any questions on the history.

moving the effective date up. I'd be happy to answer any questions, but I think the letter pretty much lays things out.

**Please see Attachment #3, Heidi Kroll's written testimony.**

Senator Martha Fuller Clark, D. 24: Thank you. Are there any questions for Ms. Kroll? We appreciate you being here.

Ms. Kroll: Great. Thank you.

Senator Martha Fuller Clark, D. 24: Commissioner Below?

Commissioner Clifton Below: Good morning. Thank you. The suggested amendment is simply to take paragraph (b) of the proposed amended RSA, starting at line ten through twenty-one, and strike it. And, at line two, you'd also strike the little (a), so it would just remain IV, as it is now. And, then also make it effective upon passage or I think upon passage would make the most sense. And, just to explain why, I just will reference... Should be enough copies for the full Committee here. The two orders that we've issued in this matter, which are, it's now a settled matter, as far as we're concerned. So, it is no longer a pending matter, that's why I can publically comment on it.

Essentially, to make a long story short, in the original interpretation of the statute at the PUC was that the fish ladders only had to be installed if they had been required by FERC. So, if they were never required by FERC, then they weren't required to meet the provisions of the statute. A case came before us saying that we had interpreted the statute incorrectly. We concluded that the statute was ambiguous. So, we looked to legislative intent. When we looked to legislative intent, we concluded, and this is near the back of the document I just gave you, at page seventeen, upon review of the legislative history, including the fact that the Senate subsequently approved the language that was subject to the hearing now codified at RSA 362:F-IV, we find that only those hydro electric facilities that are both up stream and down stream fish passage are eligible for certification for Class IV RECs. While the legislation could have been more artfully worded to clearly indicate the Legislature's intent, the transcript of the hearing before this Committee serves to resolve the disputed interpretations. Accordingly, we determined that the Canaan, Gorham, Hooksett, and Jackman facilities in the North Gorham and Bar Mills projects are not eligible for certifications as Class IV facilities as a matter of law. Given our interpretation, the recently proposed settlement is moot. There was a proposed settlement that says let's sort of split the difference, allow the RECs be in place for a while, and then void them.

**HB 229**

**Rep. Suzanne Harvey**

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In 2007 this legislature passed the Renewable Portfolio Standard (RPS), also known as the Renewable Energy Act.

I was the prime sponsor, along with Sen. Martha Fuller Clark on the Senate side.

Working together with the Air Division at DES, the PUC, and the Office of Energy and Planning, we held numerous meetings with the many stakeholders over several months to design an RPS that was right for New Hampshire. At the time, I think there were 23 other states with RPS statutes on the books.

RPS is filled with detail and rightfully left much room for PUC rulemaking.

However, there evidently was some confusion about the intent of one part of the law, and that is the reason for this bill, which I consider housekeeping for clarification.

If you recall, the NH RPS includes hydroelectric power as one of the renewable classes that can qualify for renewable energy credits (RECs). These were included because our state is rich in hydro, a non-emitting energy source.

The ST&E House committee spent a lot of time discussing exactly what category of hydro plants should qualify for RECs. The description in the existing statute is as follows:

*IV. Class IV (Existing Small Hydroelectric) shall include the production of electricity from hydroelectric energy, provided the source began operation prior to January 1, 2006, has a gross nameplate capacity of 5 MWs or less, has installed upstream and downstream diadromous fish passages that have been required and approved under the terms of its license or exemption from the Federal Energy Regulatory Commission, and when required, has documented applicable state water quality certification pursuant to section 401 of the Clean Water Act for hydroelectric projects.*

Specific to this bill, hydroelectric power plants have "ladders" for fish to ensure their safe journey through the water in order to spawn. You might wonder, as we all did, what does "diadromous" mean? I think we spent a whole afternoon, if not more, on this paragraph. The word refers to the migration of fish between fresh and salt waters.

The Class IV definition in HB 873 (the 2007 RPS bill) was intended to apply to hydroelectric projects that have been required to *and have provided*, at a

minimum, upstream and downstream anadromous fish passages (from sea to fresh water), and, in the event catadromous fish passages (from fresh to sea water) also are required by regulators, then the project must also have upstream and downstream catadromous fish passages.

The intent of the RPS was to "reward" those plants that went to the trouble and expense of installing diadromous fish passages by deeming them eligible for RECs and to specify the size of the plant for eligibility, so that, for instance, very large projects would not overwhelm the market for Class IV RECs.

The text of the Renewable Energy Act evidently was not clear enough for Class IV renewable sources, and we want to make sure that the intent of the law is followed in any future rulings. This bill should take care of that, and the change in the House amended version in the effective date, which was made for administrative purposes.



# STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC UTILITY CONTROL  
TEN FRANKLIN SQUARE  
NEW BRITAIN, CT 06051

DOCKET NO. 08-04-11 APPLICATION OF HOLYOKE GAS & ELECTRIC  
DEPARTMENT FOR QUALIFICATION OF HARRIS  
ENERGY AS A CLASS II RENEWABLE ENERGY  
SOURCE

June 11, 2008

By the following Commissioners:

John W. Betkoski, III  
Donald W. Downes  
Anne C. George

## DECISION

## **I. INTRODUCTION**

### **A. SUMMARY**

In this Decision, the Department of Public Utility Control determines that the six Harris Energy generation facilities each qualify as run-of-the river hydropower Class II renewable energy sources and assigns each facility a separate Connecticut Renewable Portfolio Standard (RPS) Number.

### **B. BACKGROUND OF THE PROCEEDING**

By Application (Application) received on April 10, 2008, Holyoke Gas & Electric Department (HG&E) requests, through Brian C. Beauregard, its representative, that the Department of Public Utility Control (Department) determine that six separate run-of-the-river generation facilities qualify as Class II renewable energy sources. The six facilities, Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck (collectively, the Facilities or Harris Energy), are located in Holyoke, Massachusetts, and comprise Harris Energy. Application, p. 1; HG&E April 9, 2008 Letter, p. 1. The generation facilities commenced commercial operation in 1919. The facilities have the following nameplate facilities: Albion A - .281 MW; Albion D - .395 MW; Gill A - .450; Gill D - .330; Mt. Tom - .473 MW and Nonotuck - .492 MW. Application, pp. 2 and 3. Each of the facilities obtained separate FERC licenses, issued June 29, 1989. Application, Attachments A through F. HG&E requests that the Department issue each facility a separate Connecticut RPS Registration Number. HG&E April 9, 2008 Letter.

The ISO-NE Generation Unit Asset Identification Number is 12168 Harris Energy. Application, p. 2.

### **C. CONDUCT OF THE PROCEEDING**

A hearing in this matter is not required and none was held.

### **D. PARTIES TO THE PROCEEDING**

The Department recognized Holyoke Gas and Electric Department, 99 Sulffock Street, Holyoke, Massachusetts; and the Office of Consumer Counsel, Ten Franklin Square, New Britain, Connecticut 06051 as Participants to this proceeding.

## **II. DEPARTMENT ANALYSIS**

### **A. STATUTORY REQUIREMENTS**

Conn. Gen. Stat. § 16-1(a)(27) defines a class II renewable energy source, in part as: energy derived from . . . a run-of-the-river hydropower facility provide such



facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the river flow, and began operation prior to July 1, 2003.

In interpreting Conn. Gen. Stat. §16-1(a)(27), the Department has determined that:

(1) "Facility" refers to an entire hydroelectric plant at a single site rather than a turbine generating unit within a hydroelectric plant;

(2) The "generating capacity of not more than five megawatts" refers to a hydroelectric facility's nameplate capacity, not its actual or average generation output;

(3) In order to qualify as "run-of-the-river," a hydroelectric facility must show a current FERC license or exemption that requires the facility to operate in run-of-river mode. In addition, a facility can qualify as a Class I or Class II renewable energy facility only to the extent that its FERC license or exemption requires run-of-river operation. Hydroelectric facilities that are not regulated by FERC will be required to show a FERC order or a court decision stating that FERC has no jurisdiction, or has declined to exercise jurisdiction, over such facility. In such cases, the hydroelectric facility must show that its operation allows the river inflow to equal outflow instantaneously and therefore, does not cause an appreciable change in the river flow; and

(4) "Began operations" means (A) the date an existing facility with existing generation began commercial operation as shown in documentation from FERC; (B) the new date given to an abandoned or destroyed facility that comes back into operation as shown in its documentation from FERC or as determined by the Department; (C) the date upon which a facility changes operation from store and release to run-of-river as shown in documentation from FERC; or (D) the new date that incremental generation is in operation at an existing facility as shown in its documentation from FERC.<sup>1</sup>

As provided in the application, the Facilities are hydroelectric and are located in Holyoke, Massachusetts. The Facilities are currently owned Holyoke Gas & Electric Department. According to the application and supporting documentation, the Facilities began operation in 1919 and are licensed to operate by FERC as run-of-river hydroelectric facilities. Application, FERC licenses issued June 29, 1989.

Based on the foregoing, the Department determines that the Harris Energy Facilities qualify as Class II renewable energy facilities.

### III. FINDINGS OF FACT

1. Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck comprise Harris Energy.
2. Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck are each run-of-the-river facilities and each obtained a FERC license in June 1989.

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<sup>1</sup> See the Department's September 10, 2004 Decision in Docket No. 04-02-07, DPUC Declaratory Ruling Concerning "Run-of the River Hydropower" as That Term is Used in the Definitions of Class I and Class II Renewable Energy Source in C.G.S. § 16-1(a)(26) & (27).

3. The total generating capacity of the Facilities is less than 5 MW.
4. Total rated capacity for the Facilities is 2.421 MW.
5. Harris Energy is connected to the ISO-NE grid.
6. The Facilities began operation prior to July 1, 2003.

#### **IV. CONCLUSION AND ORDERS**

##### **A. CONCLUSION**

Based on the evidence submitted, the Department finds that the Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck each qualify as Class II renewable energy sources pursuant to Conn. Gen. Stat. 16-1(a)(27).

The Department assigns each renewable generation source a unique Connecticut RPS registration number. The Facilities Connecticut RPS registration number is as follows: Albion A – CT00266-08A ; Albion D – CT00266-08B ,Gill A – CT00266-08C ; Gill D – CT00266-08D ; Mt. Tom – CT00266-08E ; and Nonotuck – CT00266-08F.

The Department's determination in this docket is based on the information submitted by HG&E. The Department may reverse its ruling or revoke the Applicant's registration in any material information provided by the Applicant proves to be false or misleading. The Department reminds HG&E that it is obligated to notify the Department within 10 days of any changes to any of the information it has provided to the Department.

DOCKET NO. 08-04-11 APPLICATION OF HOLYOKE GAS & ELECTRIC  
DEPARTMENT FOR QUALIFICATION OF HARRIS  
ENERGY AS A CLASS II RENEWABLE ENERGY  
SOURCE

This Decision is adopted by the following Commissioners:

John W. Betkoski, III

Donald W. Downes

Anne C. George

CERTIFICATE OF SERVICE

The foregoing is a true and correct copy of the Decision issued by the Department of Public Utility Control, State of Connecticut, and was forwarded by Certified Mail to all parties of record in this proceeding on the date indicated.

*Louise E. Rickard*

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Louise E. Rickard  
Acting Executive Secretary  
Department of Public Utility Control

June 11, 2008

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Date

# STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC UTILITY CONTROL  
TEN FRANKLIN SQUARE  
NEW BRITAIN, CT 06051

DOCKET NO. 04-01-31RE01      APPLICATION OF HOLYOKE GAS & ELECTRIC  
DEPARTMENT FOR QUALIFICATION OF CABOT  
1-4 AS A CLASS II RENEWABLE ENERGY  
SOURCE - REOPENER

November 9, 2005

By the following Commissioners:

Anne C. George  
Donald W. Downes  
John W. Betkoski, III

## DRAFT DECISION

### I. INTRODUCTION

#### A. SUMMARY

In this Decision, the Department of Public Utility Control (Department) determines that the HGE Hydro/Cabot 1, 2, 3 and 4 generating facilities qualify as Class II renewable energy sources as run-of-the-river hydroelectric facilities and assigns them Connecticut Renewable Portfolio Standard (RPS) Registration Numbers: CT00102-04; CT00102-04(B); CT00102-04(C); and CT00102-04(D), respectively.

#### B. BACKGROUND OF THE PROCEEDING

By application dated January 26, 2004, the Holyoke Gas & Electric Department (HG&E) requested that the Department determine that the HE Hydro/Cabot 1-4 generation facility qualifies as a Class II renewable energy source. Application, p. 1. By letter dated September 23, 2005 (HG&E Letter), HG&E requested that the Department

issue separate registrations for each of the four Projects because each of the facilities is physically and electrically separate, and have been issued four separate Federal Energy Regulatory Commission (FERC) licenses. HG&E Letter, p. 2 The HG&E Letter identified the separate installed capacity for each of Projects 1 through 4 as being 1 056 MW, 800 MW, 450 MW and 750 MW, respectively. Id.

#### C. CONDUCT OF THE PROCEEDING

Pursuant to a Notice of Technical Meeting dated September 9, 2005, a Technical Meeting was held at the Department's office, Ten Franklin Square, New Britain, CT 06051. No hearing was required and none was held.

#### D. PARTICIPANTS IN THE PROCEEDING

The Department recognized the Holyoke Gas & Electric Department, 99 Suffolk Street, Holyoke, MA 01040, and the Office of Consumer Counsel, Ten Franklin Square, New Britain, CT 06051, as participants in this proceeding.

### II. DEPARTMENT ANALYSIS

Pursuant to § 16-1(a)(27) of the General Statutes of Connecticut (Conn. Gen. Stat.), as amended by Public Act 03-135 (P A 03-135), An Act Concerning Revisions to the Electric Restructuring Legislation, "Class II renewable energy source" includes energy derived from a run-of-the-river hydropower facility provided such facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the river flow, and began operation prior to July 1, 2003.

In interpreting Conn. Gen. Stat. §16-1(a)(27), the Department determined that:

(1) "Facility" refers to an entire hydroelectric plant at a single site rather than a turbine generating unit within a hydroelectric plant;

(2) The "generating capacity of not more than five megawatts" refers to a hydroelectric facility's nameplate capacity, not its actual or average generation output,

(3) In order to qualify as "run-of-the-river," a hydroelectric facility must show a current FERC license or exemption that requires the facility to operate in run-of-the-river mode. In addition, a facility can qualify as a Class I or Class II renewable energy facility only to the extent that its FERC license or exemption requires run-of-river operation. Hydroelectric facilities that are not regulated by FERC will be required to show a FERC order or a court decision stating that FERC has no jurisdiction, or has declined to exercise jurisdiction, over such facility. In such cases, the hydroelectric facility must show that its operation allows the river inflow to equal outflow instantaneously and, therefore, does not cause an appreciable change in the river flow, and

(4) "Began operations" means (A) the date an existing facility with existing generation began commercial operation as shown in documentation from FERC, (B) the new date given to an abandoned or destroyed facility that comes back into operation as shown in its documentation from FERC or as determined by the Department; (C) the

date upon which a facility changes operation from store and release to run-of-the-river as shown in documentation from FERC; or (D) the new date that incremental generation is in operation at an existing facility as shown in its documentation from FERC.

See Docket No. 04-02-07, DPUC Declaratory Ruling Concerning "Run-of-the-River Hydropower" as That Term is Used in the Definitions of Class I and Class II Renewable Energy Source in C.G.S. §16-1(a)(26) &(27)

As provided in the application, Cabot 1-4 contains four hydroelectric facilities located in Holyoke, MA. Cabot 1, 2, 3 and 4 are currently owned by HG&E.

According to HG&E, there are two turbine generators at Cabot 1 with a total nameplate capacity of 1 056 MW. HG&E Letter, p. 2, FERC Order Issuing License (Minor Project) dated February 28, 1989 (FERC Order 1), p. 2. FERC issued a license to Cabot 1. FERC Order 1. Within the license, FERC identified that the project does not include dams or other impounding structures, and that hydraulic head is provided by the elevation difference between two canal levels that are part of FERC Project No. 2004-073. *Id.*, inter alia. In the FERC Order Issuing New License and Denying Competing License Application dated August 20, 1999 (Comprehensive FERC Order) which dictates the operations of the Holyoke Dam and the three canal systems (Canal System) below the dam, FERC ordered the Holyoke Water Power Company (previous owner) to operate the project in a run-of-river mode. Comprehensive FERC Order, p. 55. Cabot 1 began operations prior to July 1, 2003. Application, p. 2.

Within the FERC Order Issuing License (Minor Project) dated September 28, 1988 (FERC Order 2), Cabot 2 was identified as having one turbine generator rated at .800 MW located within the Canal System with the same run-of-river operational characteristics as Cabot 1 aforementioned. FERC Order 2, p. 1 inter alia. Cabot 2 began operations prior to July 1, 2003. Application, p. 2.

Within the FERC Order Issuing License (Minor Project) dated September 28, 1988 (FERC Order 3), Cabot 3 was identified as having one turbine generator rated at 450 MW located within the Canal System with the same run-of-river operational characteristics as Cabot 1 aforementioned. FERC Order 3, p. 1 inter alia. Cabot 3 began operations prior to July 1, 2003. Application, p. 2.

Within the FERC Order Issuing License (Minor Project) dated March 19, 1987 (FERC Order 4), Cabot 4 was identified as having two turbine generators rated at .760 MW<sup>1</sup> located within the Canal System with the same run-of-river operational characteristics as Cabot 1 aforementioned. FERC Order 4, p. 1 inter alia. Cabot 4 began operations prior to July 1, 2003. Application, p. 2.

Based on the foregoing, the Department determines that Cabot 1, 2, 3 and 4 qualify as a Class II renewable energy facilities.

<sup>1</sup> Although the HG&E Letter identified the project as having a rated capacity of .750 MW, the Department finds that this nominal discrepancy has no effect on the Department's determination related to Cabot 4

### III. FINDINGS OF FACT

- 1 Cabot 1, 2, 3 and 4 are four separate hydroelectric facilities located in the canal system below the Holyoke Dam in Holyoke, MA.
- 2 Cabot 1, 2, 3 and 4 are currently owned by the Holyoke Gas & Electric Department
- 3 In FERC Orders 1, 2, 3 and 4, the FERC issued licenses to Cabot 1, 2, 3 and 4.
- 4 Within each license, FERC indicated that Cabot 1, 2, 3 and 4 each operate in a run-of-river mode
- 5 Cabot 1, 2, 3 and 4 has a nameplate capacities of 1.076, .800 MW, .450 MW and .760 MW, respectively.
- 6 Cabot 1, 2, 3 and 4 began operations prior to July 1, 2003.

### IV. CONCLUSION

Based on the evidence submitted, the Department finds that Cabot 1, 2, 3 and 4 qualify as Class II renewable generation sources pursuant to Conn. Gen. Stat. § 16-1(a)(27).

The Department assigns each renewable generation source a unique RPS registration number. Cabot 1, 2, 3 and 4's Connecticut RPS registration numbers are: CT00102-04, CT00102-04(B), CT00102-04(C); and CT00102-04(D), respectively.

The Department's determination in this docket is based on the information submitted by HG&E. The Department may reverse its ruling or revoke the Applicant's registration if any material information provided by the Applicant proves to be false or misleading. The Department reminds HG&E that it is obligated to notify the Department within 10 days of any changes to any of the information it has provided to the Department.