Champlain Hudson Power Express, Inc.
Case 10-T-0139

Request No.:	DEC-5	Date of Request:	December 6, 2010
Requested By:	NYSDEC	Reply Date:	December 16, 2010
Subject:		Witness:	Sean Murphy

REQUEST:

Please provide all documents, including paper and electronically stored documents, prepared on or behalf of CHPEI, including but not limited to all studies and reports in CHPEI's possession that contain or relate to information requested or that CHPEI used in answering these interrogatories. If CHPEI has previously provided any of the files/documents requested below, please identify what has been provided and where in the Article VII application the document may be found.

1. Identify any constraints to the western railroad route identified by the New York Department of Public Service (DPS) (DPS Alternate Route) for the portion from Catskill to Kingston.

2. Identify any constraints to the DPS Alternate Route for the portion of the route south of Kingston.

3. Evaluate the potential to attach the proposed transmission line (line) to bridge structures in the DPS Alternate Route south of Kingston.

4. Evaluate the potential to install the line within tunnels in the DPS Alternate Route south of Kingston. What alternate routes around the identified tunnels are possible?

5. Identify any alternative upland route segments that would allow the line to avoid identified constraints in the DPS Alternative Route for the portion south of Catskill.

6. Identify any alternative in-water route segments that would allow the line to avoid identified constraints in the DPS Alternative Route for the portion south of Catskill.

RESPONSE:

Response 1

In response to this interrogatory as well as to similar lines of questioning raised by other parties, the Applicants have endeavored to provide a detailed analysis of routing constraints and alternatives along the Department of Public Service's Western Hudson Alternative. In order to allow for ease of analysis, the Western Hudson Alternative has been divided into segments with the corresponding route mile marker to better aid in identifying the end points.

Segments of the route which were identified as being reasonable as well as feasible based on known concerns (e.g. engineering, land ownership, environmental constraints) have been accepted by the Applicants. In completing this analysis, the Applicants adopted the following principles:

1. The minimization of in water route length is not equivalent to minimizing environmental and societal impacts. Greater use of land-based corridors in these areas requires the crossing of a significant number of stream and wetlands, presenting the risk of greater cumulative impacts to resources. Available information indicates that the preferred in-water route will only have temporary impacts to the water bodies.

2. Existing land corridors often involve construction complexities (e.g. buried utilities, existing infrastructure) that can be economically infeasible. Even if economically feasible, these routes would significantly delay the project's in-service date; impose significant inconvenience to vehicle and/or rail traffic for commuters; and leave the cable less reliable and more subject to outages and disruptions due to accidents, rail and highway repairs and maintenance, and terrorism risks.

3. The multiple use of existing utility and transportation corridors has been a longstanding siting policy that now must be reconsidered in light of heightened concerns about terrorism. Increased security is required when installing new utility infrastructure in new ROWs. Submarine routes inherently offer enhanced security due to the absence of readily visible identification. Constructing a transmission line in its own ROW, rather than concentrating utility infrastructure in multiple use corridors, increases reliability by decreasing the chances that accidents and maintenance and repair work on other facilities will result in disruptions.

4. When considering overland alternatives the preference is to utilize state highways rather than local roads due to the generally more expansive width of available rights-of-way, which allows for greater construction flexibility, increased worker safety, and decreased disruption of normal traffic flow. The Applicants also strongly preferred utilizing public lands for the cable corridor rather than establishing a permanent easement on private lands, although temporary easements may be necessary on private lands for construction purposes.

In terms of overland alternatives, parties have questioned in the past why existing utility corridors have not been utilized. In the alternatives analysis submitted with the July Supplement, a buried utility line extending from the U.S. / Canada border to the New York region was evaluated but ultimately eliminated from consideration. Since that time, the Applicants spoke with the three utilities who own the ROWs under discussion and each voiced opposition to collocation with their facilities. The New York Power Authority noted that they were under the same statutory restrictions as the New York State Canal Corporation in terms of their ability to dispose of public lands and that they do not believe they would have the ability to grant the necessary long term land interests. National Grid expressed concern regarding the impact this project would have on their system reliability and potential expansion of their own facilities within the ROW. A representative of Con Edison stated that for safety and reliability reasons they would not want the cables installed in near proximity to their tower foundations. In addition, their transmission lines within Westchester County are buried and he did not believe Con Edison could grant the right to use their ROW to a separate private entity. These conversations have confirmed the Applicants' previous position that any attempt to collocate the Project with an existing utility ROW would require the acquisition of land rights adjacent to the ROW either through purchase or eminent domain due to concerns by the ROW owners over the safety of their system and their desire to preserve the ROW for potential future expansion.

Route Mile 202 to 223 (Coeymans to Catskill)

The Project route as originally proposed would enter the Hudson River in Coeymans, New York by following the CSX railroad right-of-way (ROW). The Applicants have reviewed the CSX ROW from Selkirk south to north of Catskill and identified no significant engineering constraints. From Catskill, the Applicants would propose laying the cables with the Route 23 ROW to enter the river at approximately mile 223.5 of the original route. This alternative bypassed several SCFWH areas, including Stockport Creek and Flats, Vosburg Swamp and Middle Ground Flats.

Route Mile 223 to 233 (Catskill to Malden-on-Hudson)

From Catskill to Malden-on-Hudson (north of Saugerties), the Applicants note only one potential engineering issue, the Catskill Trestle which crosses Catskill Creek and Route 9. Based on previous conversations with CSX, the Applicants believe that they will be able to attach the cable to this structure.

Following the railroad ROW until it intersects with Route 34, the cables could be laid in the roadway ROW to the east to connect with Riverside Road and then Riverside Drive. While the Project in general seeks to avoid local roads due to the more narrow rights-of-way and potential for local opposition, the relative shortness of this usage seems justified given the length of overland that would be enabled. The parking lot for the boat launch at the termination of this road will allow for a horizontal directional drill (HDD) into the Hudson River. The Applicants believe that this portion of the Western Hudson Alternative is a feasible alternative but that it is not possible to install the

cables upland south of this point to Kingston for the reasons discussed below.

Route Mile 233 to 245 (Malden-on-Hudson to Kingston)

Siting in this segment is complicated by the dense development within the Ulster / Kingston area. As the CSX railroad travels beneath Route 209 in Ulster, the railroad corridor is bound on either side by existing transmission lines. Typically when collocating in a common ROW, the utility companies must maintain a specified separation from other facilities, which would not be possible along this segment. This is one of the concerns raised by utility companies about collocating with existing transmission lines (see above for a further discussion). The route in this area would have to collocate in the ROW of John M. Clark Drive, which runs parallel to the tracks until they both intersect with Route 157, at which point the transmission lines no longer run on both sides of the railroad ROW. The utilization of the roadway does not represent an obstacle but is presented so as to be clear that the Applicants would need to leave the railroad ROW in this area.

After passing through the Kingston railyard and over Route 32/Flatbush Avenue, the railroad corridor traverses the middle of St Mary's Cemetery with an overhead transmission line on the western side of the railroad corridor. There is insufficient room between the cemetery (actual gravestones) and the railroad tracks along the eastern side of the railroad corridor to install the Project's cables. A roadway bypass would require utilizing the Route 32 ROW to access Farrelly Street to the east or Foxhall Avenue to the west. Utilizing either of these roadways would require traveling through residential neighborhoods where the houses are tightly packed and close to the roads, making installation extremely difficult and disruptive.

Immediately south of the cemetery, the railroad corridor extends through a heavily developed urban area where large buildings are located immediately adjacent to the railroad corridor (within ~10 ft), resulting in insufficient horizontal clearance to install the Project cables within this section of ROW. This level of development is intermittent until the railroad crosses a small bridge over Broadway. As with the roads proximal to the cemetery, the roadways that might be utilized as an alternative to this segment (e.g. Foxhall Avenue, Cornell Street, Ten Broeck Avenue, and Grand Street) also have buildings immediately adjacent to the roadway as well as residential houses where construction would be disruptive.

The Applicants also reviewed roadway alternatives that would bypass the city of Kingston. Route 9W could be accessed by following Route 157 east at the terminus of John M. Clark Drive. While 9W has a low density of development north of Route 32, it becomes a limited access highway (controlled-access road) once it crosses Route 32. The New York State Department of Transportation (NYSDOT) has indicated that it would highly restrict the longitudinal use of limited access highway right-of-way by utilities. Route 32 becomes Flatbush Road and Flatbush Avenue as it passes within the city center and experiences the same high level of development as other roadways within the city.

Based on this analysis, the Applicants were unable to identify any reasonable alternative that traversed the municipalities of Ulster and Kingston and therefore the cables will need to enter the water prior to this point. Moving north along the railroad ROW, the track runs parallel to the Hudson River until it intersects with Route 31, at which point it veers to the northeast towards

Saugerties. As the Esopus Estuary SCFWH stretches along the riverbank north from where Esopus Creek empties into the Hudson River, the entry point would need to be in or north of Malden-on-Hudson. From the ROW, Route 34 could be followed to the east into Malden-on-Hudson and private land accessed to allow for a horizontal directional drill (HDD) into the Hudson at approximately mile 233 of the original route.

In terms of roadway alternatives, the only road that travels in relatively close proximity to the Hudson River is Route 32 with a separation distance of approximately one-half mile. However, this roadway, as well as Route 9W, traverses the Esopus Creek Bridge to cross the Esopus Creek. To date the New York State Department of Transportation has indicated that they would not permit hanging cables on structures owned and operated by the agency. An HDD would be complicated by the depth of the gorge (approximately 75 feet), the gravity dam downstream of the bridge, and existing buildings at both ends of the bridge. There are no existing launch /exit sites that meet the necessary spacing criteria for a safe drill under these constraints. Therefore, routes 9W and 32 south of Esopus Creek are considered inaccessible to the northern portion of the cable route and therefore not a feasible alternative.

Response 2

Please see Response 1 for a discussion as to why installation of the cables through the Kingston region is not feasible.

Route Mile 245 to 254 (Kingston to West Park)

South of Kingston, the access point to the railroad will require that the cables be installed within Rondout Creek, which is a SCFWH. Rondout Creek is one of the largest freshwater tributaries of the Hudson River Estuary and the concentrations of anadromous and resident freshwater fish is considered “unusual in Ulster County”. In addition, the Applicants are aware of significant issues associated with a now defunct gasification plant at the mouth of the creek currently undergoing remediation. If installation of the cables were to occur in this water body, it should be done outside of the fish spawning and incubation periods (March through July for most warm water species). The railroad ROW does not appear to have any significant engineering constraints until it intersects with Route 9W in West Park.

The Applicants note that the ROW of Route 9W could also be utilized to travel north of Kingston. However, given that accessing the roadway would also require installation within the Rondout Creek SCFWH and that installation on a well-travelled road would be more disruptive than on a railroad line, the Applicants would recommend adopting the ROW alternative if it is determined that installation within the Rondout Creek is acceptable. The Applicants also considered utilizing Routes 81 /24 (River Road), which run parallel to the Hudson River but connecting to this roadway would require installing a significant length of the cable on privately-held land.

Route Mile 254 to 261 (West Park to Highland)

South of the intersection with Route 9W, the railroad line runs adjacent to the Hudson River and often the railroad lines are sited in a narrow opening between the edge of the Hudson River and large rock outcroppings or very steep terrain to the west. Installation in these areas will require either blasting of the bedrock to create a sufficient degree of separation from the railroad or an expensive HDD installation (assuming that there is available space for this technique). Using an internet mapping site that provided aerial photography, the Applicants identified sixteen distinct outcrops with an estimated average length 490 feet and a range of 230 to 1020 feet. However, it should be noted that the desktop analysis only accounts for exposed outcroppings, so the actual extent of bedrock material may be far more extensive. In Highland, Oakes Road runs immediately adjacent to the railroad ROW for approximately 3,200 feet, so that there is insufficient room to install the cables for much of this stretch. The Applicants consider installation in this section of railroad ROW to be at least impractical and likely infeasible.

The Applicants also considered the use of Route 9W, which initially travels through largely undeveloped countryside. Transmission poles border the western side of the road for less than two miles until it intersects with Upper North Road in Highland, so installation in this area would be on the eastern side. A short distance after the intersection with Upper North Road, Route 9W expands to four lanes. Over the next approximately four miles, the transmission system switches sides eight times. In order to maintain the required separation, the cables would need to cross underneath the roadway. As Routes 44 and 55 overlap with Route 9W in Highland, the transmission system poles occupy both sides of the roadway. In addition, the density of businesses with access points on the roadway increases. Route 9W also has two bridges before its connection with Route 44/55 for which there are no readily identifiable bypasses. Due to the broad notice and participation requirements of the settlement process, the Applicants are restricted from speaking with representatives of the New York State Department of Transportation (NYSDOT) without due notice to all parties on issues relating to settlement; however, previous conversations suggest that the intensity of development as the highway enters Highland and high traffic volume would make utilization of Route 9W infeasible in their eyes.

Route Mile 261 to 277 (Highland to Newburgh)

Immediately south of the intersection of the ROW with the Route 44 bridge, there appears to be a maintenance road to the west of the tracks. The width of this road appears insufficient to meet CSX's minimum separation distance from the tracks. Between the Route 44 bridge and U.S. Highway 84 bridge in Newburgh, the Applicants identified eighteen rock outcrops that would significantly complicate installation if the railroad companies even allowed for the necessary construction activities. The average length of each outcrop is approximately 770 feet with a range of 160 feet to 2950 feet. This segment also has seven instances where the railroad has water on both sides of the tracks for an average distance of 1250 feet. As was noted earlier, the desktop analysis only accounts for visible bedrock and so the actual length of ROW where upland construction is essentially infeasible may be far longer. A short distance south of the U.S. Highway 84 bridge, the railroad occupies a raised berm. The cables would either need to be laid at the foot of the berm with HDDs for the road crossings or, in congested sections, the ROW of an alternate roadway such as Water Street would need to be accessed. The Applicants consider installation in

this section of railroad ROW to be impractical.

In terms of roadway alternatives, Oakes Road passes under the Route 44 bridge but reaches a dead end within a mile. Other roadway route alternatives would need to be accessed through Highland and, as has been previously discussed, the level of development in the vicinity of the intersection of Routes 9W and 44 would prevent cable installation in a reasonable manner.

Following the Hudson River south from Highland, the first roadway to come in close proximity to the river is Old Indian Trail Road in Milton at approximately Route Mile 266. At its closest point, the road is adjacent to the railroad ROW and is less than a mile away from connecting to Route 9W. As Route 9W travels south, it traverses lightly to moderately developed areas. However, as was observed in a northern segment, the transmission poles cross the roadway multiple times which would require HDD drillings or open cut trenching at each location. The transmission line crossings are often to avoid natural and anthropogenic obstacles, thereby making installation of the Project's cables more problematic since cables would not only need to avoid the transmission lines but also these features.

As the road approaches Marlboro, development becomes more pronounced with the hamlet buildings directly adjacent to the roadway. South of the hamlet's center the road has transmission poles on one side and a cemetery on the other for approximately 500 feet. Bypassing this section would require utilizing residential roads for approximately one-half mile. Continuing south, Route 9W continues to travel through low to moderate density developments, with transmission poles that cross the highway at infrequent intervals. The Applicants did not identify any engineering "fatal flaws" with this segment but the high per-mile cost as well as the disruption to homes and businesses does not appear justified given the length of the bypass. In addition, as is discussed below there are significant engineering constraints as the road passes beneath the Route 84 with no readily available bypass options.

Route Mile 277 to 280 (Newburgh to Cornwall on Hudson)

South of Newburgh, the Applicants did not identify any significant engineering constraints until the railroad reaches Cornwall on Hudson where Shore Road is proximal to the railroad tracks..

Within a one-half mile distance of the Route 84 bridge, Route 9W experiences significant industrial development. In the center of Newburgh, the road is bordered by tightly packed residential homes as well as occasional park and recreational facilities. South of Newburgh proper, Route 9W becomes a divided four land highway for approximately 2 miles with transmission poles on the eastern side of the road. Once the divided highway ends, there is a bridge crossing of Moodna Creek which, based on previous conversations with the NYSDOT about the use of their bridges, will require that the Project utilize an HDD drill as Route 9W crosses Route 107 in Cornwall, it transitions to a limited access highway and collocation of transmission cables in the ROW of limited access highways is highly restricted and discouraged by NYSDOT.

Route Mile 280 to 284 (Cornwall on Hudson to West Point)

As the railroad reaches Cornwall on Hudson, Shore Road runs parallel the tracks for approximately one mile and for more than half that distance the Hudson River lies along the eastern side. The Applicants identified five rock outcroppings with an average length of 960 feet (range of 380 to 1920) and a berm through a water way extending approximately 300 feet. In West Point, River Road and the Upton Road run parallel to the railroad tracks with the Hudson River to the east for approximately 4,060 feet before entering the tunnel beneath West Point Military Academy. Given the engineering constraints present over this relatively short segment, the Applicants do not consider it reasonable to utilize his route.

As previously discussed, Route 9W becomes a limited access highway in Cornwall and NYSDOT has indicated that it would highly restrict the collocation in the ROW of limited access highways. As an alternate route, the Applicants considered Route 218 which intersects the highway prior to the transition to a limited access roadway. Route 218, however, travels through the center of Cornwall on Hudson through tightly packed residential and commercial districts. Trees line both sides of road through the town, so that any installation would either require their removal or risk damage. Outside the town proper, Route 218 enters Storm King State Park and climbs up Storm King Mountain along a steep and windy roadway. As the road crosses the front of the mountain, there is an approximately half-mile stretch where the road has been carved out of the cliff face. Based on this engineering constraint, the Applicants do not consider this roadway to be a feasible alternative.

Route Mile 284 to 285 (West Point)

The tunnel beneath West Point extends for approximately 3,500 feet. The Applicants' insurance company has stated the cables must be fully protected to secure coverage. Installation of the cables within the tunnel ceiling would present a serious liability should any type of failure occur. Similarly, the railroad company has specified safety setbacks which could not be met within this tunnel. Rock cuts into the sides of the wall are theoretically possible, although a geophysical analysis would be required to ensure there was no impact on the integrity of the tunnel. Past conversations with representatives of the railroad line suggest they would not allow this approach as it would require work within the tunnel for months, significantly impacting railway use. As the railroad leaves the tunnel, there is a short stretch (approximately 500 feet) where an Academy parking lot lies to the east and Williams Road to the west. The parking lot would need to be torn up to install the cables or an HDD enacted. The Applicants consider installation in this section of railroad ROW to be impractical.

There are no state roads in close proximity to either entrance to the tunnel. Both River Road and Upton Road are in close proximity to the water and connect into existing local roads. However, these roads are built perpendicular to the slope of the foothills of Storm King Mountain and the rights-of-way are narrow. In addition, the most likely alternatives are under the control of the Academy, which may not permit installation on a military facility. The Applicants believe that an in-water route is the most practical considering the short reach necessary to bypass this tunnel.

Route Mile 285 to 290 (West Point to Fort Montgomery)

As with earlier segments, the railroad runs parallel to the Hudson River. The Applicants identified

ten rock outcroppings with an average length of 720 feet (range of 265 to 1,606) and four water crossings with an average length of approximately 490 feet (range of 402 to 644). In addition, the ROW travels through the Bear Mountain tunnel, which extends for approximately 800 feet. The Applicants consider installation in this section of railroad ROW to be impractical.

There are no state roads or local roads in close proximity to the water for this segment. Mine Dock Road in Fort Montgomery could be accessed if the cables came out of the water into the railroad ROW and were laid a short distance before entering the road. However, Mine Dock Road runs underneath Route 9W and private homes are located on either side of the bridge abutments. Therefore, the Applicant did not identify any overland alternative to this segment or specifically the Bear Mountain tunnel.

Route Mile 290 to 296 (Fort Montgomery to Haverstraw)

The Applicants identified six rock outcroppings with an average length of 490 feet (range of 190 to 860) and seven water crossings with an average length of 1,080 feet (range 391 to 2,373). In addition, north of Stony Point Lighthouse is an approximately 2,020 foot stretch of railroad where water is to the east and utility grade transmission lines are to the west. As the railroad curves around Dunderberg Mountain past Jones Point, River Road runs parallel to the tracks for approximately 1,400 feet. Further along the tracks, West Shore Drive in Tomkins Cove runs in close proximity to the railway for approximately 1,600 feet. The Applicants consider installation in this section of railroad ROW to be impractical due to the constrained ROW.

A steep rock embankment lies beneath the bridge that connects 6/202 into a round-about with Routes 9W/202 and the Palisades Interstate Parkway. The Applicants are unsure if this feature is considered part of the parkway and therefore unusable by a transmission system. Assuming Route 9W/202 is available, the roadway travels south through Bear Mountain State Park. Trees line both sides of the road, which is kept in a natural setting. The roadway passes a boat launch near Iona Island, whose bay is a SCFWH. The Applicants identified six rock outcroppings for an average length of 850 feet (range of 141 to 2,556 feet). The Applicants consider installation in this section of road to be impractical due to the extent of clearing, blasting and/or other activities that would be required within a state park for a relatively short overland segment.

Route Mile 296 to 303 (Haverstraw Bay)

The Applicants recently submitted a settlement proposal which would site the Project outside of Haverstraw Bay.

Response 3

Based on previous conversations with the railroad companies involved with this Project, the Applicants anticipate that they would be able to secure permission to attach the cables to bridge structures along the railroad ROW. For bridges of smaller length, it is often easier and more secure to use an HDD to go underneath whatever feature the bridge is bypassing. When the bridge is of a longer length, then an engineering inspection will be necessary to ascertain the best method. However, the Applicants note that the analysis presented in this response indicates that it will not be possible to install the cables through Kingston and so the bridge discussed in the Updated Alternatives Analysis that crosses Rondout Creek should no longer be a consideration.

Previous conversations with representatives of the NYSDOT have indicated that cables can not be attached to state owned bridges. However, the Applicants intend to follow up with the DOT on this issue.

Response 4

As discussed above, the Applicants believe that from a safety and liability standpoint the cables should not be installed in any of the tunnels encountered along this route. Insurance coverage of the system relies on the cables being fully protected. Installation of the cables within the tunnel ceiling would present a serious liability should any type of failure occur. While rock cuts may be theoretically possible, pending the results of a geophysical analysis, the railroad lines have indicated that they would not allow this approach as it would require work within the tunnels for months at a time.

Alternative routes have been discussed above.

Response 5

See Response 1 and 2 for discussion of alternatives.

Response 6

See Response 1 and 2 for discussion of alternatives. The Applicants have identified where the Project best fits overland and in-water. In cases where the upland alternative runs adjacent to the water (as is often the case with the railroad ROW), the number of exits and re-enters that would be required to avoid the constraints would make this approach impractical and cost prohibitive.