

Transource Energy

Artificial Island
TEAC Meeting

December 9, 2014

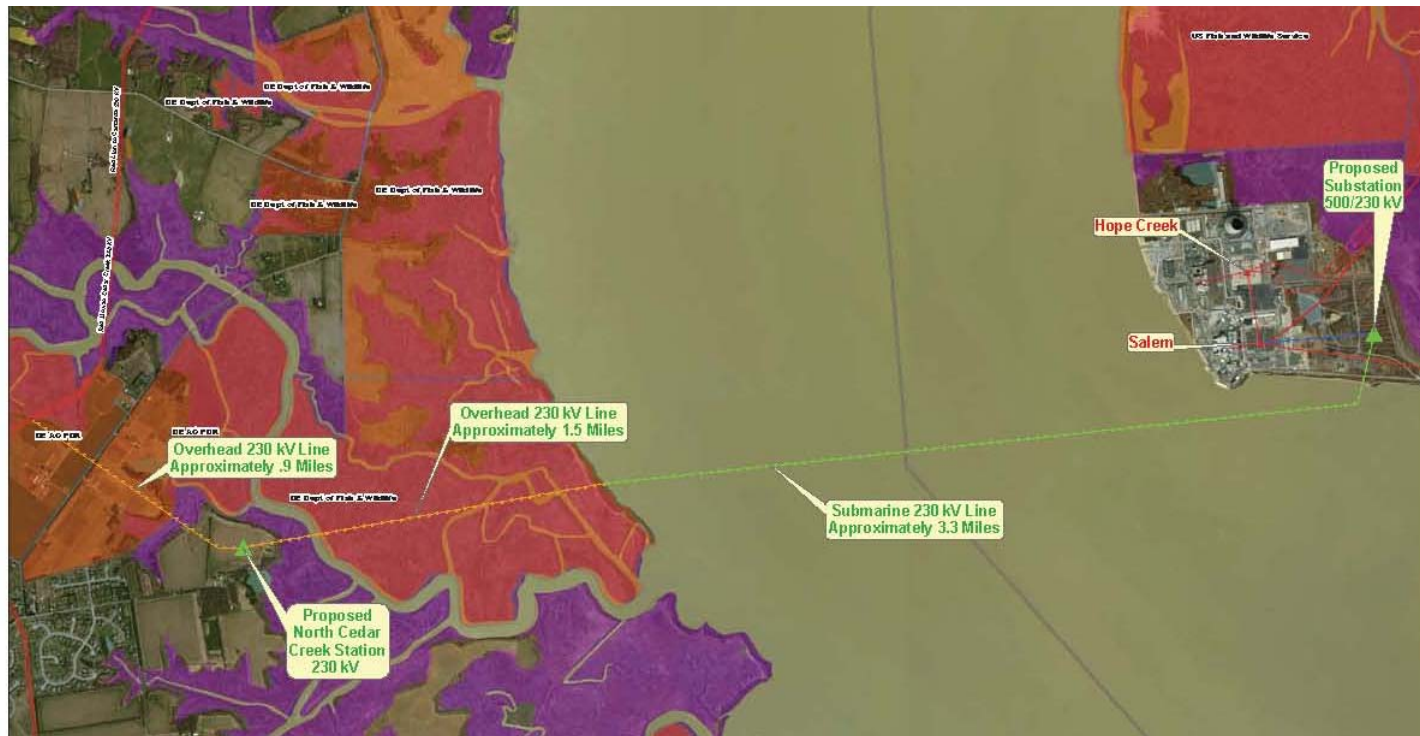
Team Introductions



- Our proposal presents PJM with an ideally-qualified project execution team:

Team Member & Roles	Key Experiences
<p>Transource Energy (AEP & GPE)</p> <ul style="list-style-type: none"> Project Sponsor and anticipated 50% owner Jointly participate in all aspects of implementing and owning project 	<ul style="list-style-type: none"> Experience in developing, constructing, operating and maintaining transmission facilities in 13 states Experience working with transmission facilities at nuclear stations Experience with successful joint ventures and obtaining approvals for transmission-only companies
<p>Pepco Holdings (Delmarva Power)</p> <ul style="list-style-type: none"> Anticipated 50% owner Jointly participate in all aspects of implementing and owning project 	<ul style="list-style-type: none"> Incumbent transmission owner for project area in Delaware and New Jersey Local experience with permitting, environmental, siting and land acquisition Operations and maintenance resources close to the project Experienced with underground cable implementation
<p>Burns & McDonnell</p> <ul style="list-style-type: none"> Project management Line and substation engineering Permitting, environmental, ROW 	<ul style="list-style-type: none"> Industry-leader in engineering and design of transmission facilities Experienced in permitting, environmental, siting and land acquisition
<p>ABB</p> <ul style="list-style-type: none"> Submarine cable design, manufacturing and coordination of installation 	<ul style="list-style-type: none"> Global leader in submarine cable design, manufacturing and installation
<p>Caldwell Marine</p> <ul style="list-style-type: none"> Submarine cable installation 	<ul style="list-style-type: none"> Highly experienced in submarine construction

Summary of Proposed Project



- Industry-leading subject matter experts have performed thorough due diligence on all aspects of the project
- Proposed project includes:
 - Submarine crossing, with horizontal directional drilling and cofferdams at both landings
 - New substation at North Cedar Creek in Delaware
 - Overhead transmission from landing to new station and from new station to existing lines
 - New substation outside of Salem Station; assumed to be designated a Transmission Owner Upgrade by PJM

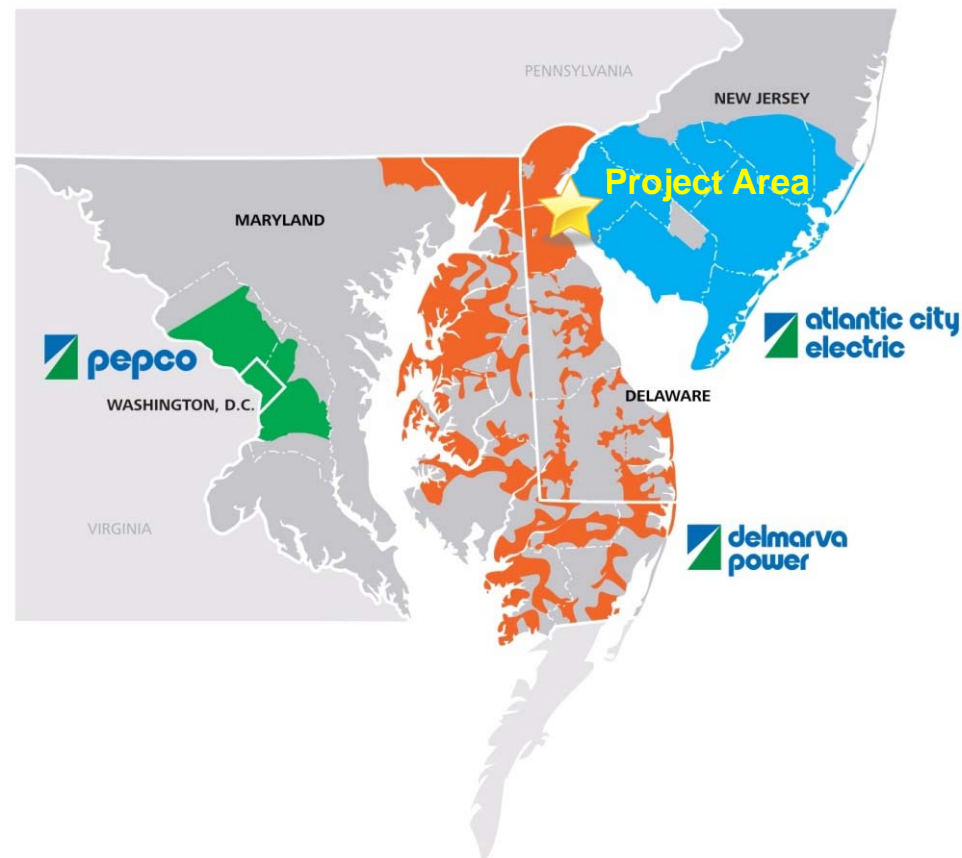
PJM can confidently select the Transource proposal based on the following:

- Joint participation with PHI, added to the nationwide resources and experiences of AEP and GPE, presents an ideal team to execute the development and ownership plans
- Submarine crossing is readily permissible using proven construction techniques by experienced firms; in contrast, concerns about the overhead crossing are well documented
- Project cost and schedule are realistic and have been thoroughly analyzed by industry-leading firms
- We offer a straightforward cost containment mechanism that is transparent to stakeholders

Transource-PHI Joint Participation



- Transource and PHI have executed a Memorandum of Understanding pursuant to which, upon the satisfaction of certain conditions, the parties would jointly develop, construct, operate and maintain the project if it is awarded to Transource
- Project ownership would be 50% / 50%
- Highlighted benefits:
 - Resolves any uncertainty regarding Delaware statutes and other regulatory requirements that may limit the ability of non-incumbents to build transmission facilities in Delaware
 - Joint responsibility for project execution brings PHI's tremendous experience in the region to the project
 - PHI's on-the-ground resources to provide routine and emergency operations and maintenance services
 - PHI's right to construct transmission facilities within public space right of way
 - PHI's existing control system for ACE and DPL service areas and existing interface with PJM



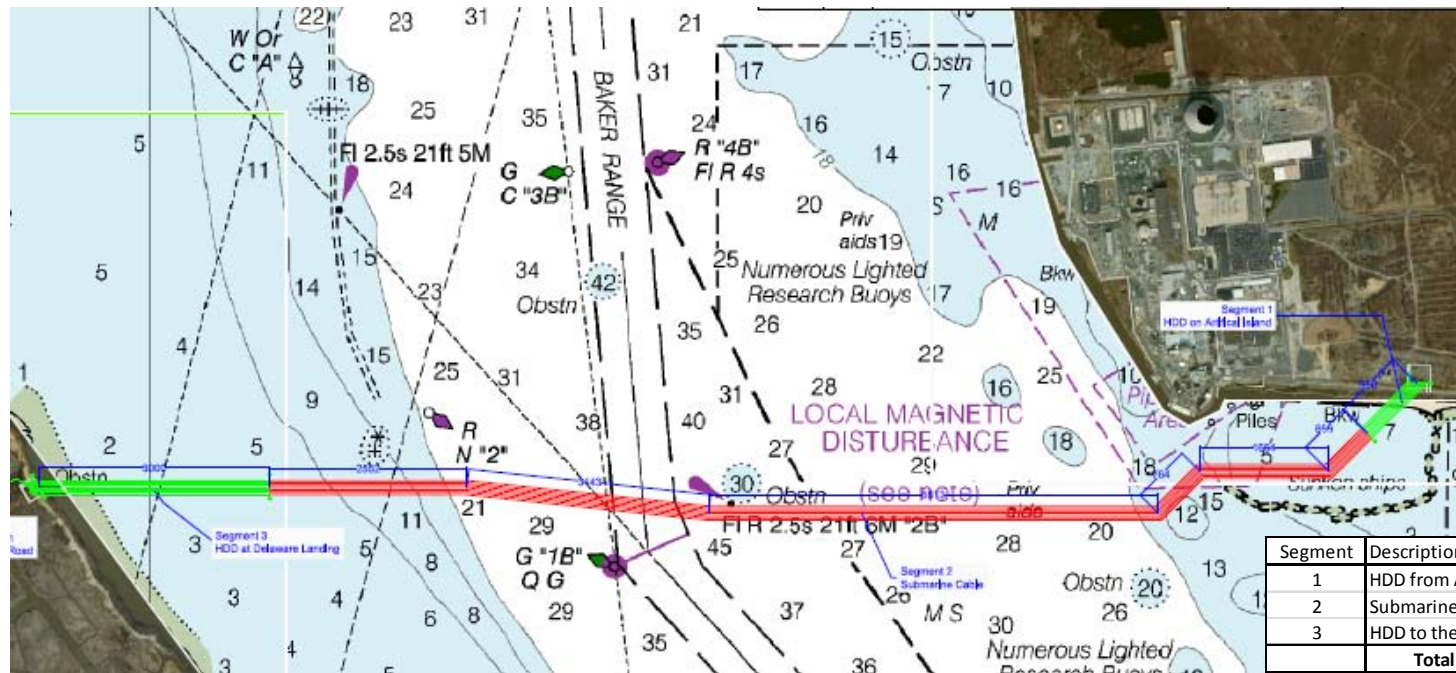
PHI Project Execution Experience



- In addition to its \$800 M in telecommunication, distribution line and substation work, PHI executes \$400 M in transmission line and transmission substation projects annually
- Use diversified teams that currently exist within the organization that are made up of Project Management, Transmission and Substation Engineering, Environmental, Real Estate, Government Affairs, Corporate Communications, Telecommunications, Construction Management, Transmission Planning and Transmission Operation
- Very knowledgeable of the methods and resources necessary to construct a project of this type within sensitive environments such as wetlands, waterways and other protected habitats, while incorporating limitations, such as time of year construction restrictions, into project schedules, and conducting habitat restoration and mitigation programs
- Extensive expertise in working with Local, State and Federal agencies within project area - particularly in acquiring permits and approvals to both conduct necessary investigatory studies following agency protocols, as well as obtaining authorizations to proceed with construction activities
- Experience with filing applications, preparing testimony, responding to interveners and regulatory data requests, conducting public outreach, and other activities necessary to ensure successful project implementation
- Use horizontal directional drilling (HDD), hydro-plow and underground installation techniques on its own projects, examples include:
 - Underground and HDD installation of 230 kV lines in the Oxon Cove & Oxon Hill National Park, Washington, DC
 - HDD and hydro-plow 69 kV lines crossing of Manahawkin Bay, NJ, as well as HDD waterway/wetland crossings for numerous 25 kV projects throughout its service territory
 - Numerous waterway crossings exist across all three of PHI's operating companies



Analysis of Submarine Crossing



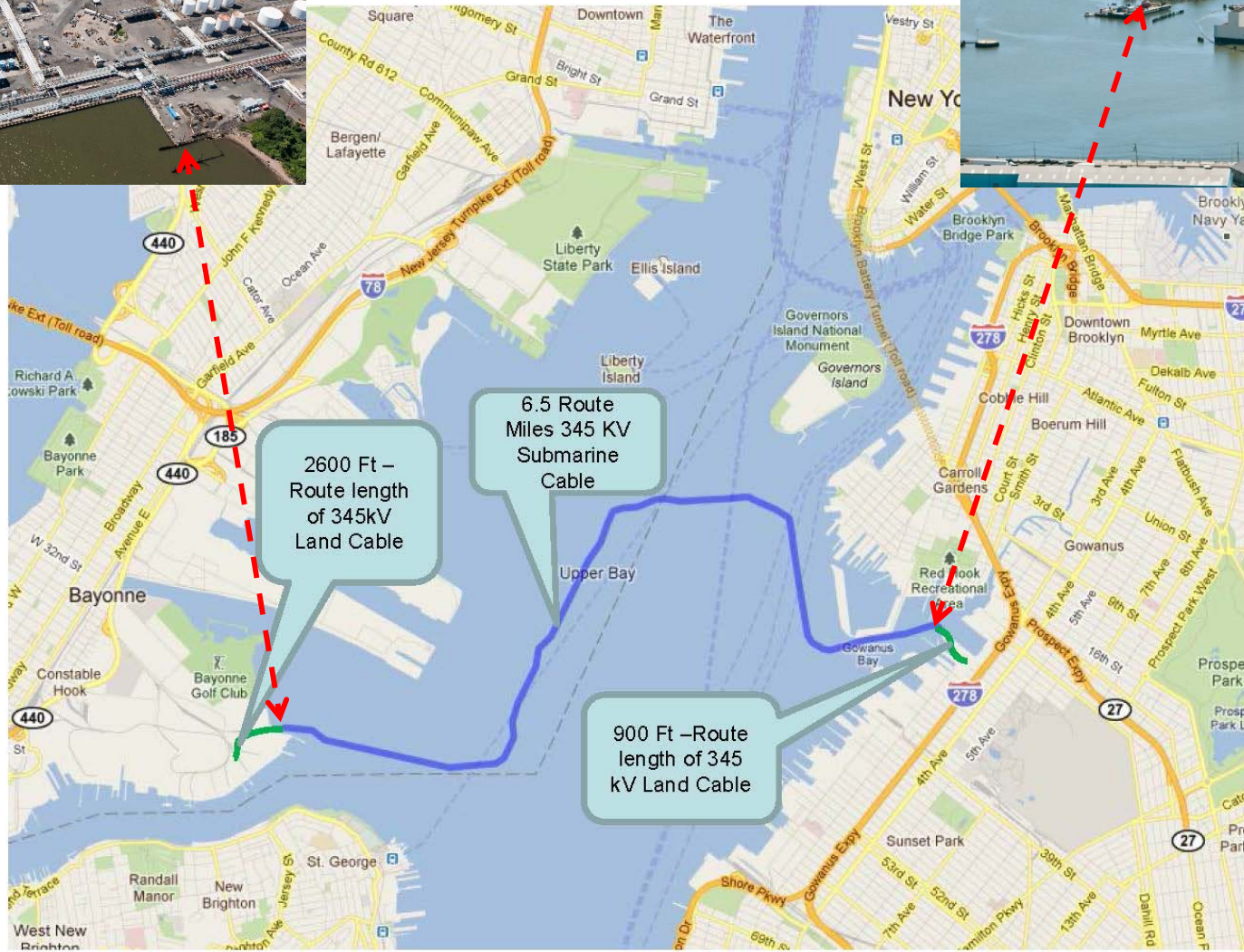
Segment	Description	Estimated Distance (LF)
1	HDD from Artificial Island (East Side of River)	950
2	Submarine Cable (Jet-Plow)	14,634
3	HDD to the Delaware Landing (West Side of River)	3,000
	Total	18,584

- Based on experience from other projects in the northeast, it is highly unlikely that the permits will allow for trenching on shore; the cables will have to be landed via horizontal directional drills (HDD) that will be constructed from land towards the water
- Prior to HDD construction, in-water cofferdams must be built at the exits of the HDDs to contain any drill fluid release. The excavated cofferdams also provide the transition point from the HDD conduits to the 15 feet jet-plow burial (*appendix contains a slide addressing the burial depth*)
- On the western side of the river, the HDDs need to be significantly longer than on the eastern side to reach water depths that are accessible for the cable lay vessel
- The cofferdam and HDD construction represents a very significant part of the overall estimated construction costs for the submarine cable crossing
- ABB and Caldwell Marine have significant experience in executing similar projects, most notably the Bayonne Energy Center Project in New York City. In addition, AEP and PHI each have experience with HDD submarine projects within their respective systems

Bayonne Energy Center Project



Overview of Route



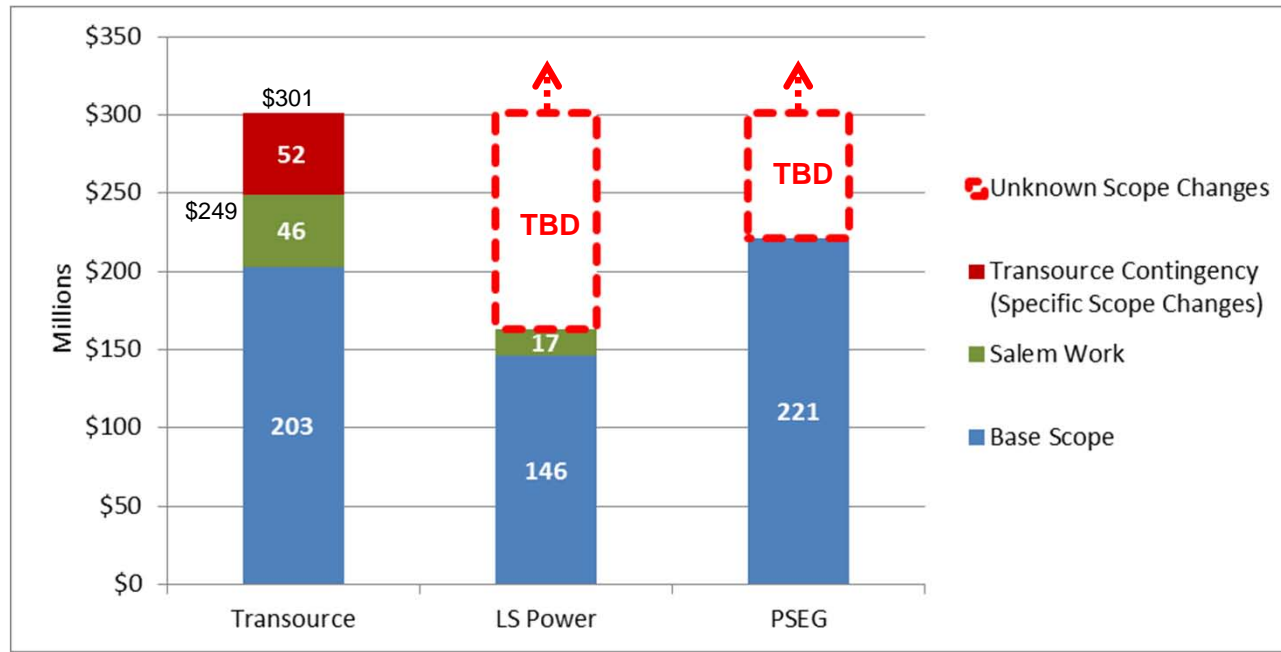
Construction of in-water cofferdams and HDDs at the landing sites



Permitting Key Points – Transource Proposal

- Inclusion of HDD and cofferdams drive the permitability of the submarine portion
- Route proposed by Transource for the Delaware portion is permitable
 - Project proposal crosses lands owned by State of Delaware DOT and DNREC - lands are not classified as wildlife management areas
 - The land is not held under a specific conservation restriction but is managed by the Delaware Open Space Council (DOSPC) as enacted by the Delaware Land Protection Act of 1990
 - DOSPC is authorized to approve development on state lands as long as the development is determined to be environmentally sensitive
- CH2M Hill overstates the permanent wetlands impacts and associated mitigation costs by assuming a permanent access road is required in Delaware
 - Temporary access will be used for construction (composite mats, geotextile fabric & fill, etc) as well as maintenance, as such no permanent impacts from roadways are anticipated - this approach is consistent with PHI's experience with similar transmission projects in the area
- CH2M Hill report overstates the expected permitting timeframe by assuming a Environmental Impact Statement (EIS) would be required under the National Environmental Policy Act (NEPA) review process
 - CH2M Hill uses four projects as comparison:
 - Two Projects required an EIS: the Champlain Hudson Power Express (300 miles of subsea installation) and the Dominion James River Crossing (17 overhead structures installed within the James River)
 - Two Projects were approved by USACE without an EIS: Hudson Transmission Project (3 mile river crossing), Bayonne Energy Center Cables (6.5 miles of submarine cable)
 - The two projects approved without EIS are more representative of the scope and scale of the Transource Project

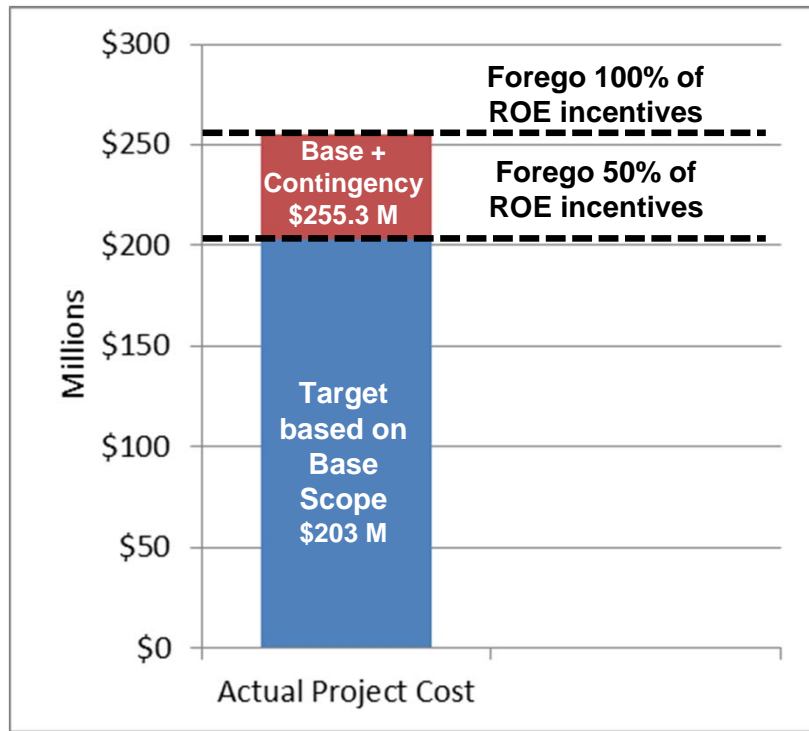
Cost Comparison to Other Proposals



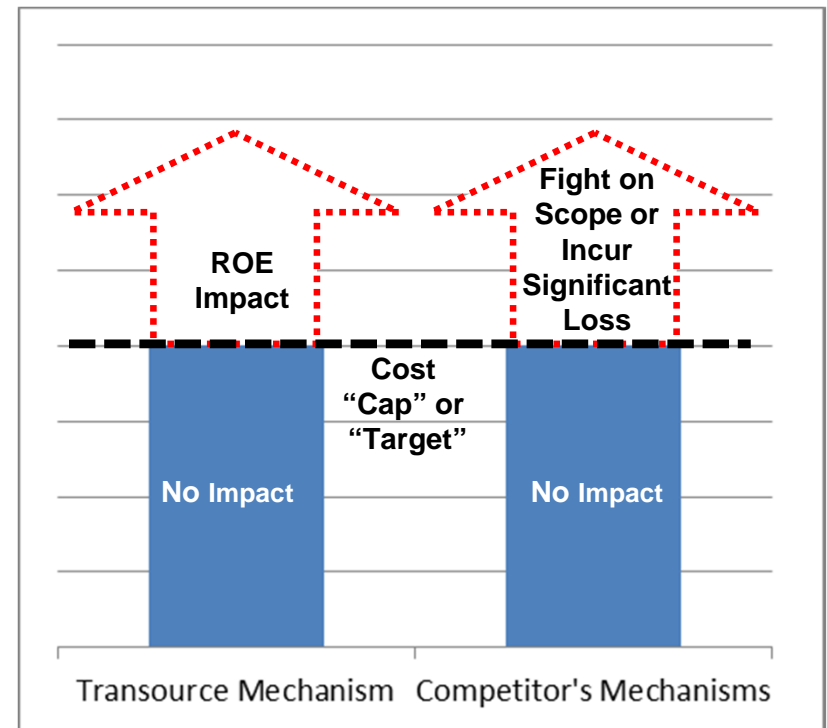
- Transource’s project cost has been thoroughly analyzed by industry-leading firms
 - ‘Base Scope’ of \$203M includes HDD and cofferdams – we believe this drives the base cost difference versus the LS Power estimate
 - We stand behind our \$46M estimate of the ‘Salem Work’ and have offered to PJM to include this amount in our cost containment mechanism if the work can be designated to Transource
 - Our \$52M contingency includes a 10% general contingency (\$20M) and two specific scope changes that may be required for permitting
- In contrast, competitors have not identified any potential scope changes and are proposing “cost caps” that can be adjusted for these unknowns
 - PSEG’s “cost cap” can be adjusted for most development risks (changes driven by regulations, permitting, environmental, land acquisition, etc.); these are the major drivers for transmission project scope changes
 - LS Power’s “cost cap” explicitly excludes any costs associated with modifications to the “Scope of Work”

Cost Containment Discussion

- We offer a straightforward and easily implemented cost containment mechanism that reduces our allowed ROE if the actual project costs (excluding the Salem and remote substation work) exceed our cost estimates
- This proposal is effective in several ways:
 - The owners would incur a direct financial consequence if actual costs exceed the targets
 - The mechanism will create additional transparency for stakeholders (regulators, PJM, other RTOs, customers, etc.) regarding our cost performance on the project
 - The consequence to the owners does not depend on if the cost increase was due to “scope changes” or “factors beyond our control”



Transource Cost Containment Mechanism



Comparative Impact of Cost Increases

- The Transource proposal:
 - ✓ Presents an ideal team to execute the development and ownership plans
 - ✓ Is the most permissible option
 - ✓ Has been thoroughly analyzed by industry-leading firms
 - ✓ Offers a straightforward cost containment mechanism

Appendix

- AEP owns, operates and maintains the largest transmission system in the United States with facilities across 13 states
- AEP spends over \$1.5 billion annually on new transmission capital projects and currently has more than 600 Baseline projects, Supplemental projects and Network upgrades in the Regional Transmission Expansion Plan in various stages of planning and construction
- The following experiences and capabilities are of particular relevance to this project:
 - AEP has successfully partnered with numerous other transmission owners on various joint ventures, including MidAmerican, Westar, Exelon and Duke
 - AEP has formed and gained state regulatory approval of new transmission-only companies in multiple states; we are highly experienced in navigating the Federal and State regulatory approval processes for transmission
 - Experience constructing, operating and maintaining transmission facilities at and around the Cook Nuclear Station
 - Experience with underground transmission, horizontal directional drilling and gas-insulated substations
 - Experience with permitting, siting and acquiring land in challenging environments



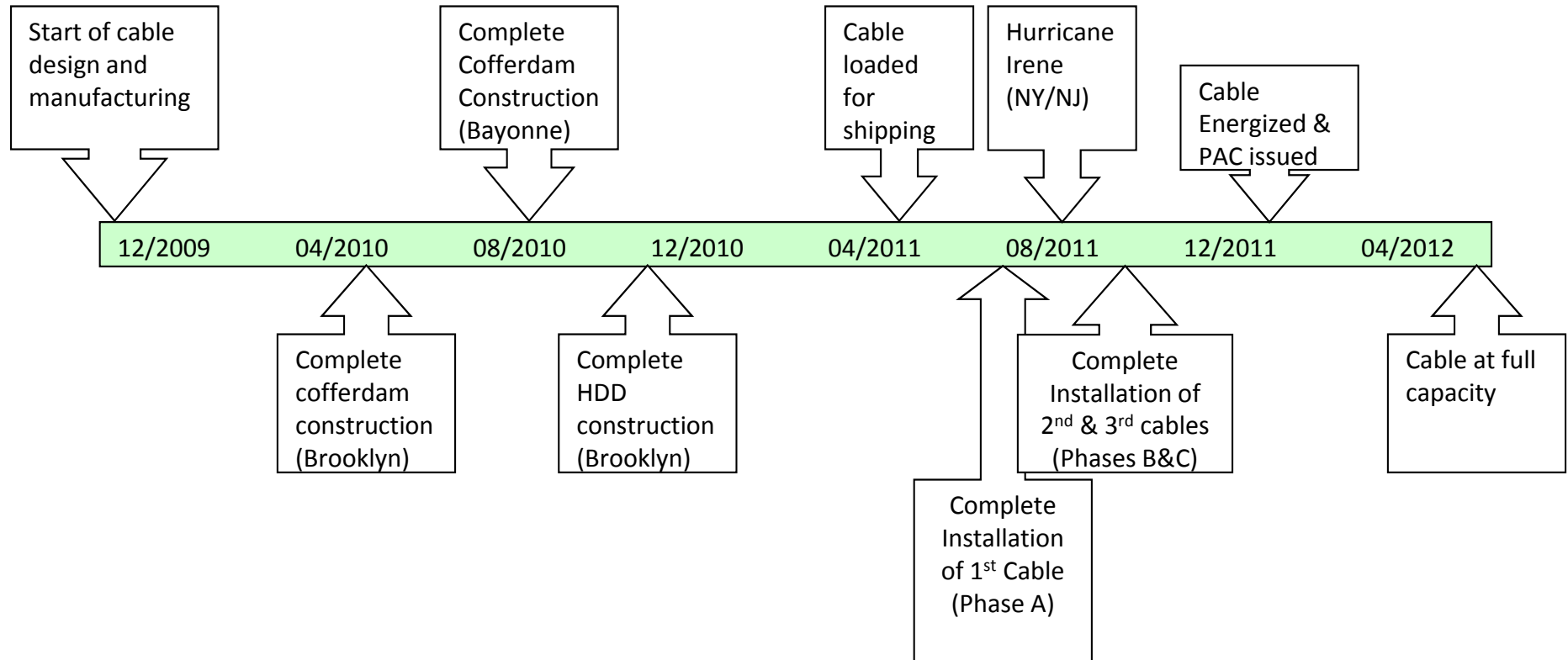
- Experience on the recent MAPP Project, a component of which included the proposed installation of 40 miles of submarine cable
- Particularly relevant as PHI has recent experience with the development of numerous engineering and environmental studies necessary to support the licensing and construction of the submarine cable crossing
- This experience will allow the project team to quickly mobilize and acquire both the general as well as site specific information necessary to support the design, licensing and construction of the project
- Examples of studies, conducted to support the design and licensing of submarine portion of MAPP include but are not limited to:
 - Submarine Archeological Resource Survey and Cultural Resource Assessment
 - Marine Geophysical Survey
 - Submarine Cable Route Field Evaluations (Vibracore, Geothermal Testing, and Sediment Sampling for Physical and Chemical Analysis)
 - Temperature Profile Analysis of Sediment Surrounding Cable
 - Sediment Dispersion Modeling for HDD and Submarine Cable Installation
 - Water Quality Surveying
 - Marine Shipping and Fisheries Analysis
 - Essential Fish Habitat Evaluation
 - Benthic Macro-invertebrate Community Assessment
 - Electric and Magnetic Field Evaluation
 - Ecological Risk Assessment

Jet-Plow & Burial Depth Discussion



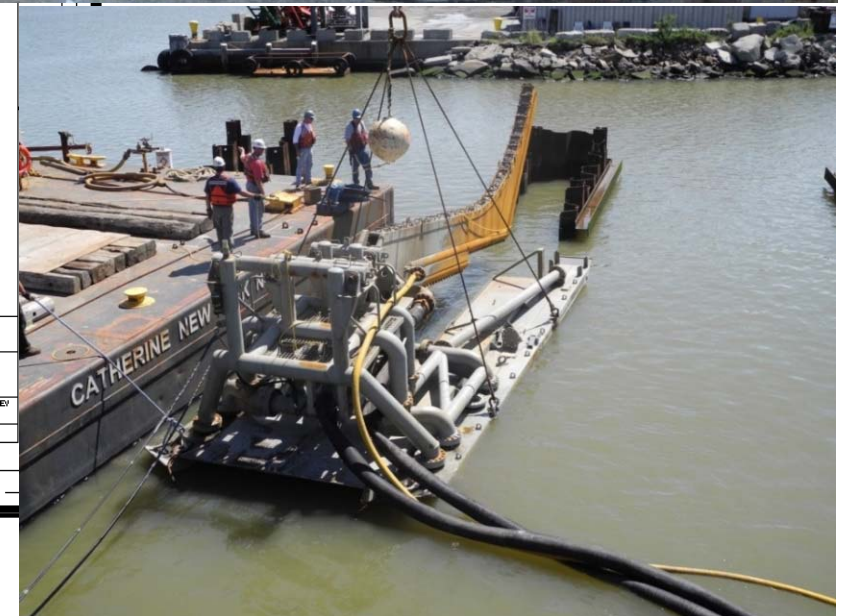
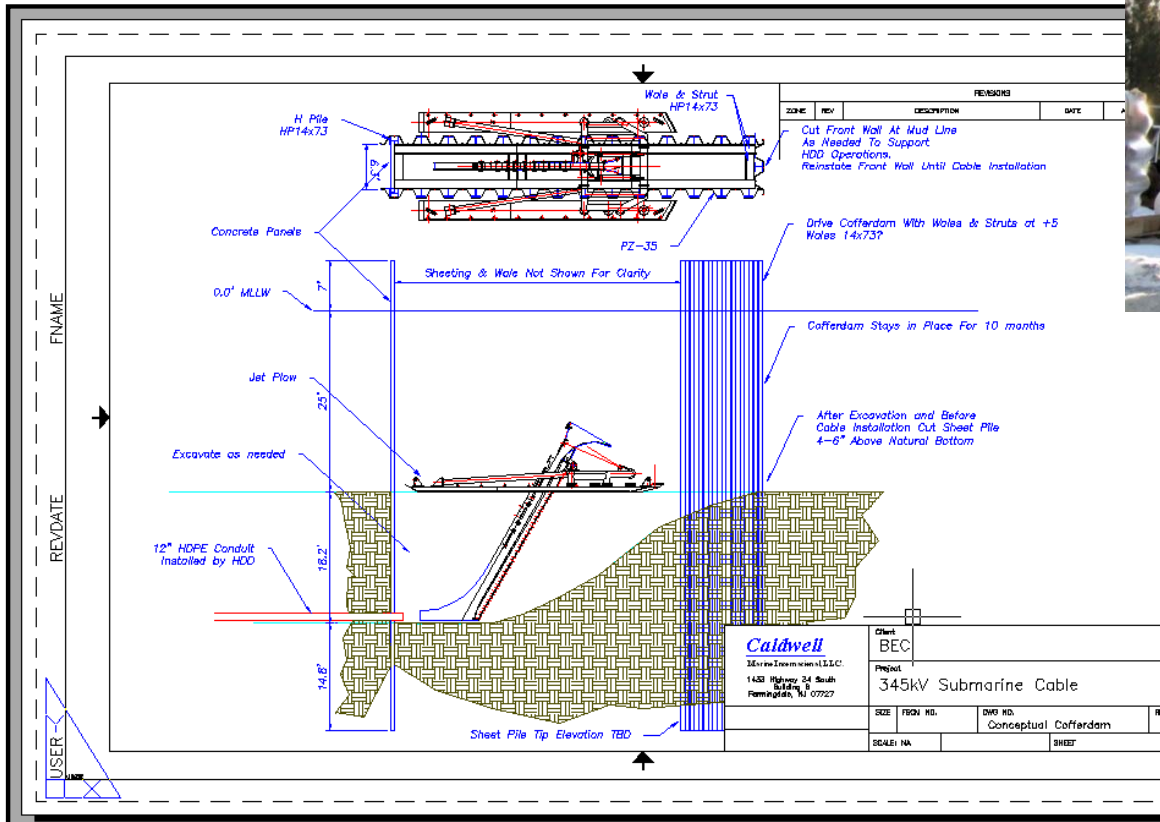
- USACE is currently deepening the federal channel from 40 feet to 45 feet
- Based on the Bayonne Energy Center experience, USACE will likely require 15 feet burial below the new authorized 45 feet depth
- Based on industry practice, the ongoing deepening project will result in dredging to approximately 47 feet
- CMI's jet-plow equipment can bury cables to approximately 17 feet below the current bottom
- If the USACE requires that the cables are installed more than 15 feet below the authorized depth, the crossing of the federal channel (approx. 950 feet) would be pre-dredged prior to cable installation and jet-plow burial. Pre-dredging is common industry practice (Bayonne, Neptune, etc.)
- For example, if USACE requires that the cables are installed 25 feet below the authorized depth, the crossing of the federal channel will be pre-dredged 6 feet from 47 feet to 53 feet. The jet-plow would then be able to place the cables 25 feet below the authorized 45 feet depth. In the unlikely event that 6 feet of pre-dredging is required, we estimate the added cost to be \$4.5 million.
- All dredged materials would be disposed off upland. It is unlikely that USACE will require the pre-dredged area to be back filled

Construction schedule



Bayonne Energy Center Project

Initial landing site Start of jet-plow burial operation



Construction of HDDs at the landing site

