APT Third 1200MW

General Information

Proposing entity name	ATLPWR
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	This information is confidential and proprietary.
PJM Proposal ID	769
Project title	APT Third 1200MW
Project description	Identification of Linkages: APT is proposing three separate, but linked, project proposals to provide up to 3600 MW in new transmission capability to support New Jersey's procurement of offshore wind-generated power. The three linked project proposals are as follows: First 1200MW (PJM Proposal ID 2021-NJOSW-210); Second 1200MW (PJM Proposal ID 2021-NJOSW-172); and Third 1200MW (PJM Proposal ID 2021-NJOSW-769). APT's linked proposals provide New Jersey with the option to select 1200MW, 2400MW, or 3600MW of new transmission capability. As proposed by APT, the projects are additive to each other and must be selected sequentially. To illustrate, if New Jersey seeks only 1200MW of capability, it will select APT's First 1200MW project proposal. If New Jersey opts for 2400MW of capability, APT's First 1200MW and Second 1200MW project proposals would be selected. APT's Third 1200MW proposal would only be selected if New Jersey sought 3600MW of new transmission capability. Importantly for system reliability, the three transmission systems are physically and electrically isolated from each other at all points, each circuit will be able to operate independently from any other, and all cables associated with the project are buried. All three 1,200MW proposals use the same parcel of land, adjacent to the existing Deans Substation, for their onshore converter location. All three 1,200MW proposals use a shared cable corridor for all of the onshore route, all of the offshore route through state waters, and most of the route in federal waters.
Email	This information is confidential and proprietary.
Project in-service date	03/2031
Tie-line impact	No
Interregional project	No

Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	

Project Components

1. Offshore 1235MW Converter Station and Supporting Platform
2. Submarine Section of 1200MW HVDC Transmission Line
3. Onshore Section of 1200MW HVDC Transmission Line
4. Onshore 1200MW Converter Station
5. 500kV AC underground transmission line
6. Expansion of 500 kV switching area at Deans substation

Greenfield Substation Component

Component title	Offshore 1235MW Converter Station and Supporting Platform
Project description	Proposed new offshore converter station for an 1,200 MW HVDC transmission link from the New York Bight offshore wind area to a new converter station site near the existing Deans substation in South Brunswick, New Jersey.
Substation name	Atlantic Power 3
Substation description	The offshore HVDC station is a voltage source converter design rated ±320 kV. The HVDC station is configured as a symmetric monopole and will be capable to receive up to 1,235 MW of offshore wind power via up to eighteen (18) 66 kV AC inter-array cables from wind turbine generators (WTGs). The HVDC station will be operated as a so called grid-forming facility and will generate a 60 Hz power frequency voltage to which the WTGs can synchronize. Additional detailed information about the proposed offshore HVDC station is provided in the pdf files entitled “Technical summary - HVDC system” and “Lean Platform Conceptual Description”, which are uploaded in the supporting documents section of the “General Information” tab. A proposed single line diagram for the offshore HVDC converter station is uploaded in the supporting documents section of this component information form.
Nominal voltage	DC
Nominal voltage	+/-320 kV

Transformer Information

None

Major equipment description	The HVDC converter transformer at the offshore HVDC converter consists of two, three-phase units, each of which is designed and rated to support delivery of around 810 MW to the onshore transmission grid at Deans substation in case of an outage of the other transformer. For additional details about the transformer design at the offshore converter, please refer to the pdf file entitled “Technical summary - HVDC system” that is uploaded in the supporting documents section of this component information form. The transformer windings on the WTG side (66 kV) are delta-connected. The transformer windings on the converter side (404 kV) are Y-connected. Each transformer unit is also fitted with a winding at the yoke for supply of auxiliary power to the HVDC station. The yoke windings are Y-connected. The normal and emergency ratings provided in the “ratings” fields of this component information form are for each of the two three-phase transformer units at the offshore HVDC converter station.	
	Normal ratings	**Emergency ratings**
Summer (MVA)	645.000000	830.000000
Winter (MVA)	645.000000	839.000000
Environmental assessment	Impacts are expected to be mostly limited to those during the installation of the substation platform. A detailed pile driving sound level assessment will be undertaken. Impacts to some species may be positive because of the creation of habitat. Please see Section VI of the BPU Supplemental form for full description.	
Outreach plan	This station being offshore, outreach will mostly focus on the fishing industry, as detailed in the Fisheries Protection Plan provided as Attachment 6 to the BPU Supplemental Information Form. Consultation with other marine users will also be undertaken when developing the navigational risk assessment required by the Coast Guard.	
Land acquisition plan	The substation is proposed to be located within the offshore wind lease area of a wind generation project developer to be selected by the NJ Board of Public Utilities (BPU) through BPU's wind procurement solicitations. Please see Attachment 13 - BOEM Permitting and ROW Strategy and Review to the BPU Supplemental Information Form for further information.	
Construction responsibility	This information is confidential and proprietary.	
Benefits/Comments	This information is confidential and proprietary.	

Component Cost Details - In Current Year $

Engineering & design	This information is confidential and proprietary.
Permitting / routing / siting	This information is confidential and proprietary.
ROW / land acquisition	This information is confidential and proprietary.
Materials & equipment	This information is confidential and proprietary.
Construction & commissioning	This information is confidential and proprietary.
Construction management	This information is confidential and proprietary.
Overheads & miscellaneous costs	This information is confidential and proprietary.
Contingency	This information is confidential and proprietary.
Total component cost	$691,107,125.25
Component cost (in-service year)	$691,107,125.26

Greenfield Transmission Line Component

Component title	Submarine Section of 1200MW HVDC Transmission Line
Project description	This information is confidential and proprietary.
Point A	Offshore Substation
Point B	South Amboy Landing
Point C	

	Normal ratings	**Emergency ratings**
Summer (MVA)	1225.000000	1225.000000
Winter (MVA)	1225.000000	1225.000000

Conductor size and type	Approximately 2000 mm^2 shaped wires stranded copper

Nominal voltage	DC
Nominal voltage	+/-320kV
Line construction type	Submarine
General route description	Route begins at the eastern end of land extending into Raritan Bay at the end of Radford Ferry Road in South Amboy. The route extends some 4,000 ft through a planned Horizontal Directional Drill in an eastward direction, exiting in shallow water. The route then extends eastward some 14 miles passing north of Sandy Hook, remaining in NJ state waters and avoiding known obstacles and hazards. The route then enters federal waters and continues east, southeast to the location of the offshore substation. An alternative route heads more easterly to provide service to the area north of the Hudson Canyon. The offshore station will receive generation from a wind farm to be built in a federally designated wind lease area. Which lease area is to be serviced will be determined through the NJ BPU's offshore wind solicitation process. The cables will be laid, bundled together (+/- and fiber optic) and will be post lay buried approximately 4 feet below the seabed with a jetting tool. Please see two offshore route studies conducted by GeoSubsea in via the "Project Analysis Files" file transfer.
Terrain description	The route terrain is gently sloping sedimentary sea bed – sand/mud/gravel ranging in water depth from 4 to approximately 120 feet and considered conducive to submarine burial. Please see two offshore route studies conducted by GeoSubsea in via the "Project Analysis Files" file transfer.
Right-of-way width by segment	The ROW in federal waters will be obtained from the federal Bureau of Ocean Energy Management as described in the BOEM Permitting and ROW Strategy and Review provided as Attachment 13 to the BPU Supplemental Form. BOEM ROWs have a 200 feet standard width although deviations can be sought. In state waters the ROW would be through a Tidelands Conveyance which does not have a proscribed width; please see Attachment 14 - State and Local Approvals to the BPU Supplemental Form for additional information.
Electrical transmission infrastructure crossings	none
Civil infrastructure/major waterway facility crossing plan	Civil infrastructure crossing is limited to the Middlesex County Municipal Authority wastewater outfall – the subsea cable will pass well under the outfall pipe via a horizontal directionally drilled conduit with sufficient separation to ensure there is no impact to the wastewater outfall pipe. The cable will also cross Army Corps maintained navigational channels. In these channels the Corps requires the cables to be buried 10 feet deeper than the maximum dredge depth for the channel. Finally, the cable will cross certain telecommunications cables and possibly a navigational light cable. There are established methodologies for crossing such cable including a perpendicular crossing and mattress placement to ensure protection of both the crossed and crossing infrastructure. Please see Offshore Cable Routing Feasibility and Offshore Route Technical Analysis studies by GeoSubsea provided through the Proposal Analysis Attachments file transfer.

Environmental impacts	Environmental impacts from the installation and operation of the subsea cables are minimal and largely confined to short term impacts related to installation. EMF from DC cables are limited and have not been found to create environment impact. The cable burial process will be executed with a jetting tool. The process will result in temporary and local suspended sediment. This native sediment is expected to quickly and locally resettle. Environmental testing will be performed along the route in advance of installation to determine the existence of pollutants in the sediment to be jetted and appropriate mitigation measures will be undertaken to manage the conditions encountered. Please see Section VI of the BPU Supplemental Information Form, and related attachments, for full details on potential environmental impacts.
Tower characteristics	This is a submarine cable and uses no towers. Please see submarine cable installation profile as shown in file provided through the "Proposed structure types" file transfer.
Construction responsibility	This information is confidential and proprietary.
Benefits/Comments	This information is confidential and proprietary.
Component Cost Details - In Current Year $	
Engineering & design	This information is confidential and proprietary.
Permitting / routing / siting	This information is confidential and proprietary.
ROW / land acquisition	This information is confidential and proprietary.
Materials & equipment	This information is confidential and proprietary.
Construction & commissioning	This information is confidential and proprietary.
Construction management	This information is confidential and proprietary.
Overheads & miscellaneous costs	This information is confidential and proprietary.
Contingency	This information is confidential and proprietary.
Total component cost	$322,366,769.36
Component cost (in-service year)	$322,366,769.36

Greenfield Transmission Line Component

Component title	Onshore Section of 1200MW HVDC Transmission Line

Project description	This information is confidential and proprietary.
Point A	South Amboy Landing
Point B	Onshore Converter Station
Point C	

	Normal ratings	**Emergency ratings**
Summer (MVA)	1225.000000	1225.000000
Winter (MVA)	1225.000000	1225.000000

Conductor size and type	Approximately 2500 mm^2 shaped wires stranded copper
Nominal voltage	DC
Nominal voltage	+/-320kV
Line construction type	Underground
General route description	Route begins at the eastern end of land extending into Raritan Bay at the end of Radford Ferry Road in South Amboy. The route heads southwest along City of South Amboy Property until it intersects with Radford Ferry Road, it then joins the road ROW, and passes under the existing railway and Route 684 via HDD. The far end of the bore emerges within Conrail ROW. The route then follows along the Conrail ROW some 13 miles to the south until the rail ROW intersects with the PSE&G 500 kV overhead transmission ROW, south of Helmetta. At the intersection the route joins the PSE&G ROW and follows along westward some 3.5 miles to the planned location of the onshore converter station located on Fresh Ponds Road in South Brunswick.

Terrain description	The route is primarily on developed land. Starting from the shore landing heading south the land is urban and developed. The route starts on vacant land then joins the Radford Ferry Road ROW, passes under roadway and railway by HDD then joins existing railroad ROW. The route follows the railroad ROW south approximately 13 miles before diverging from the railroad ROW and heading west to the Deans substation. Along the railroad ROW, all previously disturbed, the terrain is flat and the duct bank, in which the HVDC cables will run, will be constructed within the cleared ROW which has been leveled as with stone and gravel for the railbed. Along the railroad ROW there are several waterbody and or infrastructure crossings, roads etc which will require HDD bores while some crossings will be trenched at grade. South of Helmetta the railroad ROW intersects with a 500 kV overhead transmission line. This ROW runs to the Deans Substation. The primary terrestrial route proposes to follow this ROW to the HVDC converter station which abuts the Deans substation. This existing ROW is primarily cleared vacant land. The land is generally flat and the HVDC line is proposed to be placed within the cleared corridor.
Right-of-way width by segment	The concrete duct bank is approximately 4 feet wide. A ROW of 20 feet would be sufficient to accommodate the line installation and maintenance with wider sections to accommodate splice vaults along the route. For the rail ROW and the overhead transmission ROW the HVDC installation would occur entirely within the existing ROW dimensions.
Electrical transmission infrastructure crossings	None - Buried Cables
Civil infrastructure/major waterway facility crossing plan	See uploaded route description report. There are several bridges over and under the railroad ROW, waterbody crossings, existing utility crossings and road crossings. Depending on the depth, distance and environmental factors these crossings will be accomplished either by trenching or Horizontal Directional Boring. The existing 500 kV ROW route crosses roads and the NJ Turnpike in particular, waterbodies, existing utilities. As with the railroad ROW, these crossings will be accomplished by trenching or Horizontal Directional Bore depending on on the depth, distance and environmental factors of the crossings
Environmental impacts	Environmental impacts from the installation and operation of the terrestrial HVDC cable are expected to be limited and will be subject to rigorous state and federal environmental review processes. There will be wetland and water body crossings however they will be in existing cleared areas and therefore any trench installation impacts would be temporary or in the case of HDD would be avoided altogether. Permanent wetland impacts are expected to be minimal. There will be some construction noise created during installation but once operational the buried cable should not create any impacts above grade with the exception of possible but infrequent repair operations.
Tower characteristics	None, the cables are entirely buried. See installation profile provided through file transfer.
Construction responsibility	This information is confidential and proprietary.
Benefits/Comments	This information is confidential and proprietary.

Component Cost Details - In Current Year $

Engineering & design	This information is confidential and proprietary.
Permitting / routing / siting	This information is confidential and proprietary.
ROW / land acquisition	This information is confidential and proprietary.
Materials & equipment	This information is confidential and proprietary.
Construction & commissioning	This information is confidential and proprietary.
Construction management	This information is confidential and proprietary.
Overheads & miscellaneous costs	This information is confidential and proprietary.
Contingency	This information is confidential and proprietary.
Total component cost	$131,968,483.76
Component cost (in-service year)	$131,968,483.76

Greenfield Substation Component

Component title	Onshore 1200MW Converter Station
Project description	This information is confidential and proprietary.
Substation name	Fresh Ponds Three
Substation description	The onshore HVDC converter is a voltage source converter design rated ±320 kV. The HVDC converter is configured as a symmetric monopole and will be capable to deliver up to 1,200 MW at ±0.95 PF to the 500 kV switching station at Deans substation, which is the proposed interconnection point for the APT project to the existing AC transmission system in New Jersey. The HVDC converter will be interconnected to the Deans substation via an approximately 1-mile long 500 kV AC underground cable circuit. Additional detailed information about the proposed onshore HVDC converter is provided in the pdf file entitled “Technical summary - HVDC system” that is uploaded in the supporting documents section of the “General Information” tab. A proposed general arrangement drawing and single line diagram for the HVDC converter are uploaded in the supporting documents section below. A kmz file locating the planned HVDC converter station site is also uploaded in the supporting documents section.
Nominal voltage	DC

Nominal voltage	+/-320kV

Transformer Information

None

Major equipment description	The HVDC converter transformer consists of three single-phase units, which are designed to support the capacity rating of the HVDC station. Additionally, the proposed HVDC converter design includes a fourth spare single-phase transformer unit. For further details, see the preliminary layout drawing for the HVDC converter station that is uploaded through the supporting documents section of this component form. The transformer windings on the AC network side (500 kV) are Y-connected with a directly grounded neutral. The transformer windings on the converter side (415 kV) are delta-connected.

	Normal ratings	**Emergency ratings**
Summer (MVA)	1362.000000	1362.000000
Winter (MVA)	1362.000000	1362.000000

Environmental assessment	The 40-acre Fresh Ponds Road site is a mostly cleared pasture/successional old field with some forested area. It is encroached by the PSE&G 500 kV overhead transmission line ROW and abuts the Deans substation. As such the development of new utility infrastructure will not represent a significant alteration to the local setting. The land is poorly drained and contains substantial wetlands which have been delineated. Some of wetlands will need to be filled and mitigated through creation of replacement wetlands or mitigation bank payments, as required by NJDEP and USACOE. The converter station and associated infrastructure will create substantial impervious area and a storm water management plan and will be developed with appropriate basin’s again as required by NJDEP and USACOE. A rare and threatened species survey will be conducted but preliminary desktop assessment did not yield concerns on this front.
Outreach plan	APT has engaged with South Brunswick officials and the township officials have issued a letter of support by committee resolution in support of the APT project and associated facilities. APT will continue to keep the local officials apprised of progress and developments as the project advances. Please see Attachment 4 of the BPU Supplemental form for more details on APT's Outreach Plan.
Land acquisition plan	APT currently has the Fresh Ponds Road property under contract for purchase. Please see the land acquisition plan for further details.
Construction responsibility	This information is confidential and proprietary.
Benefits/Comments	This information is confidential and proprietary.

Component Cost Details - In Current Year $

Engineering & design	This information is confidential and proprietary.
Permitting / routing / siting	This information is confidential and proprietary.
ROW / land acquisition	This information is confidential and proprietary.
Materials & equipment	This information is confidential and proprietary.
Construction & commissioning	This information is confidential and proprietary.
Construction management	This information is confidential and proprietary.
Overheads & miscellaneous costs	This information is confidential and proprietary.
Contingency	This information is confidential and proprietary.
Total component cost	$322,670,965.51
Component cost (in-service year)	$322,670,965.51

Greenfield Transmission Line Component

Component title	500kV AC underground transmission line
Project description	This information is confidential and proprietary.
Point A	Onshore HVDC Converter Station
Point B	Deans 500 kV AC switchyard
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	1264.000000	1264.000000
Winter (MVA)	1264.000000	1264.000000

Conductor size and type	Approximately 2500 mm^2 copper

Nominal voltage	AC
Nominal voltage	500kV
Line construction type	Underground
General route description	The route, less then a mile in length, between the converter station substation and the Deans substation will follow, in part and adjacent to the existing PSE&G 500 kV overhead transmission ROW. The entirety of the route will be either on land owned and controlled by APT or by PSE&G, the Deans substation owner.
Terrain description	The terrain along the underground AC transmission link is flat, poorly drained soil that is either forested or open field.
Right-of-way width by segment	There is no ROW required in that the route stays entirely on property owned and controlled by APT or owned and controlled by the Deans substation owner, PSE&G.
Electrical transmission infrastructure crossings	none
Civil infrastructure/major waterway facility crossing plan	No civil infrastructure or waterway crossings occur along the route.
Environmental impacts	Environmental impacts from the installation and operation of the buried AC cable are expected to be limited and will be subject to rigorous state and federal environmental review processes. There will be wetland impacts. The route may be trenched or bored. If it is trenched within forested areas, requiring clearing, a permanent wetland impact would occur. If trenched in a cleared wetland area the impact would be deemed temporary and if bored the impacts would be fully avoided.
Tower characteristics	Not applicable - underground transmission line
Construction responsibility	This information is confidential and proprietary.
Benefits/Comments	This information is confidential and proprietary.
Component Cost Details - In Current Year $	
Engineering & design	This information is confidential and proprietary.
Permitting / routing / siting	This information is confidential and proprietary.
ROW / land acquisition	This information is confidential and proprietary.
Materials & equipment	This information is confidential and proprietary.

Construction & commissioning	This information is confidential and proprietary.
Construction management	This information is confidential and proprietary.
Overheads & miscellaneous costs	This information is confidential and proprietary.
Contingency	This information is confidential and proprietary.
Total component cost	$10,346,132.04
Component cost (in-service year)	$10,346,132.04

Substation Upgrade Component

Component title	Expansion of 500 kV switching area at Deans substation
Project description	This information is confidential and proprietary.
Substation name	Deans Substation
Substation zone	500 kV switching area
Substation upgrade scope	Three new 500 kV AC breakers in a forth breaker bay, including associated disconnect switches, grounding switches, bus-work, transducers and substation control and protection.

Transformer Information

None

New equipment description	Not applicable

Substation assumptions	The existing 500 kV AC switching area at the Deans substation is a breaker-and-a-half scheme with one 500 kV AC overhead line connected into each of the three existing three-breaker bays, with the second connection in each three-breaker bay being a 500/230 kV transformer. Each transformer consists of three single-phase 500/230 kV transformer units. Based on review of the aerial image of the existing substation that is uploaded under supporting documents, there appears to be ample space for expansion inside the highlighted rectangular area immediately adjacent to the existing 500 kV switchyard. From the aerial imagery, it appears that the highlighted rectangular area is currently used for temporary storage. APT believes that the construction of a new three-breaker bay within the highlighted rectangular area could be performed with a minimum of construction related outages of the existing 500 kV switchyard. Any outages of the existing 500 kV switchyard would be limited to the final commissioning, bus connection and energization of the new breaker bay. However other plans may have advantages over the one suggested, and APT anticipates the Deans station owner, in consultation with PJM, will make the final determination for modifications of the station.
Real-estate description	APT believes that the required upgrades at Deans can be performed without expanding the substation fence.
Construction responsibility	This information is confidential and proprietary.
Benefits/Comments	This information is confidential and proprietary.
Component Cost Details - In Current Year $	
Engineering & design	This information is confidential and proprietary.
Permitting / routing / siting	This information is confidential and proprietary.
ROW / land acquisition	This information is confidential and proprietary.
Materials & equipment	This information is confidential and proprietary.
Construction & commissioning	This information is confidential and proprietary.
Construction management	This information is confidential and proprietary.
Overheads & miscellaneous costs	This information is confidential and proprietary.
Contingency	This information is confidential and proprietary.
Total component cost	$.00
Component cost (in-service year)	$.00

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

None

Financial Information

Capital spend start date	01/2021
Construction start date	07/2026
Project Duration (In Months)	122

Cost Containment Commitment

Cost cap (in current year)	This information is confidential and proprietary.
Cost cap (in-service year)	This information is confidential and proprietary.

Components covered by cost containment

1. Offshore 1235MW Converter Station and Supporting Platform - Proposer
2. Submarine Section of 1200MW HVDC Transmission Line - Proposer
3. Onshore Section of 1200MW HVDC Transmission Line - Proposer
4. Onshore 1200MW Converter Station - Proposer
5. 500kV AC underground transmission line - Proposer

Cost elements covered by cost containment

Engineering & design	Yes
Permitting / routing / siting	Yes
ROW / land acquisition	Yes
Materials & equipment	Yes
Construction & commissioning	Yes
Construction management	Yes
Overheads & miscellaneous costs	Yes
Taxes	Yes
AFUDC	Yes
Escalation	Yes
Additional Information	This information is confidential and proprietary.
Is the proposer offering a binding cap on ROE?	No
Is the proposer offering a Debt to Equity Ratio cap?	This information is confidential and proprietary.

Additional Comments

None