

# SURRY-SKIFFES CREEK-WHEALTON PROJECT ALTERNATIVES

## 1) Surry – Skiffes Creek 500 kV Overhead (Project):

A new 500 kV line will include: the Surry – Skiffes Creek 500 kilovolt (kV) aerial transmission line, the Skiffes Creek 500 kV – 230 kV – 115 kV Switching Station, and the new Skiffes Creek –Wheaton 230 kV aerial transmission line.

## 1) Skiffes Creek – Wheaton 230 kV (Part of the Project):

Existing transmission line retrofitted to increase capacity. Route required for all alternatives.

## 2) Chickahominy – Skiffes Creek 500 kV:

A new 500 kV line connecting Chickahominy to Skiffes Creek. Located within 13 miles of existing, cleared ROW and 24.9 miles of unimproved ROW.

## 3) Line 214/263 230 kV Rebuild, James River Bridge Crossing with additional transmission facilities:

Rebuild of Lines 214 and 263 with additional transmission facilities.

## 4) Line 214/263 230 kV Rebuild, James River Bridge Crossing without additional transmission facilities:

Rebuild of Lines 214 and 263 without additional facilities.

## 5) Surry – Wheaton 500 kV Line:

A new 500 kV line connecting Surry to Wheaton and includes Winchester or Wheaton Substation expansion.

## 6) NPCA/PERI Surry – Fort Eustis Double Circuit 230 kV Alternative:

Install an underground double circuit 230 kV line between Surry and Fort Eustis.

## 7) Chickahominy – Lanexa 500 kV:

Expand a 14.3-mile section of the existing Chickahominy to Lanexa corridor to construct a new overhead 500 kV line.

## 8) Chuckatuck – Newport News 230 kV Line (Whittier Hybrid):

Construction of a new 15.4-mile-long transmission line along new or expanded right-of-way (ROW) between the Chuckatuck and Wheaton Substations

## 9) Underwater Single Circuit 230 kV line with additional transmission facilities:

Installation of an underground single circuit 230 kV line.

## 10) Underwater Double Circuit 230 kV line with additional transmission facilities:

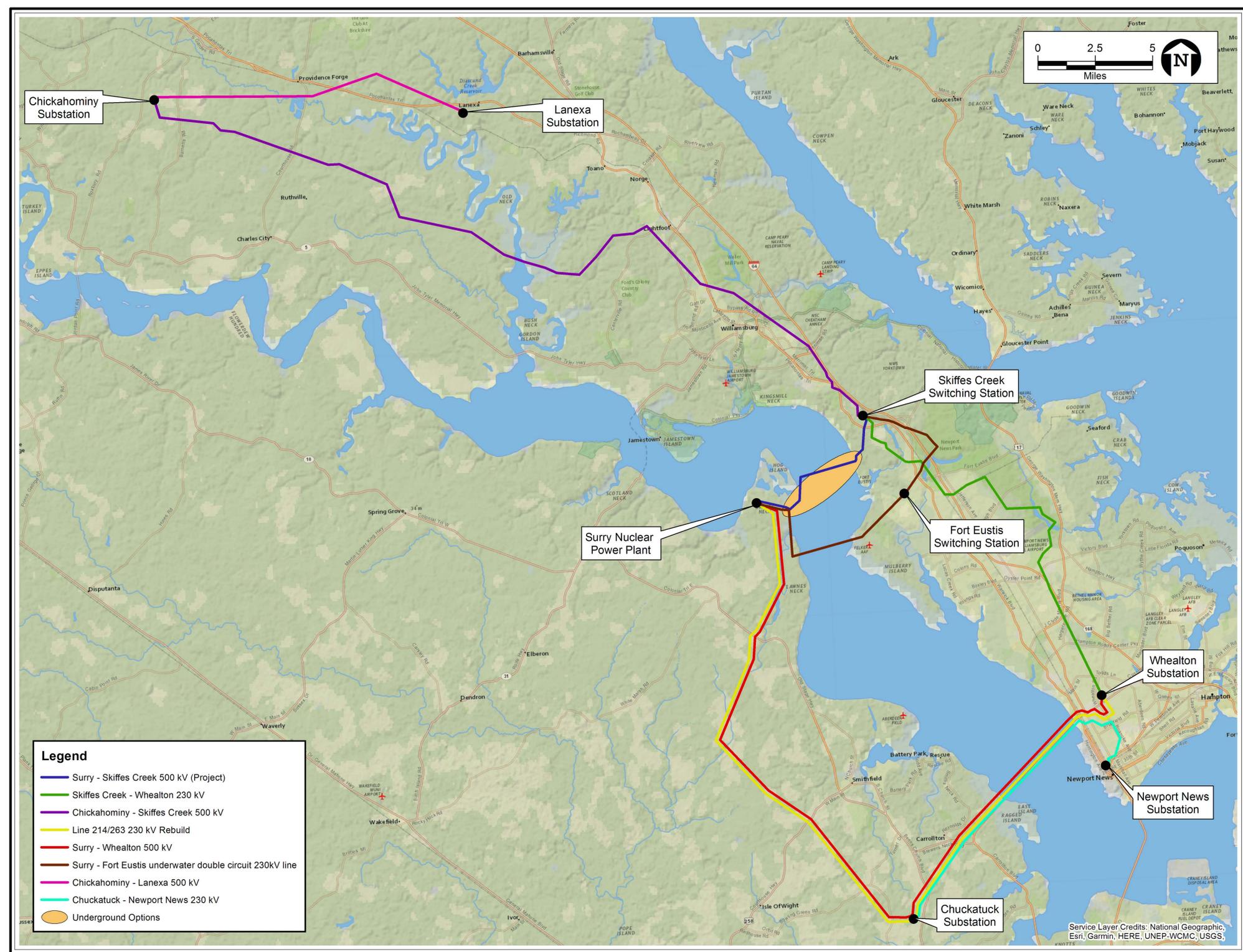
Installation of an underground double circuit 230 kV line.

## 11) Surry – Skiffes Creek 500 kV Underwater (High Voltage Direct Current):

Installation of an underwater HVDC 500 kV line.

## 12) Surry – Skiffes Creek 500 kV Underwater (High Voltage Alternating Current):

Installation of an underwater HVAC 500 kV line.

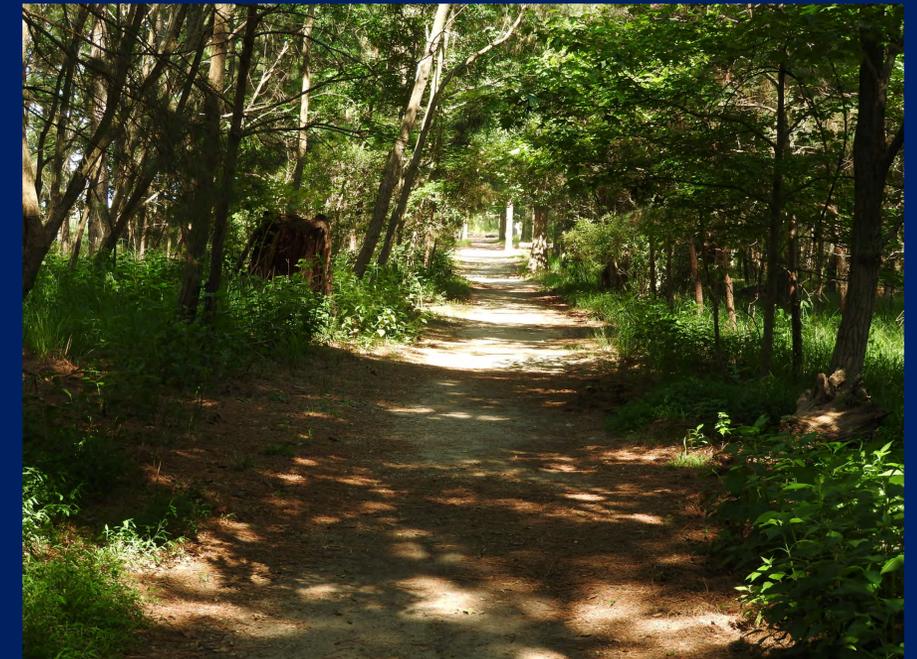


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## ALTERNATIVES

ALTERNATIVES	DESCRIPTION
<b>NPCA/PERI Co-fire Alternative - Continued Operations at Yorktown Power Station with No Infrastructure Modifications</b>	Continue operations using co-fire fuels with no changes.
<b>Demand-Side Management (DSM):</b>	Rather than approaching power usage from the supply side, focus on activities and programs undertaken to influence the amount and timing of electricity use, as well as market purchases from outside power generators to reduce overall demand.
<b>Repowering/Operate all units at Yorktown using co-firing fuels:</b>	Repower Yorktown Power Station based on alternative fuels, such as natural gas and oil.
<b>Decommission (basically evaluated as a no build alternative):</b>	Decommissioning of Yorktown.
<b>Underwater Alternative 230 kV Phase Angle Regulating Transformer (PAR)</b>	Use of a PAR in conjunction with an underground 230 kV line.
<b>New Generation:</b>	New generation options throughout the area such as a combined-cycle combustion turbine and renewable generation sources such as biomass, wind, and solar.
<b>NPCA/PERI Surry-Skiffes 345 kV Underwater Alternative Installation of an underwater HVDC 345 kV line</b>	Install an underground 345kV transmission line.
<b>Save The James Alliance Alt Solution:</b>	Closing of Yorktown Unit 1 and continued operation of Yorktown Unit 2, while building a submarine 230kV line across James River, and constructing future generation facilities.
<b>NTHP/TCR Alternative A:</b>	Reconductoring and reconfiguring a number of existing transmission lines in addition to enabling Yorktown Unit 3 to operate continuously as a synchronous condenser.
<b>NTHP/TCR Alternative B:</b>	Proposed continued use of Yorktown Unit 3 only during summer peak loads.
<b>NTHP/TCR Alternative C:</b>	Keep Yorktown Unit 3 as a standby generation supply under summer peak conditions, convert Unit 3 to run as a continuous synchronous condenser, and reconfigure transmission delivery during summer peak conditions.
<b>NTHP/TCR Alternative D:</b>	Tap into existing 230kV transmission lines, building new 230kV transmission lines, reconductoring existing transmission lines, enabling Yorktown Unit 3 to run as a continuous synchronous condenser, and reconfiguring transmission delivery during summer peak conditions.
<b>Chickahominy Generation:</b>	Proposed new power generating facilities near Chickahominy Substation (neither facility is owned by Dominion). Would require same transmission line as Chickahominy – Skiffes line.
<b>Retrofitting (environmental controls):</b>	Retrofit Yorktown Power Station by installing the necessary air emission and environmental control devices needed to comply with MATS Rules.
<b>High Tension Low Sag Conductors (HTLS):</b>	Installation of HTLS conductors.
<b>Hybrid Alternatives:</b>	Combinations of retrofitting, repowering, and retirement combined with transmission construction, including several configurations of 230 kV lines, both overhead and submarine.



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