Operations Project Authorization Form

Date Prepared: 6/1/2018	**Project Title: [redacted] ROW [redacted]**
Company/ies: CT	**Project ID Number:CD00969**
Organization: Distribution Engineering	**Class(es) of Plant: UNK**
Project Initiator: [redacted]	**Project Category: ROW**
Project Manager: [redacted]	**Project Type: Specific**
Project Sponsor: [redacted]	**Project Purpose: Rebuild Obsolete poles in preparation for future 1555 outage**
Estimated in service date: 12/1/2018	**If Transmission Project: PTF?**
Eng. /Constr. Resources Budgeted?: NO	**Capital Investment Part of Original Operating Plan: Yes**
Authorization Type: Supplemental	**O&M Expenses Part of the Original Operating Plan: NO**
Total Request: $23,417,464	

Project Authorization

ERM: _____

FP&A: _____

Executive Summary

This project was created following the discovery of failing structures in the [redacted] during patrol findings Fall 2016. This project will address the 7 mile [redacted] substation that occurred in 2017. [redacted]

[redacted]

[redacted] June is the earliest we can get environmental permitting completed from DEEP. The 6 miles remaining in Phase 3 have less access and matting issues in comparison to Phase 1 but permitting is still required. Phase 3 will be constructed utilizing steel poles and new conductor like Phase 1. Additionally, optical ground wire will be run so that future communications can be utilized. Areas fed by this ROW have difficulty with both radio and cellular communications. The construction is designed so we will be taking out only 1 circuit on the ROW at a time so that we can maintain the best reliability to the customers as possible. Also, this will alleviate concerns for low voltage or overload issues during the summer months.

This version of the PAF has been updated to request full funding to start construction. This project was last approved by email on 3/20/2018 for a total of $7,500,471 with the overall project estimate being $16,548,656.

After engineering completion the new project total we are seeking approval for is **$23,417,464**.

Project Cost Summary:

	Prior Authorized*	Additional Request	2017 (Phase 1)	2018 (Phase 3)	2019+	Total **
Capital Additions Direct	$ -	$ -	$ 3,458,491	$ 5,193,015	0	$8,651,506
Less Customer Contribution	$ -	$ -	$ -	$ -	0	$0
Removals Net of Salvage	$ -	$ -	$ -	$ 8,452,936	0	$8,452,936
Total - Direct Spending	$ -	$ -	$ 3,458,491	$13,645,950	$0	$17,104,442
Capital Additions - Indirect	$ -	$ -	$ 1,418,860	$ 4,756,129	0	$6,174,989
AFUDC	$ -	$ -	$ 17,732	$ 55,447	0	$73,179
Total Capital Request	$ 6,825,429	$ 16,527,181	$ 4,895,083	$18,457,526	$0	$23,352,610
O&M	$ 675,042	$ (610,187)	$ -	$ 64,855	0	$64,855
Total Request	**$ 7,500,471**	**$ 15,916,993**	**$ 4,895,083**	**$18,522,381**	**$0**	**$23,417,464**

*** Amount PENDING authorization in PowerPlan**

** Total amount needed for authorization in PowerPlan based on ACT

Financial Evaluation:

Direct Capital Costs	2017 (Phase 1)	2018 (Phase 3)	2019	Total
Straight Time Labor	$ 18,214	$ 440,128	0	$ 440,128
Overtime Labor	$ 10,557		0	
Outside Services	$ 3,249,130	$ 12,139,821	0	$ 12,139,821
Materials	$ 179,906	$ 1,066,002	0	$ 1,066,002
Other, including contingency amounts	$ 684	$ -	0	$ -
Total	$ 3,458,491	$ 13,645,950	0	$ 13,645,950

Indirect Capital Costs	2017 (Phase 1)	2018 (Phase 3)	2019	Total
Indirects/Overheads (including benefits)	$ 1,418,860	$ 4,756,129	0	$ 4,756,129
Capitalized interest or AFUDC, if any	$ 17,732	$ 55,447	0	$ 55,447
Total	$ 1,436,592	$ 4,811,576	0	$ 4,811,576
Total Capital Costs	$ 4,895,083	$ 18,457,526	0	$ 18,457,526
Less Total Customer Contribution	$ -	$ -	0	$ -
Total Capital Project Costs	$ 4,895,083	$ 18,457,526	0	$ 18,457,526
Total O&M Project Costs	$ -	$ 64,855	0	$ 64,855
Total Project Cost	$ 4,895,083	$ 18,522,381	0	$ 18,522,381

Future Financial Impacts:
Provide below the estimated future costs that will result from the project:
Note: Dollar values are in thousands:

Future Costs	Year 2017	Year 2018	Year2019	Year 2020	Total Future Project Costs
Capital	$ -	$0			$ -
O&M	-	-			-
Other	-	-	-	-	-

Describe the estimated future Capital, O&M and/or Other costs noted above:

This schedule has Phase 1 completed in 2017 and Phase 3 starting in 2018

What functional area(s) will these future costs be funded in?_____TBD_____
A representative from the respective functional area is required to be included as a project approver.

If this is other than a Reliability Project, please complete the section below:

Provide below the estimated financial benefits that will result from the project:
Note: Dollar values are in thousands:

Future Benefits	Year 20__	Year 20__	Year20__	Year 20__+	Total Future Project Benefits
Capital	$ -	$ -	$ -	$ -	$ -
O&M	-	-	-	-	-
Other	-	-	-	-	-
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Describe the estimated future Capital, O&M and/or Other benefits noted above:

What functional area(s) will these benefits be reflected in?_____
A representative from the respective functional area is required to be included as a project approver.

Asset Retirement Obligation (ARO) and/ or Environmental Cleanup Costs (Environmental Liabilities):

Is there an ARO associated with this project? If yes, please provide details:

Are there other environmental cleanup costs associated with this project? If yes, please provide details:

YES, Enviromental cleanup costs will only be related to the temporary roads that will be created for access to structures. These costs will be included in the civil line items.

Technical Justification:

Project Need Statement

This project was created following the discovery of [redacted]

Project Objectives

[redacted]

Project Scope

[redacted]

Phase 1: From Whites Woods Junction to Rt. 63 Poles 802 to 829 (constructed)

[redacted]

Major Cost Items:

Item	Cost
Environmental	$ 30,000
Swamp Matting	$ 2,300,000
Material	$ 345,223
Labor	$ 771,771.00
loaders	$ 415,252.00
subtotal	$ 3,862,246
contingency (40%)	$ 1,544,898.40
Total	$ 5,407,144.40

[redacted]

Phase 3 – (Approved for ENG)

Item	Cost
Environmental & Land Survey	$ 150,000
Swamp Matting	$ 2,911,557
Material	$ 956,927
Labor	$ 3,087,072.00
loaders	$ 852,666.66
subtotal	$ 7,958,222
contingency (40%)	$ 3,183,288.86
Total	$ 11,141,511.02

Replacements and Reconductoring

FERC Mapping of estimate:		**%**		
Additions	=	87%		$9,693,115
Retirements	=	10%		$1,114,151
Expense	=	3%		$334,245
			$	11,141,511
Total Capital				$10,807,266

Background / Justification

The [redacted]

Business Process and / or Technical Improvements:

This project will be included under the Structural Resiliency Right of Way Initiative.

It is expected that ROW outage events will be reduced by 25% as a result of the proposed Resiliency work. This number is based on previous studies and analysis performed by the DAMRATS group for this

type of backbone rehab work. However due to the use of weathered steel structures, this line will be more resilient than the standard backbone.

This project will update the 70+ year pole plant in a 7-mile portion of the Campville ROW. This will eliminate the need to take lengthy repair times, finding and getting to off road structures which typically require helicopter patrols and off road vehicles to assist with repairs. If reconductoring with ACSS is approved for the remainder of the project, there will be significantly less splices and vulnerable points of failure. The ROW structures will be designed with future technology improvements in mind and future load growth. The structures will be capable of holding Fiber optic neutral, and will be insulated at 69kV.

Alternatives Considered with Cost Estimates

1. Structure replacements identified by ROW patrols as Priority 1 (urgent) & Priority 2 (need to address soon) only (does not include Priority 3 poles)

   [redacted]

   This option was not selected because it would be more efficient to also complete the Priority 3 structures due to the amount of access already required for completing this scope of work.

2. [redacted]

   This option is not preferred due to the extremely high cost. There are no cost-effective routes to relocate the double circuit pole line from the ROW to roadway. Also, putting the circuits on-road adds the risk of vehicle outages on the heavily traveled State Route 118.

   Alternative design:
   [redacted]

   Total: $24.2M

3. Do Nothing – [redacted]

Project Schedule

Milestone/Phase Name	Estimated Completion Date
Project Engineering - Writing Work Orders	2/1/18
Project Construction – Start Phase 1	10/1/17
Project Construction – Start Phase 3	6/1/17
Project Construction – End Construction	12/31/18

Regulatory Approvals

N/A

Risks and Risk Mitigation Plans

Risk Event	Risk Horizon	Likelihood of Occurrence	Risk Mitigation
Actual cost higher than estimated due to scope changes.	2018	Medium	Construction engineering has field checked the job and has been part of the avoiding potential issues.
Customer Permission / Siting Council / Municipal approvals	2018	Low	Environmental engineering and Real Estate has been involved with the Project pre-planning to minimize customer impact. Vendor for public outreach will be utilized.
Internal construction resources not available to perform the work.	2018	Low	Highly likelihood this project will be completed by transmission contract crews not involved with existing pipeline / Resiliency work.
Internal engineering resources not available to perform the work.	2018	Medium	Transmission resources will be contracted out. Contract services is engaged with this process.
Materials Shortage or long lead times	2018	Medium	Material shortage was an issue; however, transmission has helped with procurement.
Storm delays	2018	Medium	Storms are part of our business this is not a new service job. Very little risk if crews were pulled off due to Storm Work.

System abnormal configuration	2018	Medium	Depending on the design scope selected, recall times and system exposure can be mitigated. Reconductoring is the best option.
Technological risks involving integration of new technology	2018	N/A	Utilizing transmission materials although new to distribution teams, is not unique to the transmission designers or contractors being involved in the project.
Wetlands / Environmentally sensitive area	2018	Medium	The use of mats and environmental permits are needed. Ian Cole from environmental has been engaged and already started the permit process for this work.
DOT (Rte. 8, 64, 254) /Railroad Permitting (Naugatuck Railroad) lead time jeopardizing project ISD	2018	Medium	3 Highway Crossing are required along with a Railroad Crossing. CHA has been engaged and is working on the permitting months in advance of construction start.
Unexpected costs for access to avoid higher level permitting	2018	Low	Transmission Construction and Environmental has been involved to help plan appropriate construction access to avoid permitting issues.

Attachments (One-Line Diagrams, Images, etc.)

transmission awc substation map & 27k

27.6KV 14R31 & 14R32 Onelinewith 1

CD00969 Overview Map with Pole Prior

Davot Arm Design.pdf

Michels [redacted] Phase

Michels [redacted] Estima

[redacted] %2014R% 20Distribution%20C

[redacted] Materials 3.14.18_CPScomm (0

CD00969 [redacted] ROW (Phase 3) ACT.)

PAF - CD00969 - [redacted] ROW full