EXHIBIT C
Engineering Specifications for an Overhead Transmission Line
Segment 1 of 3

PRINCIPAL CIRCUIT

1. Name of Petitioner: ITC Midwest, LLC

2. Name or Circuit Number of Line: Hiawatha - LaFayette

3. Length of Segment: 1.76 miles
4. Segment is located in the following sections, townships, and ranges: Sections 9, 16 in T84N, R7W

5. Segment will be constructed in 2012.
6. Segment will be constructed and maintained in accordance with the Iowa Electrical Safety Code and the 2007 Edition of the National Electrical Safety Code.

7. Maximum *Capable of Operating* Voltage: 72.5 kVAC Nominal Operating Voltage: 69 kVAC

8. Construction Grade: B Typical Span: 400 ft. Maximum Span: 500 ft.

Vertical Overhead Clearance Requirement* for the Phase Conductors

	Surface	*Basic Clearance*	+	*Voltage Adder*	+	*Additional Adders*	=	*Clearance*
9.	*Open Ground*	18.5 ft.	+	0.7 ft.	+	ft.	=	19.2 ft.
10.	*Roads*	18.5 ft.	+	0.7 ft.	+	ft.	=	19.2 ft.
11.	*(no RR crossings)*	ft.	+	ft.	+	ft.	=	ft.
12.	*(no water surfaces)*	ft.	+	ft.	+	ft.	=	ft.

* The Iowa Electrical Safety Code and the applicable edition of the NESC should both be referenced to determine the conditions at which the above clearances apply.

Phase Conductors:
13. Code Word: T2 Penguin Size: 2-4/0 Stranding: 2-6/1 Material: ACSR

Shield Wire(s):
14. Size: OPGW AC-65/555 Stranding: 15/1 Material: ALUM CLAD STEEL/ALUM PIPE
15. Frequency of Shield Wire Grounding (if applicable): AT EVERY STRUCTURE AND AT SUBS

Typical Insulators

16.		*Post Type*	*Suspension Type*	
			Tan. / Ang. Single Piece Unit	*Strain Single Piece Unit*
17.	*Manufacturer*	Ohio Brass	Ohio Brass	Ohio Brass
18.	*Catalog number*	P250053S9040	511009-1201	515011-1201
19.	*Dry Flashover*	565 kV	545 kV	655 kV
20.	*Wet Flashover*	495 kV	505 kV	605 kV
21.	*Impulse Flashover, +*	855 kV	890 kV	1,080 kV
22.	*Impulse Flashover, –*	950 kV	890 kV	1,090 kV

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Typical Structures:

23. Structures Typically are: Direct Embedded Steel Poles
24. Typical Height After Installation: 80-120 ft.

Typical Wood Pole:

25. Species: N/A Treatment: _____ Class: _____ Length: _____ft.

Steel Structures:

26. Steel Pole or Tower Material: CORTEN (Self Weathering) Steel

27. H-Frame Structure Bracing Type: N/A Spacing Between H-Frame Poles: N/A ft.

28. Support Arm Type: Tubular Material: Steel Dimensions: 8'-0" Min Length

29. Guys are: N/A Guy Markers are: N/A

SECOND TRANSMISSION CIRCUIT (if applicable)

30. Name of Owner: ITC Midwest, LLC
31. Name or Circuit Number of Line: Coffey - Hiawatha 161kV
32. If Franchised Separately, Docket Number of Order Granting Franchise: E-22047

33. Maximum *Capable of Operating* Voltage: 169 kVAC Nominal Operating Voltage: 161 kVAC

Vertical Overhead Clearance Requirement* for the Phase Conductors

	Surface	*Basic Clearance*	+	*Voltage Adder*	+	*Additional Adders*	=	*Clearance*
34.	*Open Ground*	18.5 ft.	+	2.6 ft.	+	0.0 ft.	=	21.1 ft.
35.	*Roads*	18.5 ft.	+	2.6 ft.	+	0.0 ft.	=	21.1 ft.
36.	*(no RR crossings)*	ft.	+	ft.	+	ft.	=	ft.
37.	*(no water surfaces)*	ft.	+	ft.	+	ft.	=	ft.

* The Iowa Electrical Safety Code and the applicable edition of the NESC should both be referenced to determine the conditions at which the above clearances apply.

Phase Conductors:

35. Code Word: T2-Hawk Size: (2) 477 MCM Stranding: (2) 26/7 Material: ACSR

Typical Insulators

			Suspension Type	
36.		*Post Type*	*Tan. / Ang. Single Piece Unit*	*Strain Single Piece Unit*
37.	*Manufacturer*	Ohio Brass	Ohio Brass	Ohio Brass
38.	*Catalog number*	P250053S9040	511009-1201	515011-1201
39.	*Dry Flashover*	565 kV	545 kV	655 kV
40.	*Wet Flashover*	495 kV	505 kV	605 kV
41.	*Impulse Flashover, +*	855 kV	890 kV	1,080 kV
42.	*Impulse Flashover, –*	950 kV	890 kV	1,090 kV

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43. Support Arm Type: Tubular Material: Steel Dimensions: 8'-0" Min Length

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DISTRIBUTION UNDERBUILD (if applicable)

44. Name of Owner: N/A

45. Nominal Voltage: _____

46. Number of Distribution Phase Conductors: _____
47. Neutral is N/A Multi-Grounding Frequency: _____

Vertical Overhead Clearance Requirement* for the Phase Conductors

	Surface	*Basic Clearance*	+	*Additional Adders*	=	*Clearance*
48.	*Open Ground*	ft.	+	ft.	=	ft.
49.	*Roads*	ft.	+	ft.	=	ft.
50.	*Railroads*	ft.	+	ft.	=	ft.
51.	*Water*	ft.	+	ft.	=	ft.

* The Iowa Electrical Safety Code and the applicable edition of the NESC should both be referenced to determine the conditions at which the above clearances apply.

Vertical Overhead Clearance Requirement* for the Neutral Conductor (if applicable)

	Surface	*Basic Clearance*	+	*Additional Adders*	=	*Clearance*
52.	*Open Ground*	ft.	+	ft.	=	ft.
53.	*Roads*	ft.	+	ft.	=	ft.
54.	*Railroads*	ft.	+	ft.	=	ft.
55.	*Water*	ft.	+	ft.	=	ft.

* The Iowa Electrical Safety Code and the applicable edition of the NESC should both be referenced to determine the conditions at which the above clearances apply.

56. Support Arm Type: _____ Material: _____ Dimensions: _____

TYPICAL STRUCTURE DRAWING

57. A drawing of a typical tangent structure, as described in the instructions, has been attached.

ADDITIONAL DRAWINGS REQUIRED FOR NEW CONSTRUCTION

58. Angle structures will be used in this segment of line. A drawing of a typical angle structure, as described in the instructions, has been attached.

59. Dead-end structures will be used in this segment of line. A drawing of a typical dead-end structure, as described in the instructions, has been attached.

60. There are no grain bins along this segment of line. Drawings showing the clearance envelope for each grain bin in relation to the proposed line are not required.

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