

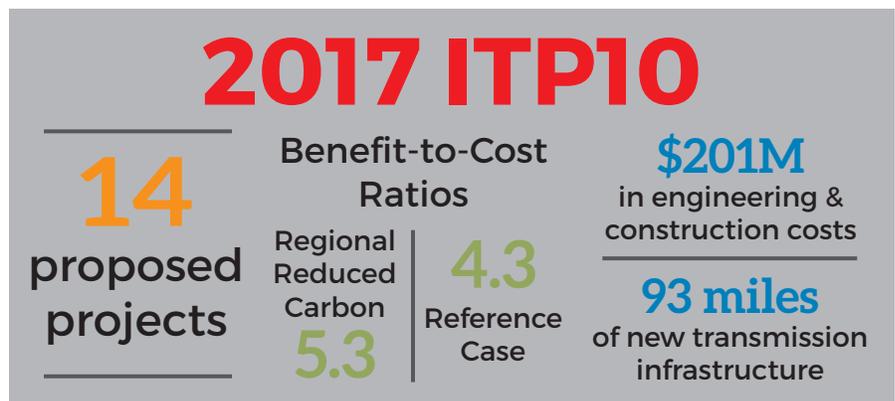
2017 ITP10: Strengthening the Grid

2017 ITP10 addresses needed grid modifications with 14 projects with benefit-cost ratios of 4.3-5.3

Southwest Power Pool's 2017 Integrated Transmission Planning 10-Year Assessment (ITP10) proposes construction of 14 projects expected to provide the region more than \$824 million in net benefits over 40 years at a total engineering and construction cost of \$201 million.

The ITP10 portfolio of projects is intended to reduce congestion in some of SPP's most historically constrained areas such as west Texas and southwest Missouri; enable more efficient delivery of clean energy resources and optimize use of SPP's most efficient conventional resources; and better enable SPP to reliably operate its regional transmission system in accordance with mandatory reliability standards.

Net benefits are based conservatively on quantifiable, monetized benefits in the most conservative of the three futures analyzed.



The recommended portfolio is expected to provide value to the SPP region in any one or combination of three reasonably likely future scenarios:

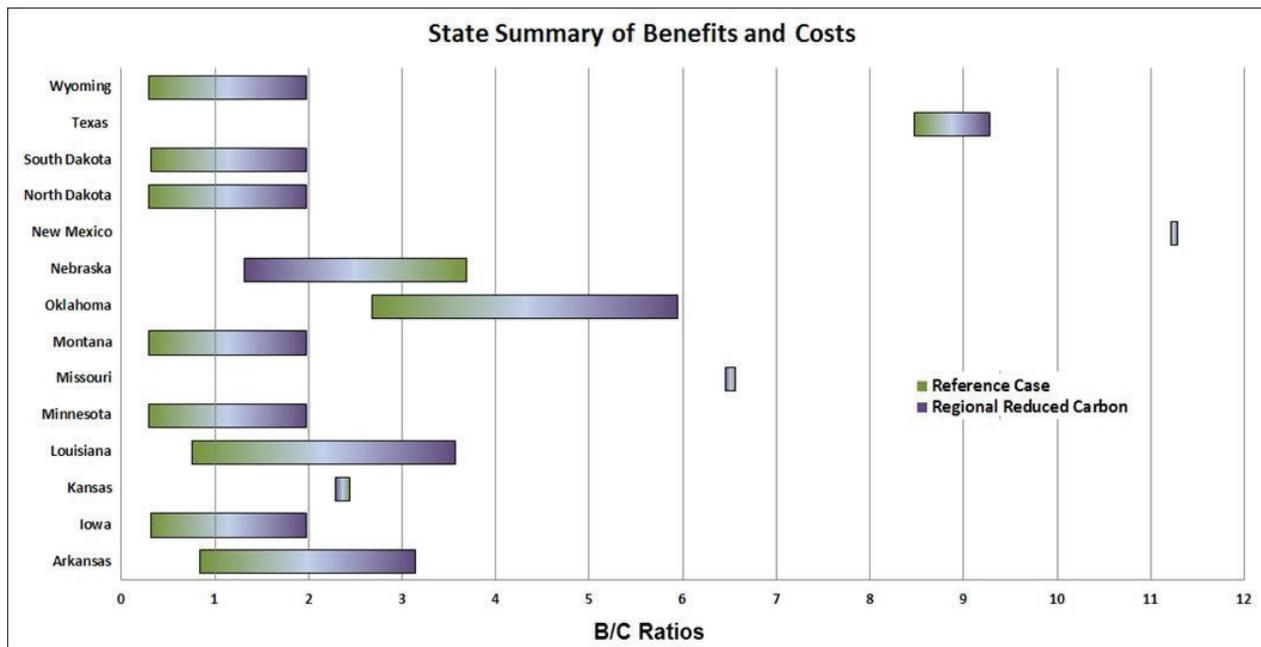
Reduced Carbon Future 1: A future in which entities in the SPP region collaborate to reduce carbon.

Reduced Carbon Future 2: A future in which entities in the SPP region work within their respective states to independently achieve carbon reduction.

Reference Future: A “business-as-usual” future in which environmental and public policy requirements remain unchanged from today.

Every project included in the 2017 ITP10 portfolio performed well in both “reduced carbon” and a “business as usual” scenarios. Their benefit-to-cost ratios range from 4.3-to-1 to 5.3-to-1 over their lifespans depending on the future in which they were assessed.

Reduced carbon futures like those SPP evaluated here do not depend on any particular standard, regulation, or trend, but may result from any of the following: implementation of federal environmental regulations; continuation of observed industry trends favoring cleaner, more efficient resources; or various utility, state and local programs and initiatives.



2017 ITP10 Portfolio Summary (sorted by cost)

Project	Area(s)	Type	Cost
Upgrade terminal equipment at Tupelo/Tupelo Tap and Lula/Tupelo Tap	OGE/WFEC	Economic	\$102,500
Upgrade terminal equipment at Neosho/Riverton	WR/EDE	Economic	\$114,154
Upgrade terminal equipment at Butler/Altoona	WR	Economic	\$244,606
Add 2 ohm Series reactor to Northeast - Charlotte 161 kV line	KCPL	Economic	\$512,500
Upgrade terminal equipment at Martin, Pantex North, Pantex South, and Highland tap	SPS	Reliability	\$682,034
Upgrade terminal equipment at Stanton/Tuco, Indiana/Stanton, and Indiana/SP-Erskine	SPS	Economic	\$969,942
New 230 kV line from Knoll to Post Rock.	MIDW	Economic	\$3,389,019
Rebuild 161kV line from Siloam Springs (AEP)-Siloam Springs City (GRDA) and upgrade terminal equipment at Siloam Springs (AEP)/Siloam Springs City (GRDA)	AEP/GRDA	Economic	\$5,185,885
Replace first and second existing 230/115 transformers at Seminole.	SPS	Economic	\$7,423,880
Install 138kV phase shifting transformer at Woodward, Upgrade relay, protective and metering equipment and associated/miscellaneous materials.	OGE	Economic	\$7,459,438
Install 345/161 kV transformer at Morgan substation and upgrade Morgan - Brookline 161 kV line	AECI	Economic	\$9,481,250
Tap existing 230kV line from Hobbs to Yoakum and existing 115kV line from Allred Tap to Waits. Terminate all four end points into new substation. Install 230/115kV transformer at new Hobbs - Yoakum Tap substation.	SPS	Economic/Reliability	\$9,953,077
Tap intersection of 230kV line from Tolk to Yoakum and 115kV line from Cochran to Lehman Tap. Terminate all four ends into new substation. Install new 230/115kV transformer at new substation.	SPS	Economic	\$11,961,951
Build new 345 kV line from Potter to Tolk	SPS	Economic	\$143,984,174

Four projects with NTCs at a cost of \$37 million were included in the recommended portfolio as solutions to address regional economic needs. These NTCs were evaluated to assess the regional benefit of addressing economic needs. Three of the four NTC projects are base plan funded with highway/byway cost allocation while one, the 138kV phase shifting transformer at Woodward is a generation interconnection facility upgrade that is not base plan funded. As a result, the incremental cost of the 2017 ITP10 recommended portfolio is \$164 million.