



Decision No. _____

Eleventh Biennial Transmission Assessment 2020-2029

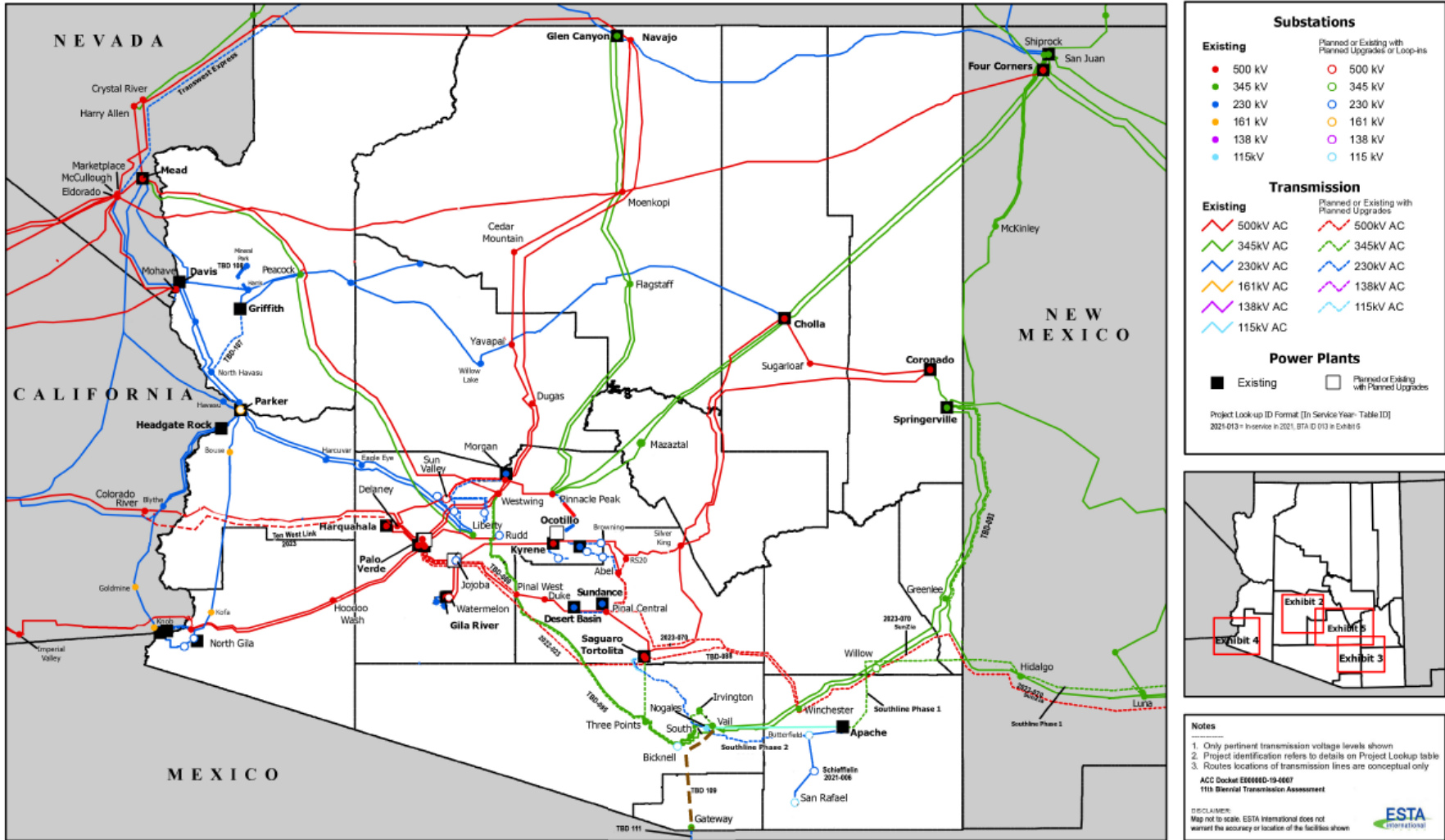
Table of Exhibits

- Exhibit 1 – Existing and Planned Arizona Transmission Map
- Exhibit 2 – Maricopa County Transmission System Map
- Exhibit 3 – Southeastern Transmission System Map
- Exhibit 4 – Yuma Transmission System Map
- Exhibit 5 – Pinal County Transmission System Map
- Exhibit 6 – Arizona Planned Project Lookup Table
- Exhibit 7 – WECC Path(s) Affecting Arizona - Table
- Exhibit 8 – WECC Path(s) Affecting Arizona
- Exhibit 9 – Arizona Demand Forecast Data
- Exhibit 10 – EHV Plan Changes Between Tenth and Eleventh BTA
- Exhibit 11 – Listing of Queue Interconnection Generation Projects
- Exhibit 12 – Listing of Projects Sorted by In-Service Date
- Exhibit 13 – Listing of Projects Sorted by Voltage
- Exhibit 14 – Arizona Public Service Project Summary
- Exhibit 15 – Salt River Project Summary
- Exhibit 16 – Arizona Electric Power Cooperative Project Summary
- Exhibit 17 – Tucson Electric Power Project Summary
- Exhibit 18 – Unisource Electric Project Summary
- Exhibit 19 – Other Transmission and Generation Project Summary by In-Service Date
- Exhibit 20 – Overview Map of Ten West Link (Delaney – Colorado River) 500 kV Project
- Exhibit 21 – Overview Map of Southline Transmission Project
- Exhibit 22 – Overview Map of SunZia Southwest Transmission Project



Decision No. _____

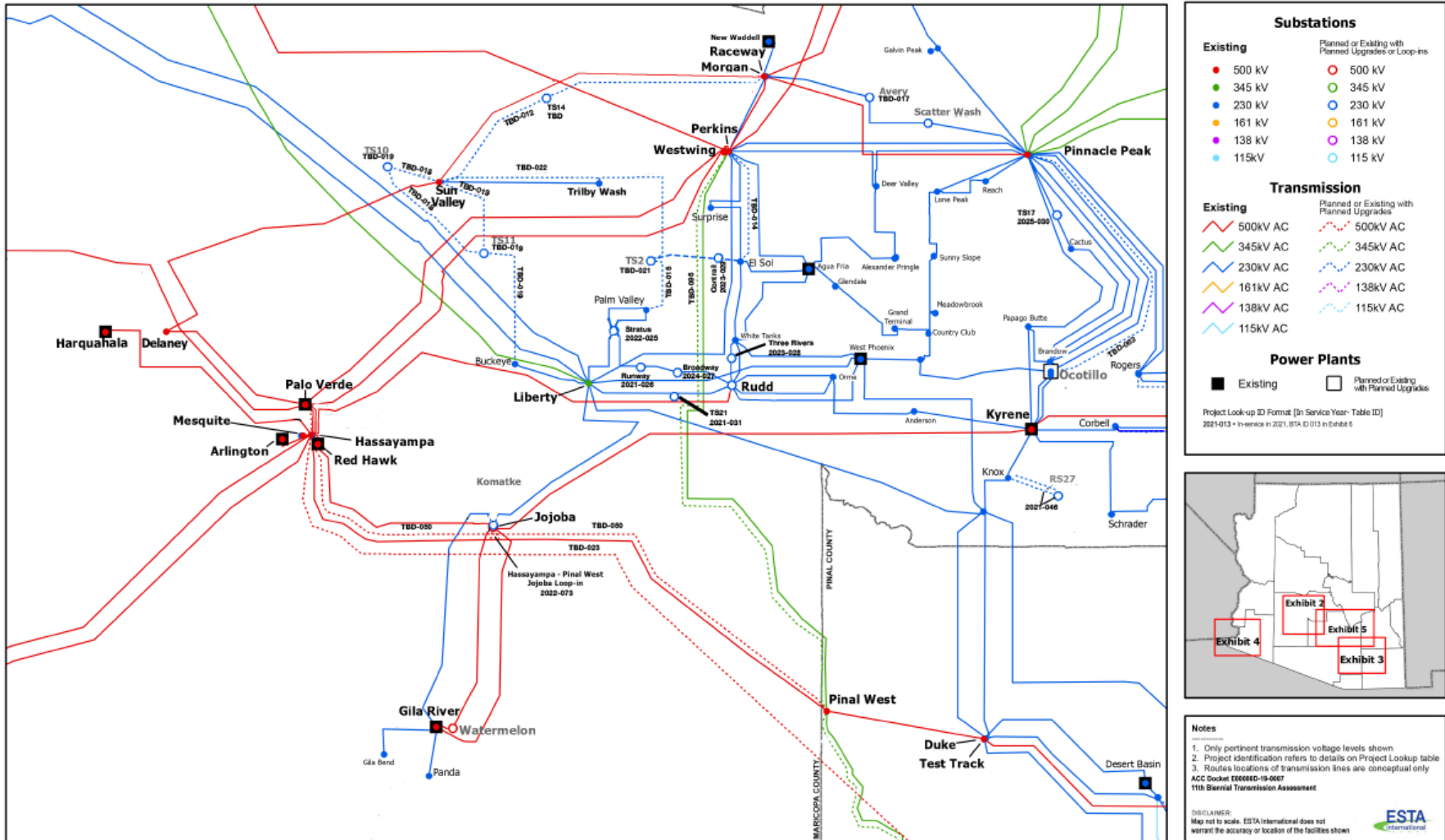
Existing and Planned Transmission System **Exhibit 1**





Decision No. _____

Maricopa County Transmission System **Exhibit 2**



Notes

1. Only pertinent transmission voltage levels shown.
2. Project identification refers to details on Project Lookup table.
3. Routes locations of transmission lines are conceptual only.

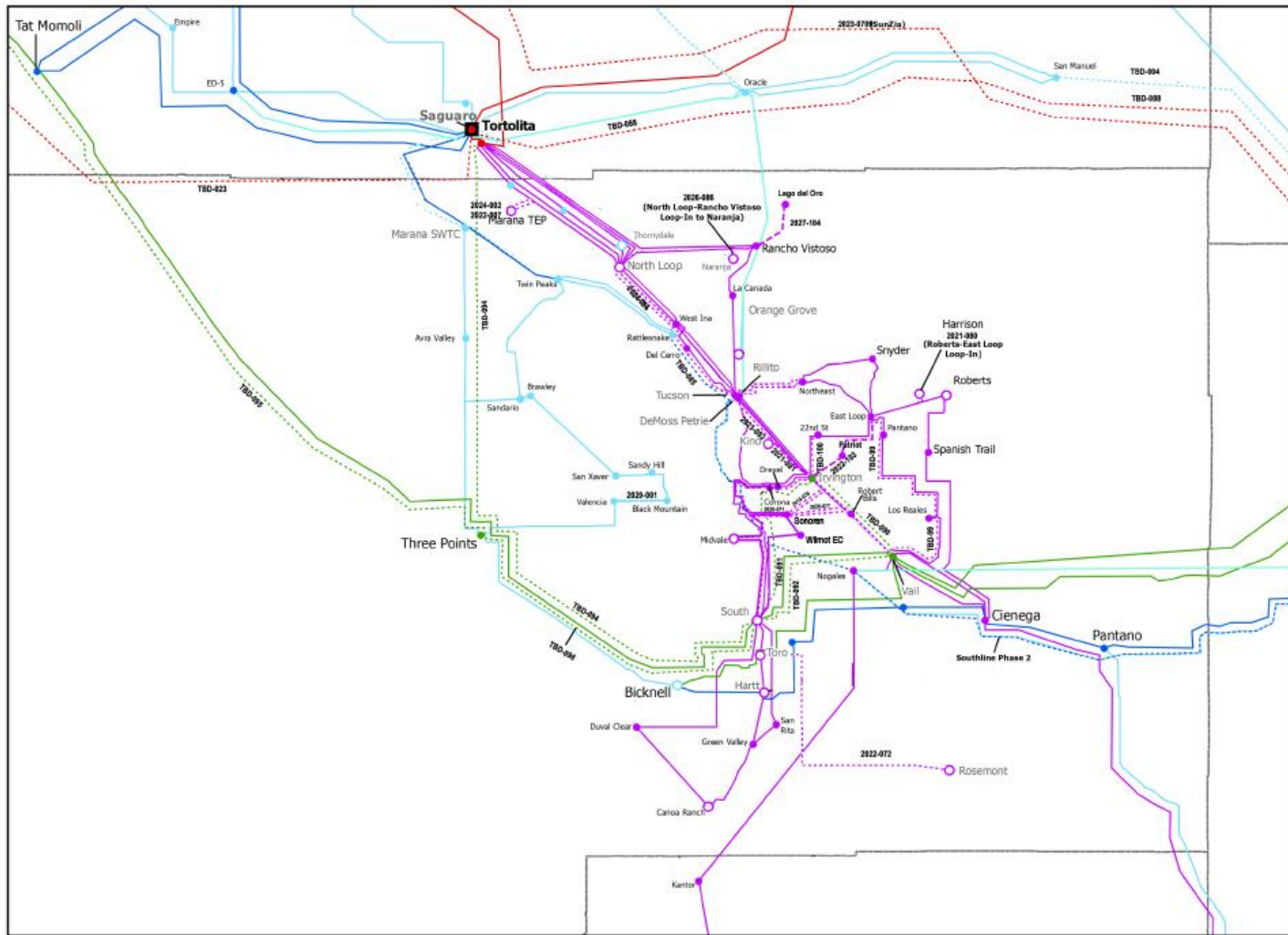
ACC Docket E00000D-19-0007
 11th Biennial Transmission Assessment

DISCLAIMER:
 Map not to scale. ESTA International does not warrant the accuracy or location of the facilities shown.



Decision No. _____

Southeastern Transmission System **Exhibit 3**



Substations

Existing	Planned or Existing with Planned Upgrades or Loop-Ins
● 500 kV	○ 500 kV
● 345 kV	○ 345 kV
● 230 kV	○ 230 kV
● 161 kV	○ 161 kV
● 138 kV	○ 138 kV
● 115kV	○ 115 kV

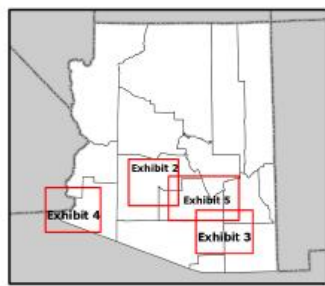
Transmission

Existing	Planned or Existing with Planned Upgrades
— 500kV AC	— 500kV AC
— 345kV AC	— 345kV AC
— 230kV AC	— 230kV AC
— 161kV AC	— 138kV AC
— 138kV AC	— 115kV AC
— 115kV AC	

Power Plants

■ Existing	□ Planned or Existing with Planned Upgrades
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Project Lookup ID Format (In Service Year-Table ID)
2021-413 = In Service in 2021, 413-1010 In Exhibit 3



Notes

1. Only pertinent transmission voltage levels shown
2. Project identification refers to details on Project Lookup table
3. Routes locations of transmission lines are conceptual only

ACC Docket E-00000D-19-0007
11th Biennial Transmission Assessment

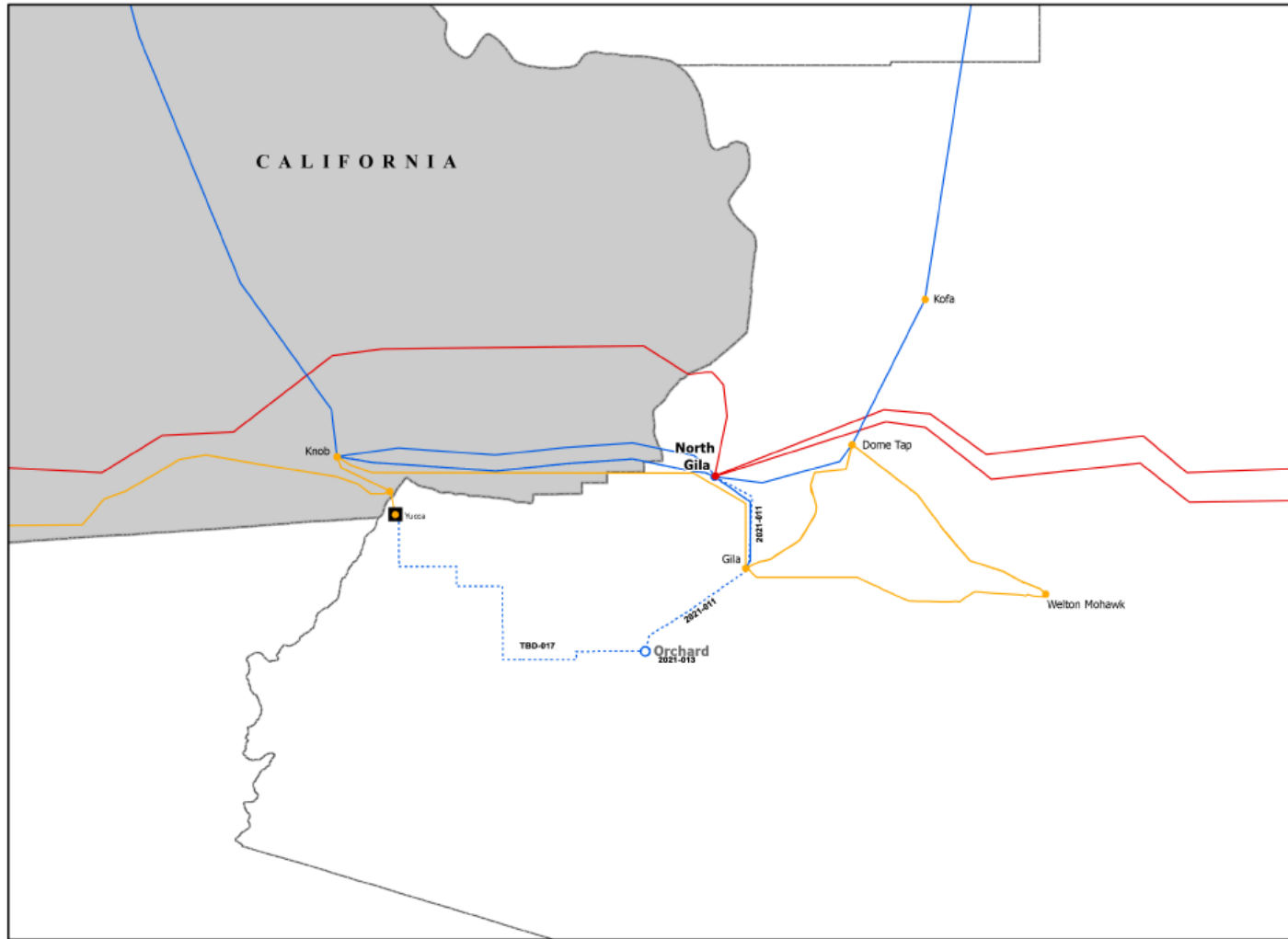
DISCLAIMER:
Map not to scale. ESTA International does not warrant the accuracy or location of the facilities shown.



Decision No. _____

Yuma Transmission System

Exhibit 4



Substations

Existing	Planned or Existing with Planned Upgrades or Loop-ins
● 500 kV	○ 500 kV
● 345 kV	○ 345 kV
● 230 kV	○ 230 kV
● 161 kV	○ 161 kV
● 138 kV	○ 138 kV
● 115kV	○ 115 kV

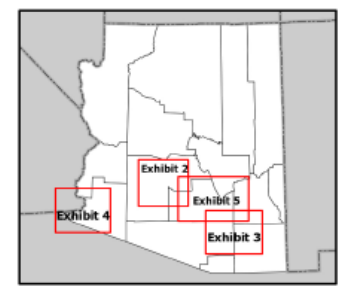
Transmission

Existing	Planned or Existing with Planned Upgrades
— 500kV AC	- - - 500kV AC
— 345kV AC	- - - 345kV AC
— 230kV AC	- - - 230kV AC
— 161kV AC	- - - 138kV AC
— 138kV AC	- - - 115kV AC
— 115kV AC	

Power Plants

■ Existing	□ Planned or Existing with Planned Upgrades
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Project Look-up ID Format [B] Service Year: Table ID]
2021-013 = 10 service in 2021. BT#ID #13 is Exhibit 6



Notes

1. Only pertinent transmission voltage levels shown
2. Project identification refers to details on Project Lookup table
3. Routes locations of transmission lines are conceptual only

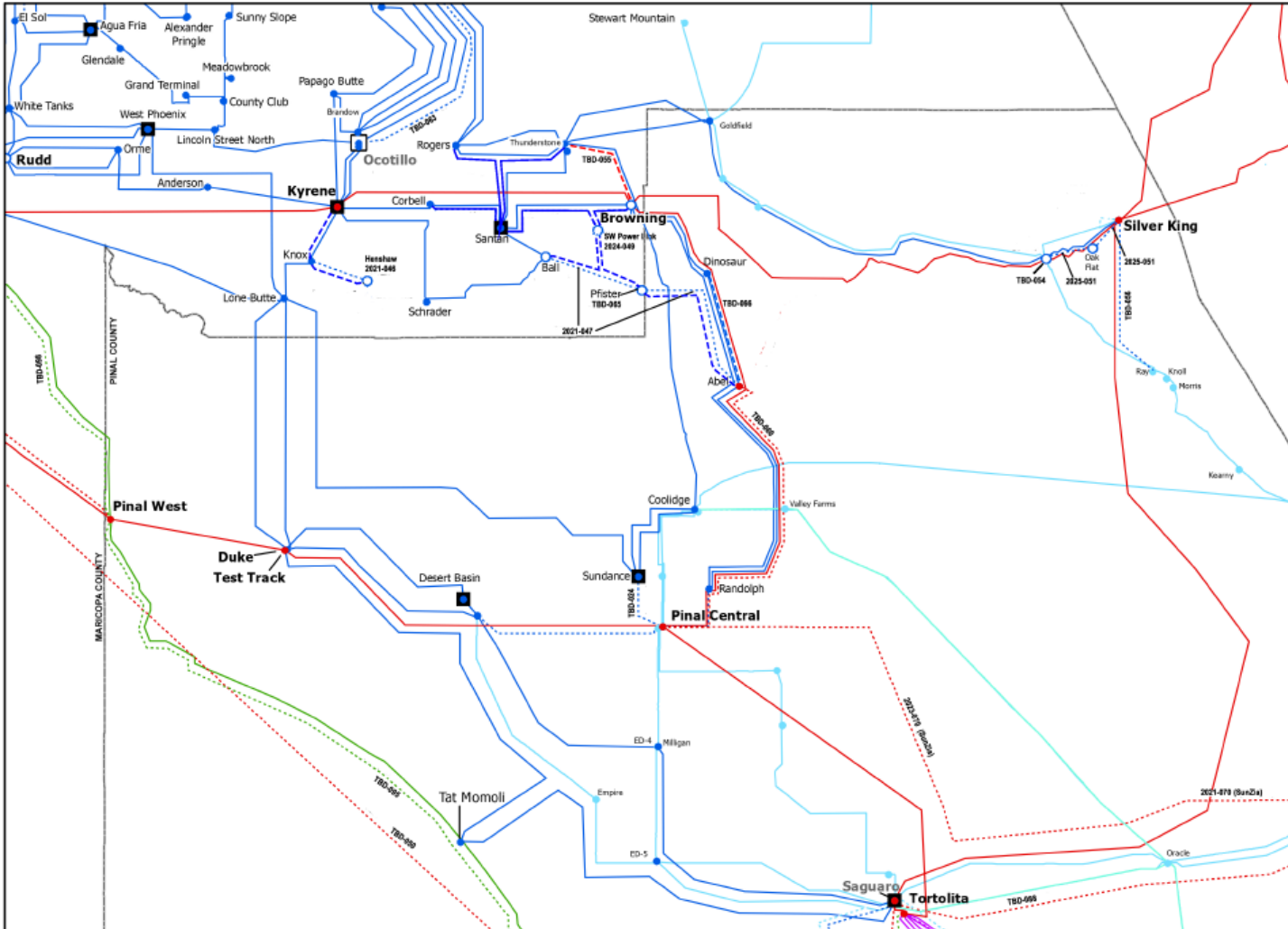
ACC Deck# E00000D-19-0007
11th Biennial Transmission Assessment

DISCLAIMER:
Map not to scale. ESTA International does not warrant the accuracy or location of the facilities shown



Decision No. _____

Pinal County Transmission System **Exhibit 5**



Substations

Existing	Planned or Existing with Planned Upgrades or Loop-ins
● 500 kV	○ 500 kV
● 345 kV	○ 345 kV
● 230 kV	○ 230 kV
● 161 kV	○ 161 kV
● 138 kV	○ 138 kV
● 115kV	○ 115 kV

Transmission

Existing	Planned or Existing with Planned Upgrades
— 500kV AC	- - - 500kV AC
— 345kV AC	- - - 345kV AC
— 230kV AC	- - - 230kV AC
— 161kV AC	- - - 161kV AC
— 138kV AC	- - - 138kV AC
— 115kV AC	- - - 115kV AC

Power Plants

■ Existing	□ Planned or Existing with Planned Upgrades
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Project Lookup ID Format [In Service Year- Table ID]
 2021-013 - In service in 2021, STA ID 013 in Exhibit 5



Notes

1. Only pertinent transmission voltage levels shown
2. Project identification refers to details on Project Lookup table
3. Routes locations of transmission lines are conceptual only

ACC Docket #000000-19-0007
 11th Biennial Transmission Assessment

DISCLAIMER: Map not to scale. ESTA International does not warrant the accuracy or location of the facilities shown.



Decision No. _____

Exhibit 6 Arizona Planned Project Lookup Table

BTA Project ID	Description	Participants	Length (mi)	Permitting Siting Status	Estimated In-Service Year	Voltage (kV)	Map Exhibit
1	Valencia – CAP Spreader Yard 115 kV Line	AEPCO	2.7	CEC Approved – Case 152; amended by Decision #76444	2020	115	3
2	Marana - Thornydale - Saguaro Interconnect	AEPCO	9	CEC Not Yet Filed	2024	115	3
3	Schieffelin Project	AEPCO, SSVEC	10	CEC Not Yet Filed	2021	69	1
4	Apache/Hayden - San Manuel 115kV Line	AEPCO, APS	4.5	CEC Approved – Case #142	TBD	115	1
5	APS Bagdad Interconnection 115 kV Transmission Line Project	AEPCO, APS	1	CEC Approved Case 179	2020	115	X1
6	Butterfield to San Rafael Loop into new Schieffelin Sub	AEPCO	<1	CEC Not Required	2021	230	1
7	Marana Loop-in	AEPCO, WAPA	<1	CEC Not Yet Filed	2022	115	3



Decision No. _____

8	Ajo Improvement Company	AIC	47	CEC Approved – Case 89 - Decision #74086; amended by Decision #74086	TBD	230	1
9	Scatter Wash 230/69kV Substation	APS	<1	CEC Approved- Case #120 - Decision #65997; amended by Decision #73824	2020	230	X2
10	Freedom 230/69kV Substation	APS	<1	CEC Approved – Case #122, Decision #66646; amended by Decision #73937	2020	230	X2
11	North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Approved – Case #163 – Decision #72801	2021	230	4
12	Morgan - Sun Valley 230kV Line	APS	38	CEC Approved – Case #138 - Decision #70850; amended by	TBD	230	2



Decision No. _____

				Decision #75092			
13	TS14 230 kV Lines	APS	TBD	CEC not yet filed	TBD	230	
14	EI Sol-Westwing 230kV Line	APS	11	CEC Approved – Case #120, Decision #65997; Amended by Decision #73824	TBD	230	2
15	Palm Valley - TS2-Trilby Wash 230kV Line # 2	APS	12	CEC Approved – Case #120 - Decision #67828; amended by Decision #73937 and Case #127 - Decision #67828, amended by Decision #75045	TBD	230	2
16	Avery 230/69kV Substation	APS	1	CEC Approved - Case #120 - Decision #65997; amended by Decision #73824	TBD	230	X2



Decision No. _____

17	Orchard - Yucca 230kV Line	APS	19	CEC Approved – Case #163 – Decision #72801	TBD	230	4
18	Sun Valley - TS10 - TS11 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
19	Buckeye – TS11- Sun Valley 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
20	Komatke 230/69kV Substation	APS	TBD	CEC Approved – Case #102 - Decision #62960	TBD	230	X2
21	TS2 230 kV Lines	APS	<1	CEC Approved – Case #122 – Decision #66646; amended by Decision #73937	2023	230	2
22	Sun Valley - Trilby Wash 230kV Line Circuit #2	APS	TBD	CEC Approved – Case #127 - Decision #67828, amended by Decision #75045	TBD	230	2
23	Palo Verde - Saguaro 500kV Line	APS, CATS	130	CEC Approved - Case #24 -	TBD	500	2,3,5



Decision No. _____

				Decision #46802			
24	Pinal Central-Sundance 230kV Line	APS, ED2	6	CEC Approved – Case #136 – Decision #70325	TBD	230	5
25	Stratus Sub 230 kV Lines	APS	<1	CEC Approved – Case 122 – Decisions #66646, amended by Decision 73937 and #77761	2022	230	2
26	Runway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 – Decision #77469	2021	230	2
27	Broadway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 Decision #77469	2024	230	2
28	Three Rivers 230 kV Lines	APS	4	CEC not yet filed	2023	230	2
29	Conrail 230 kV Lines	APS	7	CEC not yet filed	2023	230	2
30	TS17 230 kV Lines	APS	<1	CEC not yet filed	2025	230	2



Decision No. _____

31	TS21 500/230 kV Substation	APS	TBD	CEC not yet filed	2021	500/230	2
32	AES 230 kV Interconnection at Westwing 230 kV Substation	AES/APS	<1	CEC not yet filed	2021	230	X
33	Big Chino Valley Pumped Hydro Gen-Tie	Big Chino Valley	40, 50, or 100	CEC not yet filed	TBD	500	X
34	Hashknife Solar Gen-Tie	Energy Center, LLC	3.5	CEC Approved	2021	500	X
35	Ten West Link	DCR Transmission, APS, SRP	125	CEC Approved – Case #185 - Decision #77587	2021	500	1
36	Gila Bend Power Plant to New Watermelon	Gila Bend Power Partners, LLC	6	CEC Approved – Case 109	TBD	500	1
37	Jojoba to Hassayampa Switchard	Gila Bend Power Partners, LLC	14	CEC Approved – Case 119	TBD	500	X
38	Future Gateway Sub to US/Mexico Border	Nogales Transmission Project	2	CEC Approved – Case 246 – Decisions #76468 & #76469	2023	230	X
39	North Gila Imperial Valley #2 Arizona Section	North Gila Imperial Valley	7	CEC not yet filed	2024	230	1



Decision No. _____

40	Solar and Battery Storage Gen-tie	RE Papago, LLC	1.8	CEC not yet filed	TBD	500	X
41	Bowie Power Station Gen-tie	Southwestern Power Group, TEP	15	CEC Approved – Decision #70588, Amended by Decisions #69339 & #71951	2020	345	X
42	Southline	Southline Transmission, TEP (potential), WAPA	246	CEC Approved – Case #173 – Decision #75978; Amended by Decision #77755	2023	345	1,3
43	Eastline Solar Gen-tie	sPower	2.6	CEC not yet filed	TBD	230	X
44	Chevelon Butte Wind Gen-tie	sPower	5.2	CEC Approved	2021	345	X
45	Coolidge - Hayden 115kV Reroute	SRP	1.5	CEC Not Yet Filed	2022	115	X
46	Price Road Corridor -Knox - Henshaw 230kV Line	SRP	5	CEC Approved - Case #175 - Decision #76371	2021	230	5
47	Abel- Pfister - Ball 230kV	SRP	20	CEC Approved - Case #148 -	TBD	230	5



Decision No. _____

				Decision #71441			
48	Copper Crossing - Abel 230 kV	SRP	1	CEC Not Yet Filed	TBD	230	X5
49	Southeast Power Link	SRP	7	CEC Approved – Case #180 – Decision #76963	2024	230	5
50	Hassayampa - Pinal West 500kV #2 Line	SRP	51	CEC Approved - Case #124 - Decision #67012	TBD	500	2,5
51	Silver King- New Oak Flat - New Superior 230kV	SRP	19.5	CEC Not Yet Filed	2025	230	5
52	Superior - Silver King 115kV Re-route	SRP	1.25	CEC Approved - Case #166 - Decisions #73551, #76594	2027	115	X5
53	Eastern Mining Expansion	SRP	TBD	CEC Not Yet Filed	TBD		X
54	Superior 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230	5
55	Thunderstone - Browning 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	5



Decision No. _____

56	Silver King - Knoll - New Hayden 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	5
57	New Hayden 115kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	115	X
58	RS25 Project	SRP	TBD	CEC Not Yet Filed	TBD	230	X
59	RS26 Project	SRP	TBD	CEC Not Yet Filed	TBD	230	X
60	Pinal Central - Abel - RS-20 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500	5
61	Palo Verde - Saguaro 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500	2,3,5
62	Ball (RS17) 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230	X
63	Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	2,5
64	Red Hawk 230 kV	SRP	TBD	CEC Approved – Case #184 – Decision #77511	2021	230	3
65	Pfister 239 kV Loop-in	SRP	<1	CEC not filed	TBD	230	5
66	Abel-dinosaur 230 kV Circuit #2	SRP	9.6	CEC not yet filed	TBD	230	5



Decision No. _____

67	Brandow-Kyrene East 239 kV Line Reconductor	SRP	8.1	CEC not yet filed	TBD	230	X5
68	Orme-Rudd 230 kV Line #1 and #2 Reconductor	SRP	8.8	CEC not yet filed	TBD	230	X5
69	First Solar Project Gen-tie	Sunstreams Expansion, LLC	1.5		2021	500	X
70	SunZia Southwest Transmission 500kV Project	SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved - Case #171 - Decision #75464	2023	500	1,2,3
71	Loop-in of Irvington - South 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3
72	Toro - Rosemont 138kV Line	TEP	13.2	Case #164 – Decision #73074, 73131, 73232; Amended by Decision #76886; Dependent upon approval of Mine Record of Decision from United States Forestry Service	2022	138	3



Decision No. _____

73	Hassayampa - Pinal West 500kV Line Loop-in to Jojoba	TEP	<1	Case #124 – Decision #67012	2022	500	2,5
74	Orange Grove - Rillito 138kV Line Re-Conductor ¹	TEP	1.6	CEC Not Required	2021	138	X3
75	Rancho Vistoso - Rillito 138kV Line Re-Conductor	TEP	4.4	CEC Not Required	2021	138	X3
76	Loop-in of Irvington - Vail 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3
77	Loop-in of Irvington - Robert Bills 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3
78	138kV Line from Sonoran to 138 KV Cisne Switchyard	TEP	4	CEC Approved – Case #181 – Decision #76964	2020	138	X3
79	La Canada - Orange Grove	TEP	3.8	CEC Not Yet Filed	2021	138	X3

¹ This project is consistent with TEPs Ten Year Plan filed in January 2020 but has been identified as an eliminated project as of 11/1/2020



Decision No. _____

	138kV Line Re-Conductor ²						
80	Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	<1	CEC Approved - Case #8	2020	138	3
81	Irvington Substation - Kino 138kV Substation	TEP	6	CEC Approved – Case #178 – Decision #76843; Amended by Decision #76915	2020	138	3
82	Kino – DeMoss Petrie 138 kV Line	TEP	5	CEC Not Yet Filed; Pre-filing public outreach in progress	2023	138	3
83	Tortolita - North Loop 138kV Line Re-Conductor ²	TEP	14.3	CEC Not Yet Filed	2029	138	X3
84	Interconnection of Tortolita - North Loop #5 with TEP Marana 138kV Substation	TEP	4	CEC Not Yet Filed	2023	138	3
85	138kV Line from North Loop Substation to El Camino Del Cerro Substation	TEP	14.3	CEC Not Yet Filed	TBD	138	3



Decision No. _____

86	Interconnection of North Loop - Rancho Vistoso 138-kV Line with future Naranja 138-kV Substation	TEP	1	CEC Not Yet Filed	2026	138	3
87	Del Cerro - Tucson 138-kV Line Re-Conductor ²	TEP	6.75	CEC Not Required	2023	138	X3
88	Saguaro Substation - Winchester Substation	TEP	80	CEC Approved – Case #023 - Decision No. 46801	TBD	500	1
89	Gila River - Pinal West 500-kV	TEP	50	CEC Not Yet Filed	TBD	500	1
90	Vail Substation - Irvington Substation	TEP	11	CEC Not Yet Filed	TBD	345	3
91	Irvington Substation - South Substation	TEP	16	CEC Not Yet Filed	TBD	345	3
92	Vail Substation to South Substation - 2nd Circuit	TEP	14	CEC Approved - Case #015	TBD	345	3
93	Springerville Substation - Greenlee Substation – 3rd Circuit	TEP	27	CEC Approved - Case #012, 030, 063 and 073	TBD	345	1



Decision No. _____

94	Tortolita Substation - South Substation	TEP	68	CEC Approved - Case #050	TBD	345	3
95	Westwing Substation - South Substation - 2nd Circuit	TEP	175	CEC Approved - Case #015	TBD	345 Or 500	1,2,5
96	Sonoran - Vail 138-kV Line Re-Conductor	TEP	5.68	CEC Not Required	2020	138	X3
97	Sonoran - South 138-kV Line Re-Conductor ²	TEP	16	CEC Not Required	TBD	138	X3
98	Irvington - Drexel - Midvale - South 138-kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138	X3
99	Vail - East Loop - Phase 3 Line #3 138kV	TEP	22	CEC Approved - Case #008	TBD	138	3
100	Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	9	CEC Approved - Case #066	TBD	138	3
101	Rancho Vistoso - La Canada 138 kV Line Re-Conductor ²	TEP	4.4	CEC Not Required	2021	138	X3

² Previously Irvington – South 138 kV Line Re-Conductor



Decision No. _____

102	Irvington 138 kV Transmission Line Relocation ²	TEP	2.25	CEC Approved - Case #177 – Decision #76630, 76639	2023	138	X3
0103	Irvington – Ease Loop with Loop-in to Patriot 138 kV Line ²	TEP	16	CEC Approved – Case #186 – Decision #77601	2022	138	3
104	Lago del Oro – Rancho Vistoso 138 kV Line ²	TEP	8.5	CEC Not Yet Filed	2027	138	3
105	Sonoita - Gateway - Valencia 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	2023	138	X
106	Re-Conductor WAPA Nogales Tap - Kantor	UNSE	30	CEC Approved - Case #176 – Decision #76468	2023	138	X
107	Griffith - North Havasu 230kV Line	UNSE	40	CEC Approved - Case #088, Decision #60344, 69721; Amended by Decision #73278	TBD	230	X1
108	Golden Valley 230kV Line	UNSE	17	CEC Not Yet Filed	TBD	230	X1



Decision No. _____

109	Vail to Gateway 138-kV Transmission Line, 2nd Circuit	UNSE	56	CEC Approved - Case #176 – Decision #76468	TBD	138	1
110	Gateway to Valenica 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	TBD	138	X
111	230kv Line from Gateway Substation to US/Mexico Border	UNSE	2	CEC Approved - Case #176 – Decision #76468	TBD	230	1
112	Sonoita-Valencia loop-in to Rio Rico Switchard	UNSE	<1	CEC not Required	2023	138	X
113	Future Rio Rico Switchyard to future Harshaw Sub	UNSE	32	CEC Not Yet Filed	2023	138	X
114	Wilmont Project Gen-tie	Wilmont Properties	4.5	CEC Not Yet Filed	2022	230	X

NOTE:

An “X” in the Map Exhibit Column indicates that the project is not shown on a map because it is a gen-tie, reconductor, substation project, or the location and/or routing is not known.

An “X” with a number in the Map Exhibit Column indicates that the project would be on the indicated map, but is not shown because the map is too crowded, the project is off the area of the map, or the exact location and/or routing is not known.



Decision No. _____

Exhibit 7			
WECC Path(s) Affecting Arizona Table			
WECC Path	WECC Path Name	Components	Rating
22	Southwest of Four Corners	Four Corners - Moenkopi 500 kV	East-West = 2325 MW West-East = Undefined
		Four Corners - Cholla 345 kV #1	
		Four Corners - Cholla 345 kV #2	
23	Four Corners 345/500 Qualified Path	Flow on 345/500 Transformer	345 to 500 kV = 1,000 MW 500 to 345 kV = 1,000 MW
47	Southern New Mexico	West Mesa - Arroyo 345 kV	Simultaneous Firm = 940 MW Non-simultaneous = 1,048 MW
		Springerville - Luna 345 kV	
		Greenlee - Hidalgo 345 kV	
		Belen - Bernardo 115 kV	
48	Northern New Mexico	Four Corners - West Mesa 345 kV	Simultaneous Firm = 1849 MW ³ Non-simultaneous = 2150 MW
		San Juan - BA 345 kV	
		San Juan - Ojo 345 kV	
		McKinley/Yah-Ta-Hey 345/115 kV Transformer	
		Walsenburg - Gladstone 230 kV	
		Bisti - Ambrosia 230 kV	
		<i>Minus flow on Belen – Bernardo 115 kV</i>	
<i>Minus flow on West Mesa – Arroyo 345 kV line</i>			
49	East of Colorado River (EOR)	Navajo - Crystal - McCullough 500 kV	East-West = 10,100 MW West-East = Undefined
		Moenkopi - El Dorado 500 kV	
		Liberty - Peacock - Mead 500 kV	
		Palo Verde – Colorado River 500 kV	
		Hassayampa – Hoodoo Wash 500 kV	
		Hassayampa – North Gila 500 kV	
50	Cholla - Pinnacle Peak	Cholla – Preacher Canyon 345 kV	East - West= 1,200 MW West - East = Undefined
		Cholla - Pinnacle Peak 345 kV	
51	Southern Navajo	Moenkopi – Cedar Mountain 500 kV	North - South = 2,800 MW South – North = Undefined
		Navajo – Dugas 500 kV	
54	Coronado - Silver King	Coronado - Silver King 500 kV	Coronado – Silver King = 1,494 MW Silver King – Coronado = Undefined

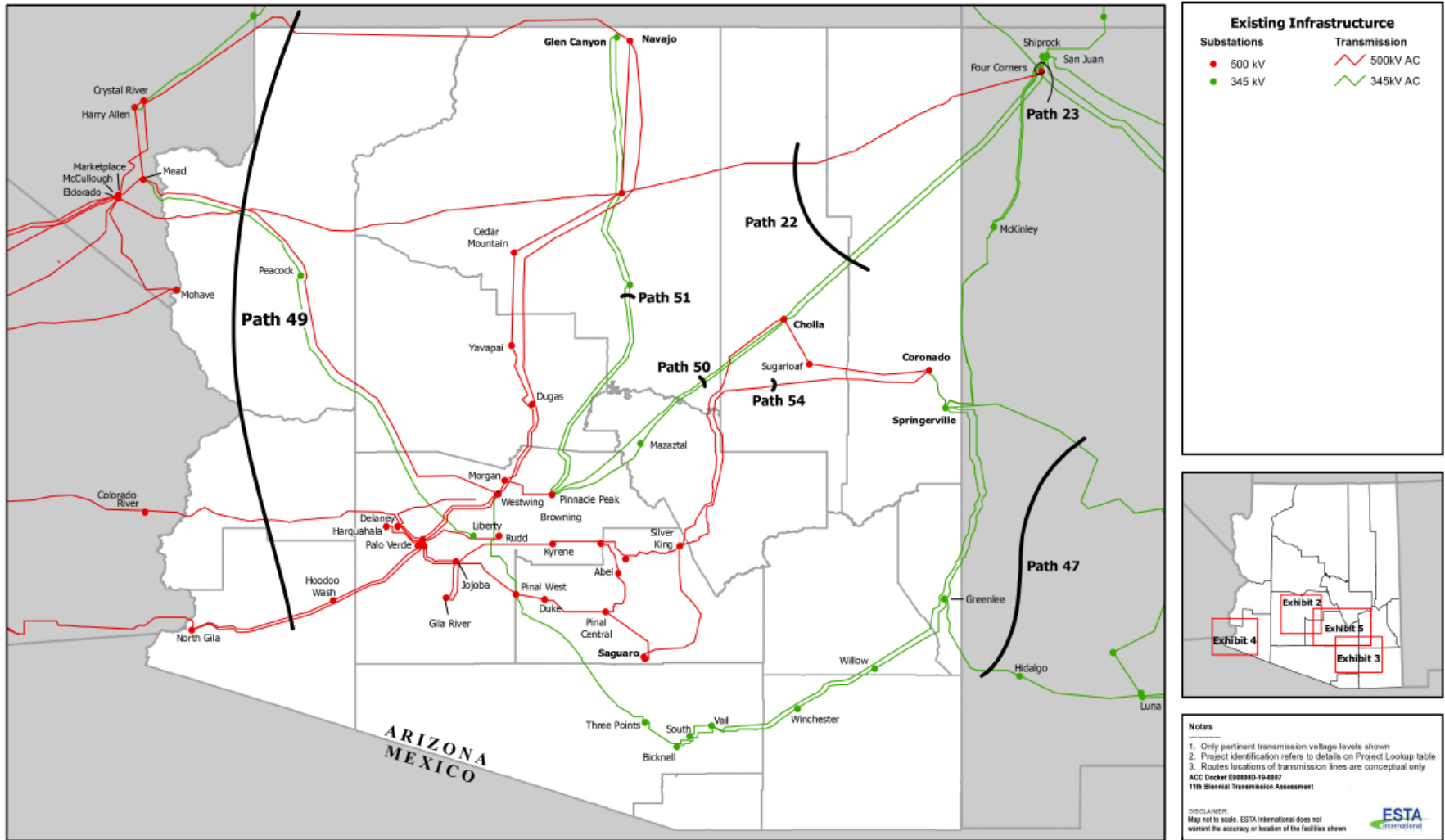
³ Simultaneous limit with Path 47 is dependent on the amount of path 47 import scheduled through the Arroyo phase-shifting transformer.



Decision No. _____

WECC Paths Affecting Arizona

Exhibit 8





Decision No. _____

Exhibit 9												
Arizona Demand Forecast Data												
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
APS												
8th BTA Loads (MW)	7,436	7,620	7,784	7,972	8,185	8,400	N/A	N/A	N/A	N/A	N/A	N/A
9th BTA Loads (MW)	7,100	7,242	7,362	7,554	7,774	7,992	8,209	8,436	N/A	N/A	N/A	N/A
10th BTA Loads (MW)	7,011	7,126	7,277	7,473	7,711	7,929	8,133	8,370	8,601	8,830	N/A	N/A
11 th BTA Loads (MW)	N/A	N/A	7,397	7,655	7,810	8,283	8,181	8,496	8,542	8,839	8,932	9,110
Change in 11th BTA (MW)	N/A	N/A	120	182	99	354	48	126	-59	9	N/A	N/A
Change in 11th BTA (as %)	N/A	N/A	1.65	2.43	1.28	4.46	0.59	1.51	-0.69	0.10	N/A	N/A
SRP												
8 th BTA Loads (MW)	7,608	7,846	8,075	8,403	8,611	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9th BTA Loads (MW)	7,296	7,456	7,612	7,765	7,948	8,131	8,335	N/A	N/A	N/A	N/A	N/A
10th BTA Loads (MW)	7,327	7,403	7,545	7,642	7,801	8,008	8,234	8,395	8,592	8,756	N/A	N/A
11th BTA Loads (MW)	N/A	N/A	8,107	8,227	8,339	8,501	8,657	8,875	9,059	9,211	9,367	9,507
Change in 11th BTA (MW)	N/A	N/A	562	585	538	493	423	480	467	455	N/A	N/A
Change in 11th BTA (as %)	N/A	N/A	7.45	7.66	6.90	6.16	5.14	5.72	5.44	5.20	N/A	N/A
AEPSCO												
8th BTA Loads (MW)	714	733	753	775	797	819	N/A	N/A	N/A	N/A	N/A	N/A
9th BTA Loads (MW)	671	689	706	724	742	760	779	798	N/A	N/A	N/A	N/A
10th BTA Loads (MW)	677	693	708	723	738	753	772	790	803	813	N/A	N/A
11th BTA Loads (MW)	N/A	N/A	723	733	748	760	769	781	795	800	810	821
Change in 11th BTA (MW)	N/A	N/A	15	10	10	7	-3	-9	-8	-13	N/A	N/A
Change in 11th BTA (as %)	N/A	N/A	2.11	1.38	1.36	0.93	-0.39	-1.14	-1.00	-1.60	N/A	N/A
TEP and UNSE												
8th BTA Loads (MW)	2,955	2,980	3,019	3,059	3,091	3,096	N/A	N/A	N/A	N/A	N/A	N/A
9th BTA Loads (MW)	2,978	3,048	3,076	3,073	3,110	3,166	3,165	3,190	N/A	N/A	N/A	N/A
10th BTA Loads (MW)	2,868	2,906	2,939	2,973	3,174	3,208	3,244	3,281	3,319	3,356	N/A	N/A
11th BTA Loads (MW)	N/A	N/A	2,893	2,989	3,007	3,135	3,145	3,171	3,184	3,200	3,216	3,234
Change in 11th BTA (MW)	N/A	N/A	-46	16	-167	-83	-99	-110	-135	-156	N/A	N/A
Change in 11th BTA (as %)	N/A	N/A	-1.57	0.54	-5.26	-2.26	-3.05	-3.35	-4.07	-4.65	N/A	N/A
AZ Total												
8th BTA Loads (MW)	18,713	19,179	19,631	20,209	20,734	N/A	N/A	N/A	N/A	N/A	N/A	N/A



Decision No. _____

9th BTA Loads (MW)	18,045	18,435	18,756	19,116	19,574	20,049	20,448	N/A	N/A	N/A	N/A	N/A
10th BTA Loads (MW)	17,883	18,098	18,469	18,811	19,424	19,898	20,383	20,836	21,315	21,746	N/A	N/A
11th BTA Loads (MW)	N/A	N/A	19,120	19,604	19,904	20,669	20,759	21,317	21,580	22,050	22,325	22,672
Change in 11th BTA (MW)	N/A	N/A	741	793	480	771	376	481	265	304	N/A	N/A
	N/A	N/A	4.01	4.22	2.47	3.87	1.84	2.31	1.24	1.40	N/A	N/A

Note: AEPCO and TEP/UNSE load projections (and therefore, Total AZ load projections) shown for 2018-2027 (10th BTA) were adjusted to reflect non-coincident load as reported by the utilities rather than coincident load to be consistent with previous load projections and those for the 11th BTA



Decision No. _____

Exhibit 10					
EHV Plan Changes Between Tenth and Eleventh BTAs					
Utility	Description	kV	Status	Permitting/Siting status	Previous Alias
-	-	-	-	-	-

NOTE: Since the Tenth BTA, no major changes have been reported for projects with EHV levels of 345 kV and above.



Decision No. _____

Exhibit 11

Listing of Queue Interconnection Generation Projects

Queue ¹	Location	MW (Max)	Generation Technology	In-Service Date
APS Active	Moenkopi-Yavapai 500kV Line	161	Wind (101)/PV (60)	5/1/21
APS Active	Moenkopi Substation 500kV	530	PV	12/31/21
APS Active	Moenkopi Substation 500kV	750	PV/Battery Storage	6/30/23
APS Active	Moenkopi El Dorado Substation 500kV	300	Wind / PV	12/1/24
APS Active	Moenkopi Substation	500	PV/Battery Storage	10/15/24
APS Active	Lonesome Valley Substation 69kV	95	Battery Storage	12/31/22
APS Active	Q230 POI Substation	200	PV/Battery Storage	12/1/23
APS Active	Q230 POI Substation	75	Battery Storage	12/1/23
APS Active	Cholla Substation 500kV	1000	PV/Battery Storage	12/31/20
APS Active	Cholla Substation 345kV	750	Wind/Battery Storage	12/31/21
APS Active	Cholla Substation 230kV	200	PV/Battery Storage	10/15/23
APS Active	Cholla Substation 230kV	200	PV/Battery Storage	9/1/24
APS Active	Cholla Pinnacle Peak Line 345kV	300	PV/Battery Storage	1/1/23
APS Active	Cholla Substation 500kV	350	Wind	12/1/24
APS Active	Cholla Substation 500kV	500	Solar Battery Storage	12/31/24
APS Active	Cholla Substation 345kV	450	PV/Battery Storage	11/30/23
APS Active	Pinnacle Peak Substation 230kV	250	Battery Storage	6/1/21
APS Active	Raceway Substation 230kV	250	PV/Battery Storage	1/1/23
APS Active	Raceway Substation 230kV	200	PV/Battery Storage	12/31/22
APS Active	Raceway Substation 230kV	200	Battery Storage	6/1/23
APS Active	Westwing Substation 230kV	300	Battery Storage	12/1/22
APS Active	Westwing Substation 230kV	200	Battery Storage	12/1/22



Decision No. _____

APS Active	Westwing Substation 69kV	150	Battery Storage	5/31/21
APS Active	Westwing Switchyard 230kV	200	Battery Storage	12/31/22
APS Active	Delaney Switchyard 500kV	450	PV/Battery Storage	12/16/22
APS Active	Delaney Switchyard 500kV	150	PV/Battery Storage	4/1/22
APS Active	Delaney Substation 500kV	550	Solar Battery Storage	12/1/23
APS Active	Preacher Canyon - Cholla Substation 345kV	477	Wind	12/1/21
APS Active	APS's Cholla-Pinnacle Peak Substation 345kV	400	Wind	12/1/24
APS Active	Panda Substation 230kV	200	PV/Battery Storage	12/31/21
APS Active	El Sol Substation 69kV	50	Battery Storage	6/1/23
APS Active	Hoodoo Wash Substation 500kV	500	PV	12/1/22
APS Active	Hoodoo Wash Substation 500kV	200	PV	12/1/22
APS Active	Hoodoo Wash Substation 500kV	20	PV	9/1/23
APS Active	Hoodoo Wash Substation 500kV	250	PV	12/31/21
APS Active	Hoodoo Wash Substation 500kV	709	PV/Battery Storage	5/31/23
APS Active	Saguaro Substation 115kV	150	Solar Battery Storage	11/30/23
APS Active	Freedom Substation 69kV	150	Battery Storage	12/10/23
APS Active	Colter Substation 69kV	100	Battery Storage	12/1/23
APS Active	Navajo Substation 500kV	2000	PV/Battery Storage	12/1/21
APS Active	Navajo Switchyard 500kV	1800	PV/Battery Storage	12/1/23
APS Active	S Navajo Line NW of Flagstaff	1000	PV/Battery Storage	12/31/20
APS Active	Milligan Substation 69kV	100	PV/Battery Storage	12/31/21
APS Active	Milligan Substation 230kV	130	PV/Battery Storage	12/1/22
APS Active	Milligan Substation 230kV	400	PV/Battery Storage	12/1/22
APS Active	Milligan - Casa Grande Line 230kV	75	PV/Battery Storage	6/1/22
APS Active	Milligan - Casa Grande Line 230kV	75	PV/Battery Storage	6/1/22
APS Active	Milligan 69kV	125	PV/Battery Storage	12/31/21
APS Active	Milligan 230kV	315	Solar Battery Storage	12/1/23
APS Active	Milligan - Casa Grande Line 230kV	275	Solar Battery Storage	10/1/23
APS Active	Milligan Substation 230kV	350	PV/Battery Storage	12/1/23
APS Active	Four Corners Switchyard 345kV	800	PV/Battery Storage	12/31/21
APS Active	Four Corners 345kV	1000	Wind	9/30/26
APS Active	Four Corners 345kV	1000	Wind	9/30/26



Decision No. _____

APS Active	Four Corners 345kV	1500	Wind	9/30/26
APS Active	Four Corners - Moenkopi Line 500kV	1500	PV/Battery Storage	12/31/24
APS Active	Trilby Wash to Palm Valley Line 230kV	900	Gas	Q2-24
APS Active	N Burriss Rd Line 69kV	75	PV/Battery Storage	11/1/22
APS Active	Harquahala	20	PV	8/1/22
APS Active	Harquahala 12kV	20	PV	12/15/22
APS Active	Cordes Junction Switchyard 12kV	17	PV	4/1/21
APS Active	Marine Air Base Substation	90.1	Battery Storage	12/31/22
APS Active	White Tanks Substation 69kV	100	Battery Storage	12/31/23
APS Active	Cotton Center 12kV	17	Battery Storage	10/20/20
APS Active	Cotton Center 12kV	17	Battery Storage	10/20/20
APS Active	Cotton Center gila Bend Line	20	PV	12/15/22
APS Active	Gillespie 12kV	10	Battery Storage	10/20/20
APS Active	Gillespie Patterson Line	20	PV	12/15/22
APS Active	County Line 12kV	16	Battery Storage	10/20/20
APS Active	County Line 12kV	14	Battery Storage	10/20/20
APS Active	Luke 12kV	10	Battery Storage	10/20/20
APS Active	Gila Bend 12kV	18	Battery Storage	10/20/20
APS Active	Gila Bend 12kV	18	Battery Storage	10/20/20
APS Active	Scatter Wash 230kV	300	Battery Storage	12/16/22
APS Active	Scatter Wash 69kV	100	Battery Storage	12/16/23
APS Active	Woody Mountain 69kV	50	Battery Storage	10/31/22
APS Active	Gray Mountain Substation	20	PV	12/15/22
APS Active	Hyder Horn Line 69kV	36	PV/Battery Storage	6/1/22
APS Active	Saddle Mountain 69kV	75	PV/Battery Storage	6/1/22
APS Active	Q225 POI	350	PV/Battery Storage	1/12/24
APS Active	Sun Valley 230kV	500	PV/Battery Storage	11/30/23
APS Active	Sun Valley 230kV	250	Solar Battery Storage	12/1/23
APS Active	Yavapai 500kV	360	PV	5/31/23
APS Active	Dugas 500kV	450	PV/Battery Storage	5/1/23
APS Active	Old Home Manor 69kV	63	PV/Battery Storage	3/15/22
APS Active	Desert Basin Santa Rosa Line 230kV	410	PV/Battery Storage	1/1/23



Decision No. _____

APS Active	Vicksburg 12kV	17	PV	1/31/21
APS Active	Patterson 69kV	45	PV	6/1/22
APS Active	Toltec 69kV	20	Battery Storage	12/15/22
APS Active	Orchard 230kV	300	Solar Battery Storage	8/1/22
APS Active	San Manuel 115kV	145	Solar Battery Storage	12/1/23
APS Active	Palm Valley 230kV	200	Solar Battery Storage	12/1/23
SRP Active	Hassayampa Switchyard 500kV	150	PV	3/31/21
SRP Active	Hassayampa Switchyard 500kV	125	PV	2/11/23
SRP Active	Hassayampa Switchyard 500kV	300	PV/Battery Storage	6/1/20
SRP Active	Hassayampa Switchyard 500kV	65	PV/Battery Storage	6/1/20
SRP Active	Hassayampa Switchyard 500kV	150	PV/Battery Storage	9/30/21
SRP Active	Hassayampa Switchyard 500kV	385	PV/Battery Storage	6/30/23
SRP Active	Hassayampa Switchyard 500kV	250	PV/Battery Storage	3/15/23
SRP Active	Jojoba 500kV	270	PV/Battery Storage	7/1/22
SRP Active	Pinal West 500kV	200	PV/Battery Storage	10/1/22
SRP Active	Pinal Central 230kV	100	PV	7/31/21
SRP Active	Pinal Central 230kV	100	PV/Battery Storage	10/31/23
SRP Active	Pinal Central 230kV	200	PV	9/15/22
SRP Active	Pinal Central 230kV	150	PV/Battery Storage	1/6/23
SRP Active	Pinal Central 230kV	300	PV/Battery Storage	3/31/23
SRP Active	Pinal Central 230kV	150	PV/Battery Storage	1/6/23
SRP Active	Pinal Central 230kV	200	PV/Battery Storage	10/1/22
SRP Active	Pinal Central 230kV	150	PV/Battery Storage	6/1/23
TEP Active	Vail-Ft Hauchuca 138kV	100	PV	12/1/17
TEP Active	Vail-Ft Hauchuca 138kV	60	PV	12/1/21
TEP Active	Tortolita Substation 138kV	105	PV	12/31/18
TEP Active	Tortolita Substation 138kV	80	PV	11/20/22
TEP Active	Tortolita Substation 138kV	80	PV	11/20/22
TEP Active	Springville 345kV - Greenlee 345kV	99.1	Wind	12/1/18
TEP Active	Springville Substation 345kV	200	PV/Battery Storage	10/1/23
TEP Active	Springville Substation 345kV	300	PV	10/1/23
TEP Active	Springville - Mckinley	400	PV	12/31/22



Decision No. _____

TEP Active	New Sub-Wilmot 138kV	130	PV/Battery Storage	12/31/19
TEP Active	Pinal West 345kV	300	PV/Battery Storage	5/1/23
TEP Active	Winchester Substation 345kV	400	PV/Battery Storage	6/30/22
TEP Active	Winchester Substation 345kV	400	PV/Battery Storage	6/30/22
TEP Active	Greenlee-Winchester 345kV Line	400	PV/Battery Storage	12/31/22
TEP Active	South Loop 138kV	500	PV/Battery Storage	6/1/23
TEP Active	South Loop 138kV	500	PV/Battery Storage	6/1/23
AEPCO Active	Apache Station	300	Solar	8/1/22
AEPCO Active	Redtail Substation	250	Wind	10/1/24
Western Active	Bouse-Gila 161kV Line	110	Solar Thermal	7/1/13
Western Active	Parker-Blythe 161kV Line	150	Solar Thermal	9/1/15
Western Active	Liberty-Meade 345kV Line	300	PV	6/30/17
Western Active	Topock Substation 69kV	120	PV	1/1/19
Western Active	Topock Substation 69kV	225	PV/Battery Storage	7/1/20
Western Active	Topock Substation 69kV	225	PV/Battery Storage	7/1/20
Western Active	Headgate-Blythe	160	PV/Battery Storage	12/1/21
Western Active	ED5 Substation	150	PV/Battery Storage	2/2/21

¹ All generation interconnection queue projects are subject to changes; please refer to the utility's current listing.



Decision No. _____

Exhibit 12 Listing of Projects Sorted by In-Service Date

BTA Project ID	Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV	Map Exhibit
1	Valencia – CAP Spreader Yard 115 kV Line	AEPCO	2.7	CEC Approved – Case 152; amended by Decision #76444	2020	115	3
5	APS Bagdad Interconnection 115 kV Transmission Line Project	AEPCO, APS	1	CEC Approved Case 179	2020	115	X1
9	Scatter Wash 230/69kV Substation	APS	<1	CEC Approved- Case #120 - Decision #65997; amended by Decision #73824	2020	230	X2
10	Freedom 230/69kV Substation	APS	<1	CEC Approved – Case #122, Decision #66646; amended by Decision #73937	2020	230	X2
41	Bowie Power Station Gen-tie	Southwestern Power Group, TEP	15	CEC Approved – Decision #70588, Amended by Decisions #69339 & #71951	2020	345	X
71	Loop-in of Irvington - South 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3
76	Loop-in of Irvington - Vail 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3



Decision No. _____

77	Loop-in of Irvington - Robert Bills 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3
78	138kV Line from Sonoran to 138 KV Cisne Switchyard	TEP	4	CEC Approved – Case #181 – Decision #76964	2020	138	X3
80	Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	<1	CEC Approved - Case #8	2020	138	3
81	Irvington Substation - Kino 138kV Substation	TEP	6	CEC Approved – Case #178 – Decision #76843; Amended by Decision #76915	2020	138	3
96	Sonoran - Vail 138-kV Line Re-Conductor	TEP	5.68	CEC Not Required	2020	138	X3
3	Schieffelin Project	AEPCO, SSVEC	10	CEC Not Yet Filed	2021	69	1
6	Butterfield to San Rafael Loop into new Schieffelin Sub	AEPCO	<1	CEC Not Required	2021	230	1
11	North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Approved – Case #163 – Decision #72801	2021	230	4
26	Runway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 – Decision #77469	2021	230	2
31	TS21 500/230 kV Substation	APS	TBD	CEC not yet filed	2021	500/230	2
32	AES 230 kV Interconnection at Westwing 230 kV Substation	AES/APS	<1	CEC not yet filed	2021	230	X
34	Hashknife Solar Gen-Tie	Energy Center, LLC	3.5	CEC Approved	2021	500	X
35	Ten West Link	DCR Transmissio	125	CEC Approved – Case #185 - Decision #77587	2021	500	1



Decision No. _____

		n, APS, SRP					
44	Chevelon Butte Wind Gen-tie	sPower	5.2	CEC Approved	2021	345	X
46	Price Road Corridor - Knox - Henshaw 230kV Line	SRP	5	CEC Approved - Case #175 - Decision #76371	2021	230	5
64	Red Hawk 230 kV	SRP	TBD	CEC Approved – Case #184 – Decision #77511	2021	230	3
69	First Solar Project Gen-tie	Sunstreams Expansion, LLC	1.5		2021	500	X
74	Orange Grove - Rillito 138kV Line Re-Conductor[1]	TEP	1.6	CEC Not Required	2021	138	X3
75	Rancho Vistoso - Rillito 138kV Line Re-Conductor	TEP	4.4	CEC Not Required	2021	138	X3
79	La Canada - Orange Grove 138kV Line Re-Conductor2	TEP	3.8	CEC Not Yet Filed	2021	138	X3
101	Rancho Vistoso – La Canada 138 kV Line Re-Conductor2	TEP	4.4	CEC Not Required	2021	138	X3
7	Marana Loop-in	AEPCO, WAPA	<1	CEC Not Yet Filed	2022	115	3
25	Stratus Sub 230 kV Lines	APS	<1	CEC Approved – Case 122 – Decisions #66646, amended by Decision 73937 and #77761	2022	230	2
45	Coolidge - Hayden 115kV Reroute	SRP	1.5	CEC Not Yet Filed	2022	115	X
72	Toro - Rosemont 138kV Line	TEP	13.2	Case #164 – Decision #73074, 73131, 73232; Amended by Decision #76886;	2022	138	3



Decision No. _____

				Dependent upon approval of Mine Record of Decision from United States Forestry Service			
73	Hassayampa - Pinal West 500kV Line Loop-in to Jojoba	TEP	<1	Case #124 – Decision #67012	2022	500	2,5
103	Irvington – Ease Loop with Loop-in to Patriot 138 kV Line2	TEP	16	CEC Approved – Case #186 – Decision #77601	2022	138	3
114	Wilmont Project Gen-tie	Wilmont Properties	4.5	CEC Not Yet Filed	2022	230	X
21	TS2 230 kV Lines	APS	<1	CEC Approved – Case #122 – Decision #66646; amended by Decision #73937	2023	230	2
28	Three Rivers 230 kV Lines	APS	4	CEC not yet filed	2023	230	2
29	Contrail 230 kV Lines	APS	7	CEC not yet filed	2023	230	2
38	Future Gateway Sub to US/Mexico Border	Nogales Transmission Project	2	CEC Approved – Case 246 – Decisions #76468 & #76469	2023	230	X
42	Southline	Southline Transmission, TEP (potential), WAPA	246	CEC Approved – Case #173 – Decision #75978; Amended by Decision #77755	2023	345	1,3
70	SunZia Southwest Transmission 500kV Project	SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved - Case #171 - Decision #75464	2023	500	1,2,3
82	Kino – DeMoss Petrie 138 kV Line	TEP	5	CEC Not Yet Filed; Pre-filing public outreach in progress	2023	138	3



Decision No. _____

84	Interconnection of Tortolita - North Loop #5 with TEP Marana 138kV Substation	TEP	4	CEC Not Yet Filed	2023	138	3
87	Del Cerro - Tucson 138-kV Line Re-Conductor2	TEP	6.75	CEC Not Required	2023	138	X3
102	Irvington 138 kV Transmission Line Relocation2	TEP	2.25	CEC Approved - Case #177 – Decision #76630, 76639	2023	138	X3
105	Sonoita - Gateway - Valencia 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	2023	138	X
106	Re-Conductor WAPA Nogales Tap - Kantor	UNSE	30	CEC Approved - Case #176 – Decision #76468	2023	138	X
112	Sonoita-Valencia loop-in to Rio Rico Switchard	UNSE	<1	CEC not Required	2023	138	X1
113	Future Rio Rico Switchyard to future Harshaw Sub	UNSE	32	CEC Not Yet Filed	2023	138	X
2	Marana - Thornydale - Saguaro Interconnect	AEPCO	9	CEC Not Yet Filed	2024	115	3
27	Broadway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 Decision #77469	2024	230	2
39	North Gila Imperial Valley #2 Arizona Section	North Gila Imperial Valley	7	CEC not yet filed	2024	230	1
49	Southeast Power Link	SRP	7	CEC Approved – Case #180 – Decision #76963	2024	230	5
30	TS17 230 kV Lines	APS	<1	CEC not yet filed	2025	230	2
51	Silver King- New Oak Flat - New Superior 230kV	SRP	19.5	CEC Not Yet Filed	2025	230	5



Decision No. _____

86	Interconnection of North Loop - Rancho Vistoso 138-kV Line with future Naranja 138-kV Substation	TEP	1	CEC Not Yet Filed	2026	138	3
52	Superior - Silver King 115kV Re-route	SRP	1.25	CEC Approved - Case #166 - Decisions #73551, #76594	2027	115	x5
104	Lago del Oro – Rancho Vistoso 138 kV Line2	TEP	8.5	CEC Not Yet Filed	2027	138	3
83	Tortolita - North Loop 138kV Line Re-Conductor2	TEP	14.3	CEC Not Yet Filed	2029	138	x3
4	Apache/Hayden - San Manuel 115kV Line	AEPCO, APS	4.5	CEC Approved – Case #142	TBD	115	1
8	Ajo Improvement Company	AIC	47	CEC Approved – Case 89 - Decision #74086; amended by Decision #74086	TBD	230	1
12	Morgan - Sun Valley 230kV Line	APS	38	CEC Approved – Case #138 - Decision #70850; amended by Decision #75092	TBD	230	2
13	TS14 230 kV Lines	APS	TBD	CEC not yet filed	TBD	230	2
14	EI Sol- Westwing 230kV Line	APS	11	CEC Approved – Case #120, Decision #65997; Amended by Decision #73824	TBD	230	2
15	Palm Valley - TS2- Trilby Wash 230kV Line # 2	APS	12	CEC Approved – Case #120 - Decision #67828; amended by Decision #73937 and Case #127 - Decision #67828,	TBD	230	2



Decision No. _____

				amended by Decision #75045			
16	Avery 230/69kV Substation	APS	1	CEC Approved - Case #120 - Decision #65997; amended by Decision #73824	TBD	230	x2
17	Orchard - Yucca 230kV Line	APS	19	CEC Approved – Case #163 – Decision #72801	TBD	230	4
18	Sun Valley - TS10 - TS11 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
19	Buckeye – TS11- Sun Valley 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
20	Komatke 230/69kV Substation	APS	TBD	CEC Approved – Case #102 - Decision #62960	TBD	230	x2
22	Sun Valley - Trilby Wash 230kV Line Circuit #2	APS	TBD	CEC Approved – Case #127 - Decision #67828, amended by Decision #75045	TBD	230	2
23	Palo Verde - Saguaro 500kV Line	APS, CATS	130	CEC Approved - Case #24 - Decision #46802	TBD	500	2,3,5
24	Pinal Central- Sundance 230kV Line	APS, ED2	6	CEC Approved – Case #136 – Decision #70325	TBD	230	5
33	Big Chino Valley Pumped Hydro Gen-Tie	Big Chino Valley	40, 50, or 100	CEC not yet filed	TBD	500	x
36	Gila Bend Power Plant to New Watermelon	Gila Bend Power Partners, LLC	6	CEC Approved – Case 109	TBD	500	1
37	Jojoba to Hassayampa Switchard	Gila Bend Power Partners, LLC	14	CEC Approved – Case 119	TBD	500	x
40	Solar and Battery Storage Gen-tie	RE Papago, LLC	1.8	CEC not yet filed	TBD	500	x



Decision No. _____

43	Eastline Solar Gen-tie	sPower	2.6	CEC not yet filed	TBD	230	X
47	Abel- Pfister - Ball 230kV	SRP	20	CEC Approved - Case #148 - Decision #71441	TBD	230	5
48	Copper Crossing - Abel 230 kV	SRP	1	CEC Not Yet Filed	TBD	230	X5
50	Hassayampa - Pinal West 500kV #2 Line	SRP	51	CEC Approved - Case #124 - Decision #67012	TBD	500	2,5
53	Eastern Mining Expansion	SRP	TBD	CEC Not Yet Filed	TBD		X
54	Superior 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230	5
55	Thunderstone - Browning 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	5
56	Silver King - Knoll - New Hayden 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	5
57	New Hayden 115kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	115	X
58	RS25 Project	SRP	TBD	CEC Not Yet Filed	TBD	230	X
59	RS26 Project	SRP	TBD	CEC Not Yet Filed	TBD	230	X
60	Pinal Central - Abel - RS-20 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500	5
61	Palo Verde - Saguaro 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500	2,3,5
62	Ball (RS17) 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230	X
63	Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	2,5
65	Pfister 239 kV Loop- in	SRP	<1	CEC not filed	TBD	230	5
66	Abel-dinosaur 230 kV Circuit #2	SRP	9.6	CEC not yet filed	TBD	230	5
67	Brandow-Kyrene East 239 kV Line Reconductor	SRP	8.1	CEC not yet filed	TBD	230	X5
68	Orme-Rudd 230 kV Line #1 and #2 Reconductor	SRP	8.8	CEC not yet filed	TBD	230	X5



Decision No. _____

85	138kV Line from North Loop Substation to El Camino Del Cerro Substation	TEP	14.3	CEC Not Yet Filed	TBD	138	3
88	Saguaro Substation - Winchester Substation	TEP	80	CEC Approved – Case #023 - Decision No. 46801	TBD	500	1
89	Gila River - Pinal West 500-kV	TEP	50	CEC Not Yet Filed	TBD	500	1
90	Vail Substation - Irvington Substation	TEP	11	CEC Not Yet Filed	TBD	345	3
91	Irvington Substation - South Substation	TEP	16	CEC Not Yet Filed	TBD	345	3
92	Vail Substation to South Substation - 2nd Circuit	TEP	14	CEC Approved - Case #015	TBD	345	3
93	Springerville Substation - Greenlee Substation – 3rd Circuit	TEP	27	CEC Approved - Case #012, 030, 063 and 073	TBD	345	1
94	Tortolita Substation - South Substation	TEP	68	CEC Approved - Case #050	TBD	345	3
95	Westwing Substation - South Substation - 2nd Circuit	TEP	175	CEC Approved - Case #015	TBD	345 or 500	1,2,5
97	Sonoran - South 138-kV Line Re-Conductor[2]	TEP	16	CEC Not Required	TBD	138	X3
98	Irvington - Drexel - Midvale - South 138-kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138	X3
99	Vail - East Loop - Phase 3 Line #3 138kV	TEP	22	CEC Approved - Case #008	TBD	138	3
100	Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	9	CEC Approved - Case #066	TBD	138	3



Decision No. _____

107	Griffith - North Havasu 230kV Line	UNSE	40	CEC Approved - Case #088, Decision #60344, 69721; Amended by Decision #73278	TBD	230	X1
108	Golden Valley 230kV Line	UNSE	17	CEC Not Yet Filed	TBD	230	X1
109	Vail to Gateway 138-kV Transmission Line, 2nd Circuit	UNSE	56	CEC Approved - Case #176 – Decision #76468	TBD	138	1
110	Gateway to Valenica 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	TBD	138	X
111	230kv Line from Gateway Substation to US/Mexico Border	UNSE	2	CEC Approved - Case #176 – Decision #76468	TBD	230	1



Decision No. _____

Exhibit 13 Listing of Projects Sorted by Voltage

BTA Project ID	Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV	Map Exhibit
3	Schieffelin Project	AEPCO, SSVEC	10	CEC Not Yet Filed	2021	69	1
1	Valencia – CAP Spreader Yard 115 kV Line	AEPCO	2.7	CEC Approved – Case 152; amended by Decision #76444	2020	115	3
5	APS Bagdad Interconnection 115 kV Transmission Line Project	AEPCO, APS	1	CEC Approved Case 179	2020	115	X1
7	Marana Loop-in	AEPCO, WAPA	<1	CEC Not Yet Filed	2022	115	3
45	Coolidge - Hayden 115kV Reroute	SRP	1.5	CEC Not Yet Filed	2022	115	X
2	Marana - Thornydale - Saguaro Interconnect	AEPCO	9	CEC Not Yet Filed	2024	115	3



Decision No. _____

52	Superior - Silver King 115kV Re-route	SRP	1.25	CEC Approved - Case #166 - Decisions #73551, #76594	2027	115	X5
4	Apache/Hayden - San Manuel 115kV Line	AEPCO, APS	4.5	CEC Approved – Case #142	TBD	115	1
57	New Hayden 115kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	115	X
71	Loop-in of Irvington - South 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3
76	Loop-in of Irvington - Vail 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3



Decision No. _____

77	Loop-in of Irvington - Robert Bills 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138	3
78	138kV Line from Sonoran to 138 KV Cisne Switchyard	TEP	4	CEC Approved – Case #181 – Decision #76964	2020	138	X3
80	Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	<1	CEC Approved - Case #8	2020	138	3
81	Irvington Substation - Kino 138kV Substation	TEP	6	CEC Approved – Case #178 – Decision #76843; Amended by Decision #76915	2020	138	3
96	Sonoran - Vail 138-kV Line Re-Conductor	TEP	5.68	CEC Not Required	2020	138	X3



Decision No. _____

74	Orange Grove - Rillito 138kV Line Re- Conductor[1]	TEP	1.6	CEC Not Required	2021	138	X3
75	Rancho Vistoso - Rillito 138kV Line Re-Conductor	TEP	4.4	CEC Not Required	2021	138	X3
79	La Canada - Orange Grove 138kV Line Re-Conductor2	TEP	3.8	CEC Not Yet Filed	2021	138	X3
101	Rancho Vistoso – La Canada 138 kV Line Re-Conductor2	TEP	4.4	CEC Not Required	2021	138	X3



Decision No. _____

72	Toro - Rosemont 138kV Line	TEP	13.2	Case #164 – Decision #73074, 73131, 73232; Amended by Decision #76886; Dependent upon approval of Mine Record of Decision from United States Forestry Service	2022	138	3
103	Irvington – Ease Loop with Loop-in to Patriot 138 kV Line2	TEP	16	CEC Approved – Case #186 – Decision #77601	2022	138	3
82	Kino – DeMoss Petrie 138 kV Line	TEP	5	CEC Not Yet Filed; Pre-filing public outreach in progress	2023	138	3



Decision No. _____

84	Interconnection of Tortolita - North Loop #5 with TEP Marana 138kV Substation	TEP	4	CEC Not Yet Filed	2023	138	3
87	Del Cerro - Tucson 138-kV Line Re-Conductor2	TEP	6.75	CEC Not Required	2023	138	X3
102	Irvington 138 kV Transmission Line Relocation2	TEP	2.25	CEC Approved - Case #177 – Decision #76630, 76639	2023	138	X3
105	Sonoita - Gateway - Valencia 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	2023	138	X
106	Re-Conductor WAPA Nogales Tap - Kantor	UNSE	30	CEC Approved - Case #176 – Decision #76468	2023	138	X
112	Sonoita-Valencia loop-in to Rio Rico Switchard	UNSE	<1	CEC not Required	2023	138	X



Decision No. _____

113	Future Rio Rico Switchyard to future Harshaw Sub	UNSE	32	CEC Not Yet Filed	2023	138	X
86	Interconnection of North Loop - Rancho Vistoso 138-kV Line with future Naranja 138-kV Substation	TEP	1	CEC Not Yet Filed	2026	138	3
104	Lago del Oro – Rancho Vistoso 138 kV Line2	TEP	8.5	CEC Not Yet Filed	2027	138	3
83	Tortolita - North Loop 138kV Line Re-Conductor2	TEP	14.3	CEC Not Yet Filed	2029	138	X3



Decision No. _____

85	138kV Line from North Loop Substation to El Camino Del Cerro Substation	TEP	14.3	CEC Not Yet Filed	TBD	138	3
97	Sonoran - South 138-kV Line Re-Conductor[2]	TEP	16	CEC Not Required	TBD	138	X3
98	Irvington - Drexel - Midvale - South 138-kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138	X3
99	Vail - East Loop - Phase 3 Line #3 138kV	TEP	22	CEC Approved - Case #008	TBD	138	3
100	Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	9	CEC Approved - Case #066	TBD	138	3



Decision No. _____

109	Vail to Gateway 138-kV Transmission Line, 2nd Circuit	UNSE	56	CEC Approved - Case #176 – Decision #76468	TBD	138	1
110	Gateway to Valenica 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	TBD	138	X
9	Scatter Wash 230/69kV Substation	APS	<1	CEC Approved- Case #120 - Decision #65997; amended by Decision #73824	2020	230	X2
10	Freedom 230/69kV Substation	APS	<1	CEC Approved – Case #122, Decision #66646; amended by Decision #73937	2020	230	X2
6	Butterfield to San Rafael Loop into new Schieffelin Sub	AEPCO	<1	CEC Not Required	2021	230	1



Decision No. _____

11	North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Approved – Case #163 – Decision #72801	2021	230	4
26	Runway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 – Decision #77469	2021	230	2
32	AES 230 kV Interconnection at Westwing 230 kV Substation	AES/APS	<1	CEC not yet filed	2021	230	X
46	Price Road Corridor - Knox - Henshaw 230kV Line	SRP	5	CEC Approved - Case #175 - Decision #76371	2021	230	5
64	Red Hawk 230 kV	SRP	TBD	CEC Approved – Case #184 – Decision #77511	2021	230	3



Decision No. _____

25	Stratus Sub 230 kV Lines	APS	<1	CEC Approved – Case 122 – Decisions #66646, amended by Decision 73937 and #77761	2022	230	2
21	TS2 230 kV Lines	APS	<1	CEC Approved – Case #122 – Decision #66646; amended by Decision #73937	2023	230	2
28	Three Rivers 230 kV Lines	APS	4	CEC not yet filed	2023	230	2
29	Conrail 230 kV Lines	APS	7	CEC not yet filed	2023	230	2
38	Future Gateway Sub to US/Mexico Border	Nogales Transmission Project	2	CEC Approved – Case 246 – Decisions #76468 & #76469	2023	230	X
27	Broadway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 Decision #77469	2024	230	2



Decision No. _____

39	North Gila Imperial Valley #2 Arizona Section	North Gila Imperial Valley	7	CEC not yet filed	2024	230	1
49	Southeast Power Link	SRP	7	CEC Approved – Case #180 – Decision #76963	2024	230	5
30	TS17 230 kV Lines	APS	<1	CEC not yet filed	2025	230	2
51	Silver King- New Oak Flat - New Superior 230kV	SRP	19.5	CEC Not Yet Filed	2025	230	5
8	Ajo Improvement Company	AIC	47	CEC Approved – Case 89 - Decision #74086; amended by Decision #74086	TBD	230	1



Decision No. _____

12	Morgan - Sun Valley 230kV Line	APS	38	CEC Approved – Case #138 - Decision #70850; amended by Decision #75092	TBD	230	2
13	TS14 230 kV Lines	APS	TBD	CEC not yet filed	TBD	230	2
14	EI Sol- Westwing 230kV Line	APS	11	CEC Approved – Case #120, Decision #65997; Amended by Decision #73824	TBD	230	2
15	Palm Valley - TS2- Trilby Wash 230kV Line # 2	APS	12	CEC Approved – Case #120 - Decision #67828; amended by Decision #73937 and Case #127 -	TBD	230	2



Decision No. _____

				Decision #67828, amended by Decision #75045			
16	Avery 230/69kV Substation	APS	1	CEC Approved - Case #120 - Decision #65997; amended by Decision #73824	TBD	230	X2
17	Orchard - Yucca 230kV Line	APS	19	CEC Approved – Case #163 – Decision #72801	TBD	230	4
18	Sun Valley - TS10 - TS11 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
19	Buckeye – TS11- Sun Valley 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
20	Komatke 230/69kV Substation	APS	TBD	CEC Approved – Case #102 - Decision #62960	TBD	230	X2



Decision No. _____

22	Sun Valley - Trilby Wash 230kV Line Circuit #2	APS	TBD	CEC Approved – Case #127 - Decision #67828, amended by Decision #75045	TBD	230	2
24	Pinal Central-Sundance 230kV Line	APS, ED2	6	CEC Approved – Case #136 – Decision #70325	TBD	230	5
43	Eastline Solar Gen-tie	sPower	2.6	CEC not yet filed	TBD	230	X
47	Abel- Pfister - Ball 230kV	SRP	20	CEC Approved - Case #148 - Decision #71441	TBD	230	5
48	Copper Crossing - Abel 230 kV	SRP	1	CEC Not Yet Filed	TBD	230	X5
54	Superior 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230	5
55	Thunderstone - Browning 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	5
56	Silver King - Knoll - New Hayden 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	5
58	RS25 Project	SRP	TBD	CEC Not Yet Filed	TBD	230	X



Decision No. _____

59	RS26 Project	SRP	TBD	CEC Not Yet Filed	TBD	230	X
62	Ball (RS17) 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230	X
63	Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230	2,5
65	Pfister 239 kV Loop-in	SRP	<1	CEC not filed	TBD	230	5
66	Abel-dinosaur 230 kV Circuit #2	SRP	9.6	CEC not yet filed	TBD	230	5
67	Brandow-Kyrene East 239 kV Line Reconductor	SRP	8.1	CEC not yet filed	TBD	230	X5



Decision No. _____

68	Orme-Rudd 230 kV Line #1 and #2 Reconductor	SRP	8.8	CEC not yet filed	TBD	230	X5
107	Griffith - North Havasu 230kV Line	UNSE	40	CEC Approved - Case #088, Decision #60344, 69721; Amended by Decision #73278	TBD	230	X1
108	Golden Valley 230kV Line	UNSE	17	CEC Not Yet Filed	TBD	230	X1
111	230kv Line from Gateway Substation to US/Mexico Border	UNSE	2	CEC Approved - Case #176 – Decision #76468	TBD	230	1
114	Wilmont Project Gen-tie	Wilmont Properties	4.5	CEC Not Yet Filed	2022	230	X



Decision No. _____

41	Bowie Power Station Gen-tie	Southwestern Power Group, TEP	15	CEC Approved – Decision #70588, Amended by Decisions #69339 & #71951	2020	345	X
44	Chevelon Butte Wind Gen-tie	sPower	5.2	CEC Approved	2021	345	X
42	Southline	Southline Transmission, TEP (potential), WAPA	246	CEC Approved – Case #173 – Decision #75978; Amended by Decision #77755	2023	345	1,3
90	Vail Substation - Irvington Substation	TEP	11	CEC Not Yet Filed	TBD	345	3
91	Irvington Substation - South Substation	TEP	16	CEC Not Yet Filed	TBD	345	3
92	Vail Substation to South Substation - 2nd Circuit	TEP	14	CEC Approved - Case #015	TBD	345	3



Decision No. _____

93	Springerville Substation - Greenlee Substation – 3rd Circuit	TEP	27	CEC Approved - Case #012, 030, 063 and 073	TBD	345	1
94	Tortolita Substation - South Substation	TEP	68	CEC Approved - Case #050	TBD	345	3
34	Hashknife Solar Gen-Tie	Energy Center, LLC	3.5	CEC Approved	2021	500	X
35	Ten West Link	DCR Transmission, APS, SRP	125	CEC Approved – Case #185 - Decision #77587	2021	500	1
69	First Solar Project Gen-tie	Sunstreams Expansion, LLC	1.5		2021	500	X
73	Hassayampa - Pinal West 500kV Line Loop-in to Jojoba	TEP	<1	Case #124 – Decision #67012	2022	500	2,5
70	SunZia Southwest Transmission 500kV Project	SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved - Case #171 - Decision #75464	2023	500	1,2,3
23	Palo Verde - Saguaro 500kV Line	APS, CATS	130	CEC Approved - Case #24 - Decision #46802	TBD	500	2,3,5



Decision No. _____

33	Big Chino Valley Pumped Hydro Gen-Tie	Big Chino Valley	40, 50, or 100	CEC not yet filed	TBD	500	X
36	Gila Bend Power Plant to New Watermelon	Gila Bend Power Partners, LLC	6	CEC Approved – Case 109	TBD	500	1
37	Jojoba to Hassayampa Switchard	Gila Bend Power Partners, LLC	14	CEC Approved – Case 119	TBD	500	X
40	Solar and Battery Storage Gen-tie	RE Papago, LLC	1.8	CEC not yet filed	TBD	500	X
50	Hassayampa - Pinal West 500kV #2 Line	SRP	51	CEC Approved - Case #124 - Decision #67012	TBD	500	2,5
60	Pinal Central - Abel - RS-20 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500	5
61	Palo Verde - Saguaro 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500	2,3,5
88	Saguaro Substation - Winchester Substation	TEP	80	CEC Approved – Case #023 - Decision No. 46801	TBD	500	1
89	Gila River - Pinal West 500-kV	TEP	50	CEC Not Yet Filed	TBD	500	1



Decision No. _____

95	Westwing Substation - South Substation - 2nd Circuit	TEP	175	CEC Approved - Case #015	TBD	345 Or 500	1,2,5
31	TS21 500/230 kV Substation	APS	TBD	CEC not yet filed	2021	500/ 230	2
53	Eastern Mining Expansion	SRP	TBD	CEC Not Yet Filed	TBD		X



Decision No. _____

Exhibit 14

Arizona Public Service Project Summary

Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV
Scatter Wash 230/69kV Substation	APS	<1	CEC Approved- Case #120 - Decision #65997; amended by Decision #73824	2020	230
Freedom 230/69kV Substation	APS	<1	CEC Approved – Case #122, Decision #66646; amended by Decision #73937	2020	230
North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Approved – Case #163 – Decision #72801	2021	230
Morgan - Sun Valley 230kV Line	APS	38	CEC Approved – Case #138 - Decision #70850; amended by Decision #75092	TBD	230
TS14 230 kV Lines	APS	TBD	CEC not yet filed	TBD	230
EI Sol- Westwing 230kV Line	APS	11	CEC Approved – Case #120, Decision #65997; Amended by Decision #73824	TBD	230
Palm Valley - TS2- Trilby Wash 230kV Line # 2	APS	12	CEC Approved – Case #120 - Decision #67828; amended by Decision #73937 and Case #127 - Decision #67828, amended by Decision #75045	TBD	230
Avery 230/69kV Substation	APS	1	CEC Approved - Case #120 - Decision #65997; amended by Decision #73824	TBD	230
Orchard - Yucca 230kV Line	APS	19	CEC Approved – Case #163 – Decision #72801	TBD	230
Sun Valley - TS10 - TS11 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230



Decision No. _____

Buckeye – TS11- Sun Valley 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230
Komatke 230/69kV Substation	APS	TBD	CEC Approved – Case #102 - Decision #62960	TBD	230
TS2 230 kV Lines	APS	<1	CEC Approved – Case #122 – Decision #66646; amended by Decision #73937	2023	230
Sun Valley - Trilby Wash 230kV Line Circuit #2	APS	TBD	CEC Approved – Case #127 - Decision #67828, amended by Decision #75045	TBD	230
Palo Verde - Saguaro 500kV Line	APS, CATS	130	CEC Approved - Case #24 - Decision #46802	TBD	500
Pinal Central- Sundance 230kV Line	APS, ED2	6	CEC Approved – Case #136 – Decision #70325	TBD	230
Stratus Sub 230 kV Lines	APS	<1	CEC Approved – Case 122 – Decisions #66646, amended by Decision 73937 and #77761	2022	230
Runway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 – Decision #77469	2021	230
Broadway 230 kV Lines	APS	<1 per circuit	CEC Approved – Case #183 Decision #77469	2024	230
Three Rivers 230 kV Lines	APS	4	CEC not yet filed	2023	230
Conrail 230 kV Lines	APS	7	CEC not yet filed	2023	230
TS17 230 kV Lines	APS	<1	CEC not yet filed	2025	230
TS21 500/230 kV Substation	APS	TBD	CEC not yet filed	2021	500/230



Decision No. _____

Exhibit 15

Salt River Project Summary

Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV
Coolidge - Hayden 115kV Reroute	SRP	1.5	CEC Not Yet Filed	2022	115
Price Road Corridor - Knox - Henshaw 230kV Line	SRP	5	CEC Approved - Case #175 - Decision #76371	2021	230
Abel- Pfister - Ball 230kV	SRP	20	CEC Approved - Case #148 - Decision #71441	TBD	230
Copper Crossing - Abel 230 kV	SRP	1	CEC Not Yet Filed	TBD	230
Southeast Power Link	SRP	7	CEC Approved – Case #180 – Decision #76963	2024	230
Hassayampa - Pinal West 500kV #2 Line	SRP	51	CEC Approved - Case #124 - Decision #67012	TBD	500
Silver King- New Oak Flat - New Superior 230kV	SRP	19.5	CEC Not Yet Filed	2025	230
Superior - Silver King 115kV Re-route	SRP	1.25	CEC Approved - Case #166 - Decisions #73551, #76594	2027	115
Eastern Mining Expansion	SRP	TBD	CEC Not Yet Filed	TBD	
Superior 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230



Decision No. _____

Thunderstone - Browning 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230
Silver King - Knoll - New Hayden 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230
New Hayden 115kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	115
RS25 Project	SRP	TBD	CEC Not Yet Filed	TBD	230
RS26 Project	SRP	TBD	CEC Not Yet Filed	TBD	230
Pinal Central - Abel - RS-20 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500
Palo Verde - Saguaro 500kV	SRP	TBD	CEC Not Yet Filed	TBD	500
Ball (RS17) 230kV Loop-in	SRP	TBD	CEC Not Yet Filed	TBD	230
Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Not Yet Filed	TBD	230
Red Hawk 230 kV	SRP	TBD	CEC Approved – Case #184 – Decision #77511	2021	230
Pfister 239 kV Loop-in	SRP	<1	CEC not filed	TBD	230
Abel-dinosaur 230 kV Circuit #2	SRP	9.6	CEC not yet filed	TBD	230
Brandow-Kyrene East 239 kV Line Reconductor	SRP	8.1	CEC not yet filed	TBD	230
Orme-Rudd 230 kV Line #1 and #2 Reconductor	SRP	8.8	CEC not yet filed	TBD	230



Decision No. _____

Exhibit 16

Arizona Electric Power Cooperative

Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV
Valencia – CAP Spreader Yard 115 kV Line	AEPCO	2.7	CEC Approved – Case 152; amended by Decision #76444	2020	115
Marana - Thornydale - Saguaro Interconnect	AEPCO	9	CEC Not Yet Filed	2024	115
Schieffelin Project	AEPCO, SSVEC	10	CEC Not Yet Filed	2021	69
Apache/Hayden - San Manuel 115kV Line	AEPCO, APS	4.5	CEC Approved – Case #142	TBD	115
APS Bagdad Interconnection 115 kV Transmission Line Project	AEPCO, APS	1	CEC Approved Case 179	2020	115
Butterfield to San Rafael Loop into new Schieffelin Sub	AEPCO	<1	CEC Not Required	2021	230
Marana Loop-in	AEPCO, WAPA	<1	CEC Not Yet Filed	2022	115



Decision No. _____

Exhibit 17 Tucson Electric Power Project Summary

Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV
Loop-in of Irvington - South 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138
Toro - Rosemont 138kV Line	TEP	13.2	Case #164 – Decision #73074, 73131, 73232; Amended by Decision #76886; Dependent upon approval of Mine Record of Decision from United States Forestry Service	2022	138
Hassayampa - Pinal West 500kV Line Loop-in to Jojoba	TEP	<1	Case #124 – Decision #67012	2022	500
Orange Grove - Rillito 138kV Line Re-Conductor⁴	TEP	1.6	CEC Not Required	2021	138
Rancho Vistoso - Rillito 138kV Line Re-Conductor	TEP	4.4	CEC Not Required	2021	138
Loop-in of Irvington - Vail 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138
Loop-in of Irvington - Robert Bills 138kV Line into Sonoran 138kV Substation	TEP	<1	CEC Approved – Case #181 – Decision #76964	2020	138
138kV Line from Sonoran to 138 KV Cisne Switchyard	TEP	4	CEC Approved – Case #181 – Decision #76964	2020	138
La Canada - Orange Grove 138kV Line Re-Conductor²	TEP	3.8	CEC Not Yet Filed	2021	138

⁴ This project is consistent with TEPs Ten Year Plan filed in January 2020 but has been identified as an eliminated project as of 11/1/2020



Decision No. _____

Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	<1	CEC Approved - Case #8	2020	138
Irvington Substation - Kino 138kV Substation	TEP	6	CEC Approved – Case #178 – Decision #76843; Amended by Decision #76915	2020	138
Kino – DeMoss Petrie 138 kV Line	TEP	5	CEC Not Yet Filed; Pre-filing public outreach in progress	2023	138
Tortolita - North Loop 138kV Line Re-Conductor²	TEP	14.3	CEC Not Yet Filed	2029	138
Interconnection of Tortolita - North Loop #5 with TEP Marana 138kV Substation	TEP	4	CEC Not Yet Filed	2023	138
138kV Line from North Loop Substation to El Camino Del Cerro Substation	TEP	14.3	CEC Not Yet Filed	TBD	138
Interconnection of North Loop - Rancho Vistoso 138-kV Line with future Naranja 138-kV Substation	TEP	1	CEC Not Yet Filed	2026	138
Del Cerro - Tucson 138-kV Line Re-Conductor²	TEP	6.75	CEC Not Required	2023	138
Saguaro Substation - Winchester Substation	TEP	80	CEC Approved – Case #023 - Decision No. 46801	TBD	500
Gila River - Pinal West 500-kV	TEP	50	CEC Not Yet Filed	TBD	500
Vail Substation - Irvington Substation	TEP	11	CEC Not Yet Filed	TBD	345
Irvington Substation - South Substation	TEP	16	CEC Not Yet Filed	TBD	345
Vail Substation to South Substation - 2nd Circuit	TEP	14	CEC Approved - Case #015	TBD	345



Decision No. _____

Springerville Substation - Greenlee Substation – 3rd Circuit	TEP	27	CEC Approved - Case #012, 030, 063 and 073	TBD	345
Tortolita Substation - South Substation	TEP	68	CEC Approved - Case #050	TBD	345
Westwing Substation - South Substation - 2nd Circuit	TEP	175	CEC Approved - Case #015	TBD	345 Or 500
Sonoran - Vail 138-kV Line Re-Conductor	TEP	5.68	CEC Not Required	2020	138
Sonoran - South 138-kV Line Re-Conductor⁵	TEP	16	CEC Not Required	TBD	138
Irvington - Drexel - Midvale - South 138-kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138
Vail - East Loop - Phase 3 Line #3 138kV	TEP	22	CEC Approved - Case #008	TBD	138
Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	9	CEC Approved - Case #066	TBD	138
Rancho Vistoso – La Canada 138 kV Line Re-Conductor²	TEP	4.4	CEC Not Required	2021	138

⁵ Previously Irvington – South 138 kV Line Re-Conductor



Decision No. _____

Irvington 138 kV Transmission Line Relocation²	TEP	2.25	CEC Approved - Case #177 – Decision #76630, 76639	2023	138
Irvington – Ease Loop with Loop-in to Patriot 138 kV Line²	TEP	16	CEC Approved – Case #186 – Decision #77601	2022	138
Lago del Oro – Rancho Vistoso 138 kV Line²	TEP	8.5	CEC Not Yet Filed	2027	138



Decision No. _____

Exhibit 18 UNSE Project Summary

Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV
Sonoita - Gateway - Valencia 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	2023	138
Re-Conductor WAPA Nogales Tap - Kantor	UNSE	30	CEC Approved - Case #176 – Decision #76468	2023	138
Griffith - North Havasu 230kV Line	UNSE	40	CEC Approved - Case #088, Decision #60344, 69721; Amended by Decision #73278	TBD	230
Golden Valley 230kV Line	UNSE	17	CEC Not Yet Filed	TBD	230
Vail to Gateway 138-kV Transmission Line, 2nd Circuit	UNSE	56	CEC Approved - Case #176 – Decision #76468	TBD	138
Gateway to Valenica 138kV	UNSE	4.2	CEC Approved - Case #176 – Decision #76468	TBD	138
230kv Line from Gateway Substation to US/Mexico Border	UNSE	2	CEC Approved - Case #176 – Decision #76468	TBD	230
Sonoita-Valencia loop-in to Rio Rico Switchyard	UNSE	<1	CEC not Required	2023	138
Future Rio Rico Switchyard to future Harshaw Sub	UNSE	32	CEC Not Yet Filed	2023	138



Decision No. _____

Exhibit 19
Other Transmission and Generation Project Summary by In-Service Date

Description	Participants	Length (mi)	Permitting/Siting Status	Year	kV
Southline Transmission Project	Southline Transmission LLC	246	CEC Approved - Case #173	2018	345
Bowie 1,000MW Power Station	Southwestern Power Group, TEP	15	CEC Approved - Decision #70588 Amendments #69339, #71951	TBD	345
SunZia Southwest Transmission 500kV Project	SunZia, SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved – Decision #75464	2021	500
North Gila-Imperial Valley #2 Transmission Project	ITC Holdings Group	90	CEC Not Yet Filed	2022	500
Wilmont Project	Wilmont Properties	4.5	CEC Not Yet Filed	2022	230
Big Chino Valley Pumped Storage	ITC Holdings Group	50	CEC Not Yet Filed	2025	500
AES Energy Storage Project	AES Corporation, APS	<1	CEC Not Yet Filed	2021	230
Gila Bend 833MW Power Plant	GBPP	6	CEC Approved - Case #106, Case #109, Case #119	TBD	500
Ten West Link	Ten West Link, APS, SCE, DCR Transmission DCRT	114	Estimated to be filed in Oct 2016	TBD	500



Decision No. _____

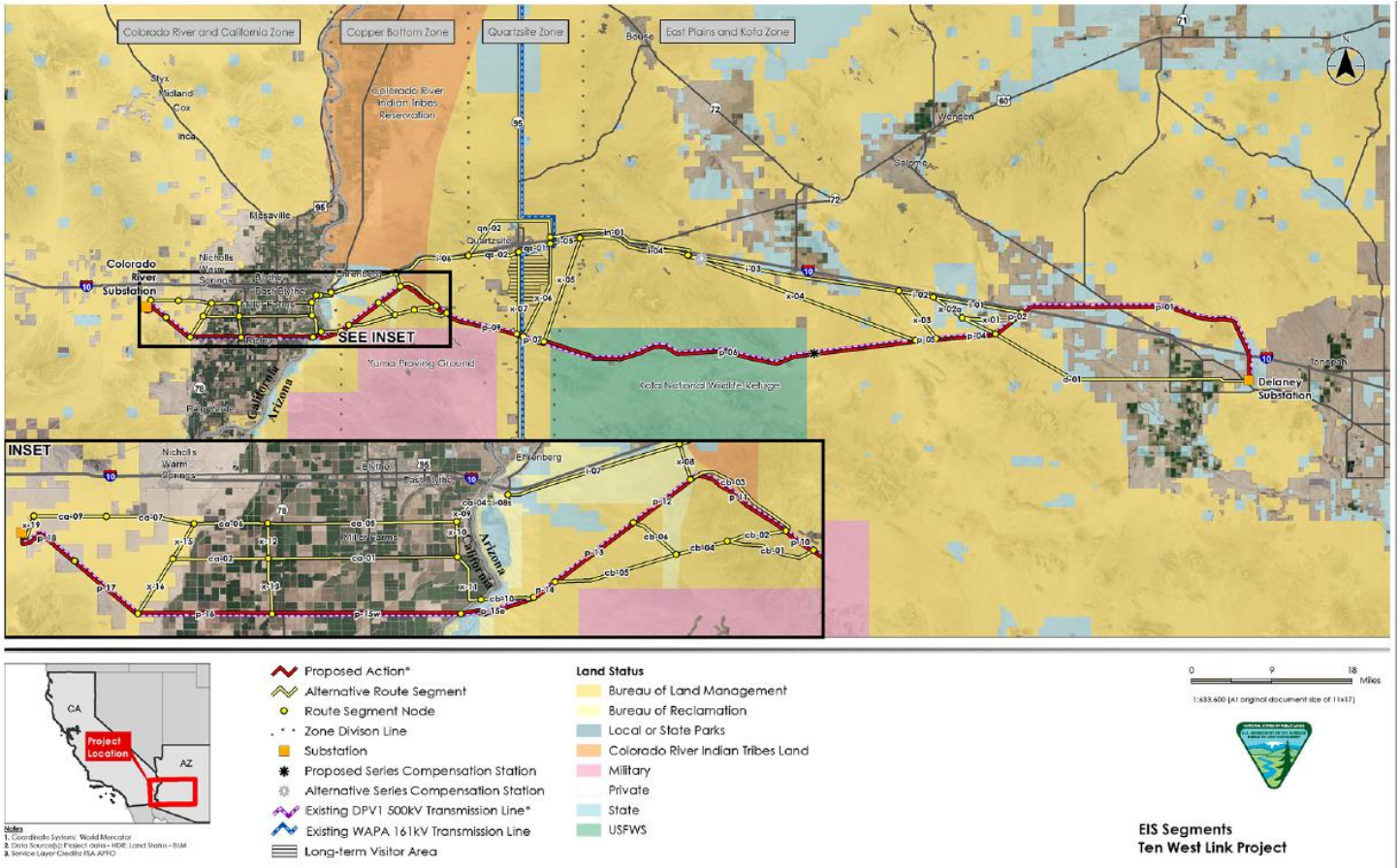
Sun Streams Expansion Solar Project Gen-Tie Line Project	Sun Streams Expansion LLC	1.5	CEC Not Yet Filed	2023	500
Hashknife Solar Generation Tie Line Project	Hashknife Energy Center LLC	3.5	CEC Approved, Decision Nos. 77888 & 77889	2022	500
Chevelon Butte Wind Gen-Tie Project	sPower Development Company, LLC	15	CEC Approved, Decision No. 77436	2021	345
East Line Solar Gen-Tie Project	sPower Development Company, LLC	5	CEC Not Yet Filed	2021	230
Nogales Interconnection Project	Nogales Transmission, L.L.C.	2.2	CEC Approved - Case #176, Decision 76469	2021	230
RE Papago Solar and Battery Storage Project and Gen-Tie Line	RE Papago LLC	1.8	CEC Not Yet Filed	2021	500



Decision No. _____

Exhibit 20

Overview Map of Ten West Link (Delaney – Colorado River) 500 kV Project



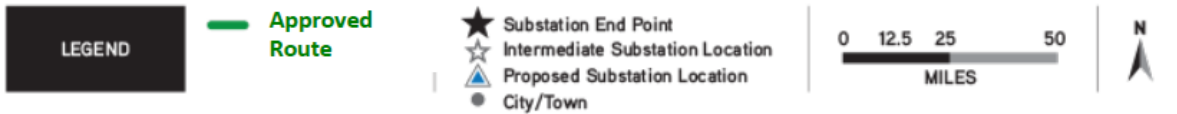


Decision No. _____

Exhibit 21 Overview Map of Southline Transmission Project



The Project will have a right-of-way up to 200 feet wide.





Decision No. _____

Exhibit 22 Overview Map of SunZia Southwest Transmission Project

