



Decision No. \_\_\_\_\_

## Ninth Biennial Transmission Assessment 2016-2025

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- Exhibit 2 – Maricopa County Transmission System
- Exhibit 3 – Southeastern Transmission System
- Exhibit 4 – Yuma Transmission System
- Exhibit 5 – Pinal County Transmission System
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- Exhibit 7 – WECC Path(s) Affecting Arizona - Table
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- Exhibit 10 – Plan Changes Between Eighth and Ninth BTA
- Exhibit 11 – Listing of Queue Interconnection Generation Projects
- Exhibit 12 – Listing of Projects Sorted by In-Service Date
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- Exhibit 14 – Arizona Public Service Project Summary
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- Exhibit 22 – Overview Map of Centennial West Clean Line Project
- Exhibit 23 – Overview Map of Southline Transmission Project
- Exhibit 24 – Overview Map of SunZia Southwest Transmission Project

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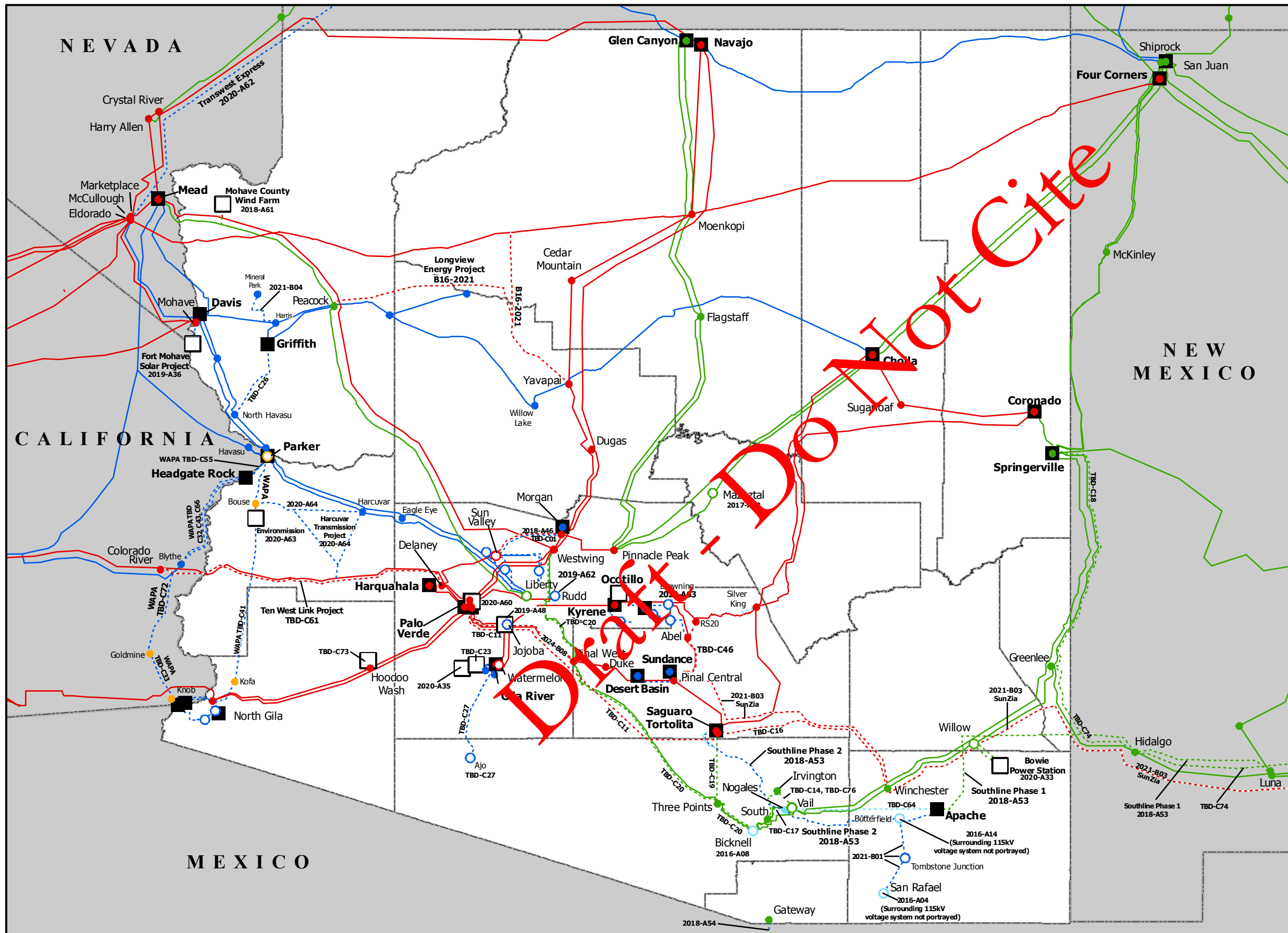
<sup>1</sup> Projects with identifiers that begin with the letter “A” are slated for development in 2016-2020; “B” are slated for developed in 2021-2025; “C” are slated for post-2025 or TBD.



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### 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

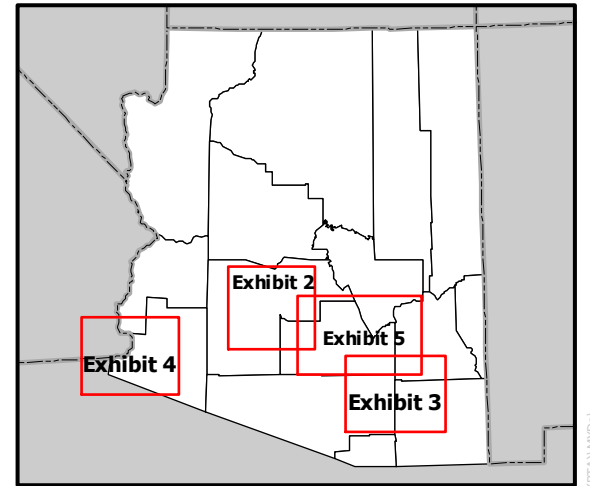
Existing	Planned or Existing with Planned Upgrades
— 500kV AC	- - - 500kV AC
— 345kV AC	- - - 345kV AC
— 230kV AC	- - - 230kV AC
— 161kV AC	- - - 138kV AC
— 138kV AC	- - - 115kV AC
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### Power Plants

■ Existing	□ Planned or Existing with Planned Upgrades
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Project Look-up ID Format [In Service Year- Table ID]  
**2017-A42** = In-Service in 2017, Look-up Table ID A42  
**TBD-C13** = In-Service "To-Be-Determined", Look-up Table ID C13



### Notes

- Only pertinent transmission voltage levels shown
- Project identification refers to details on Project Lookup table
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**ACC Docket E-00000D-15-0001**  
**9th Biennial Transmission Assessment**

DISCLAIMER:  
 Map not to scale. K.R. Saline & Associates P.L.C. does not warrant the accuracy or location of the facilities shown



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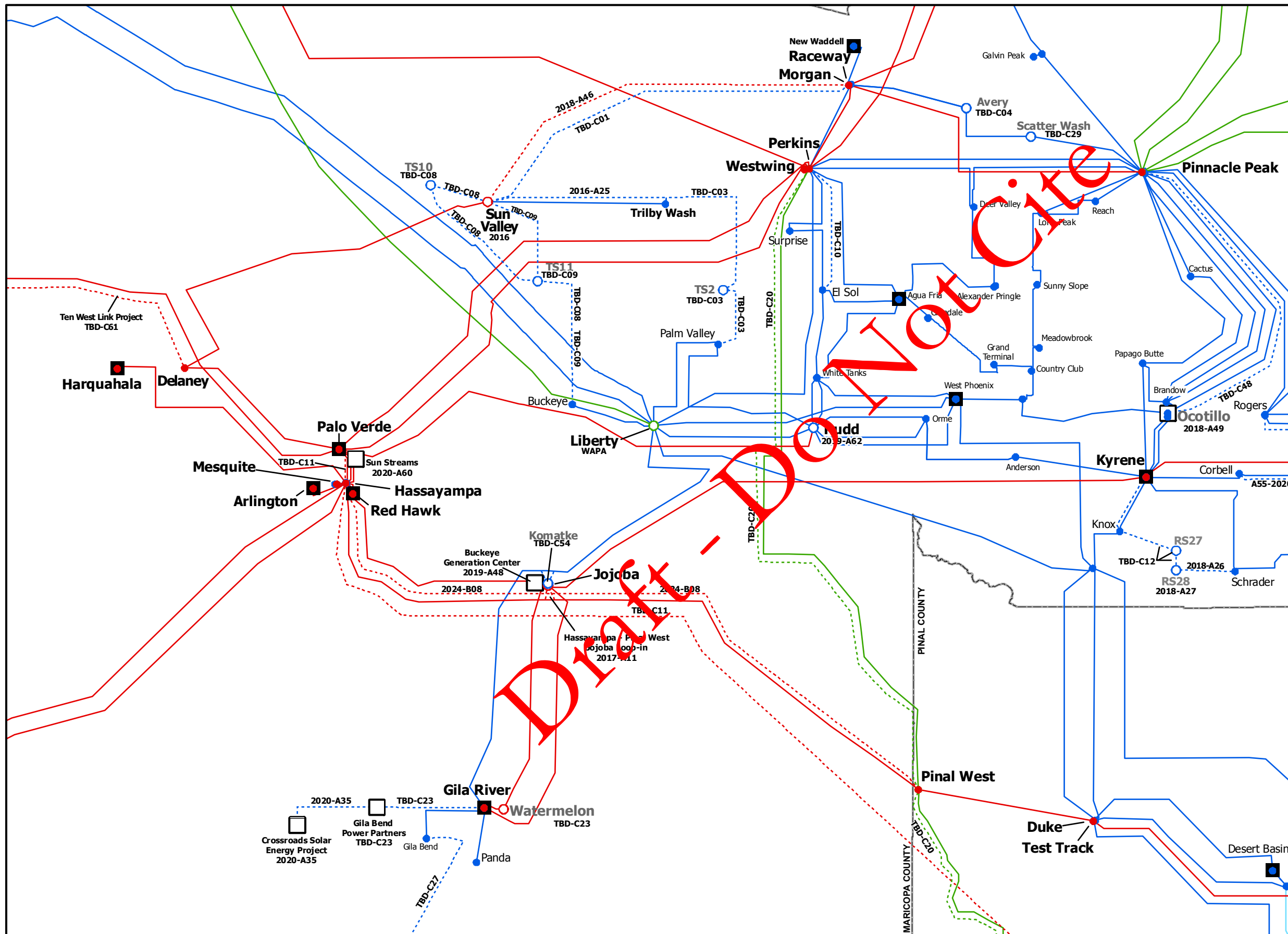
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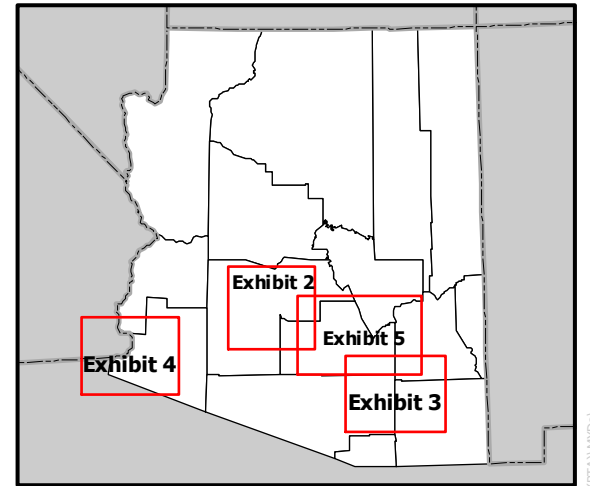
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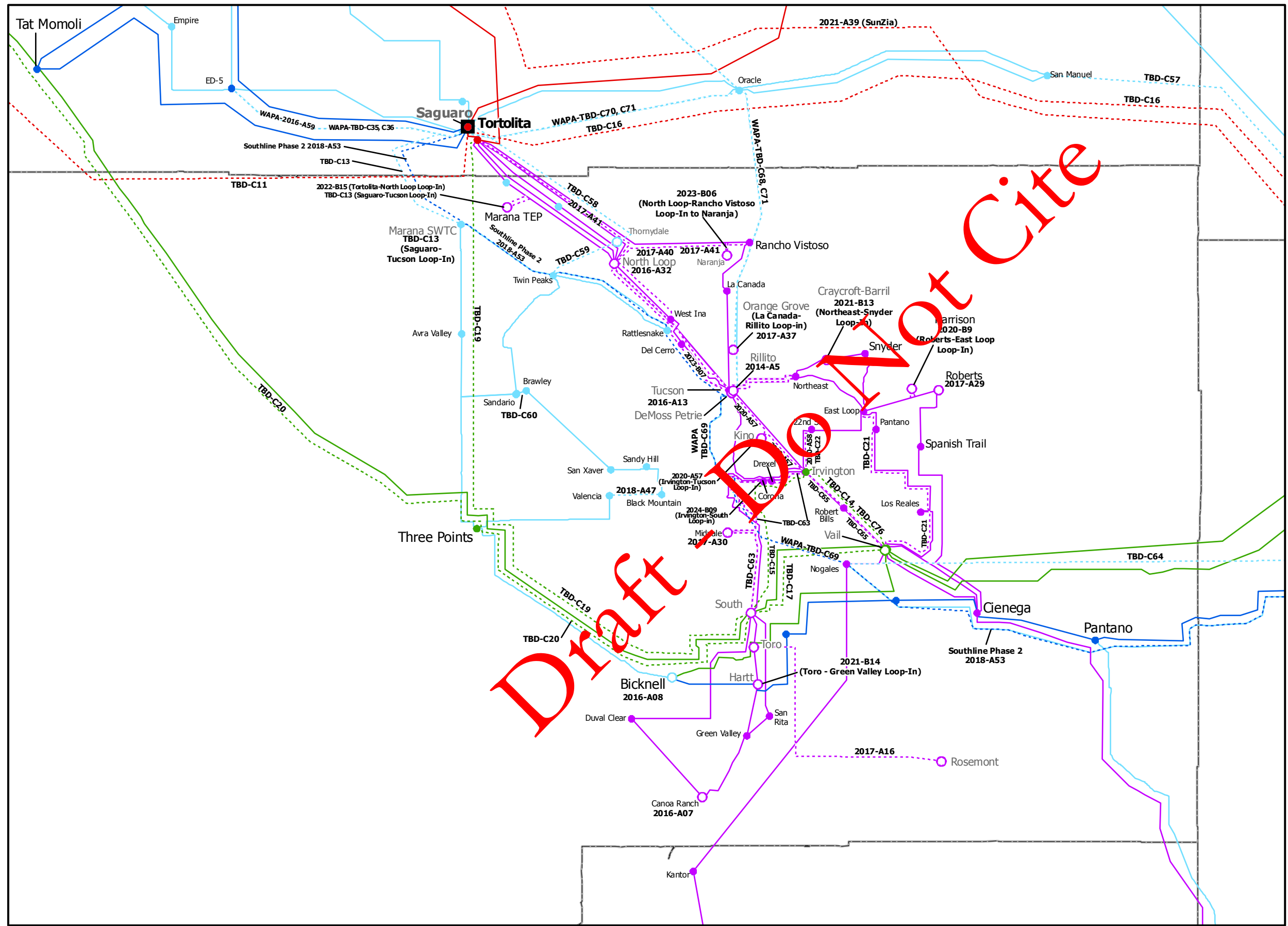


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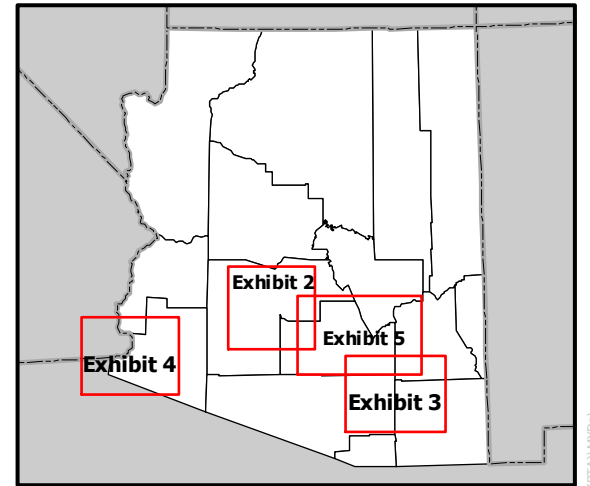
  

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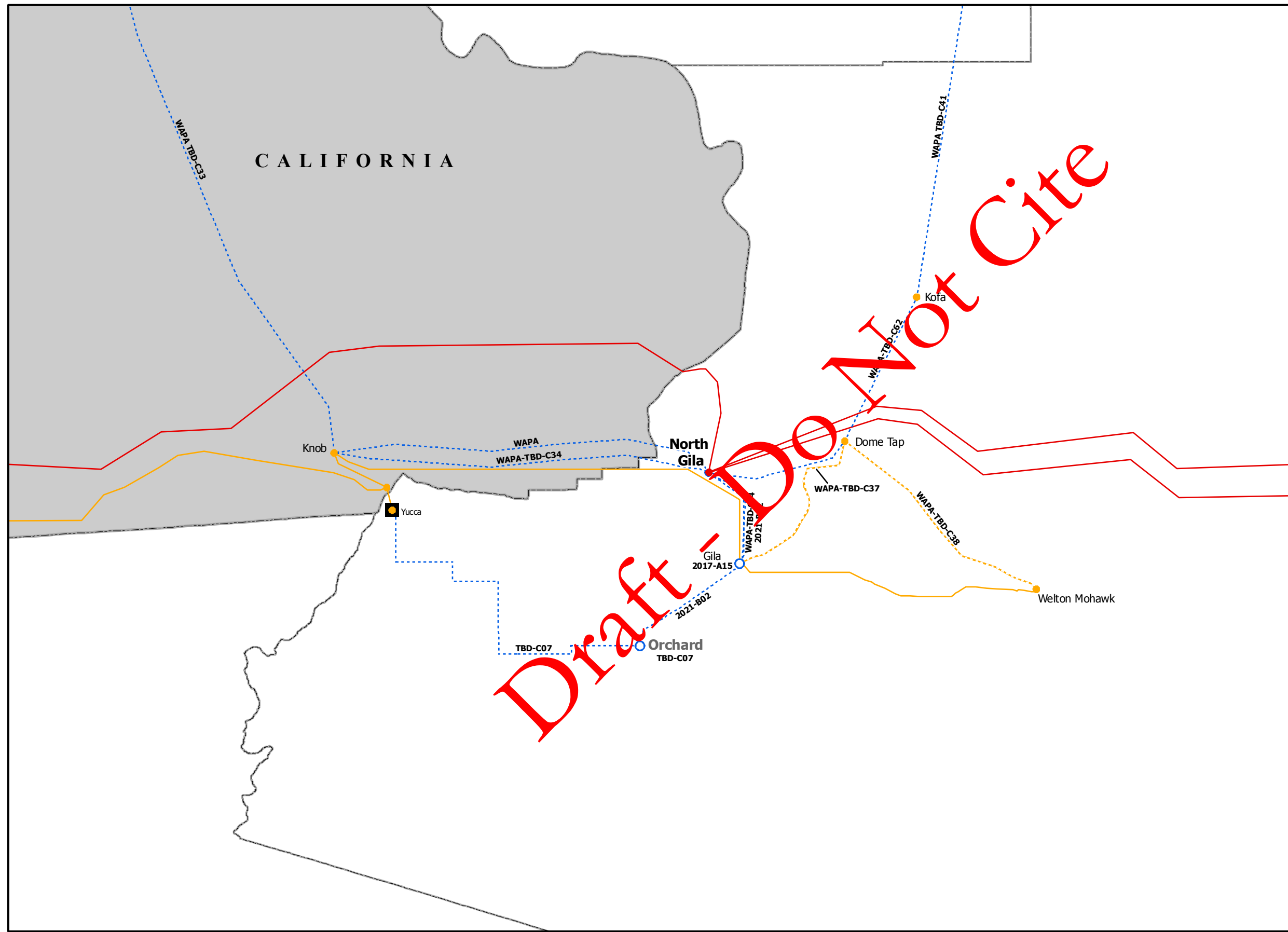
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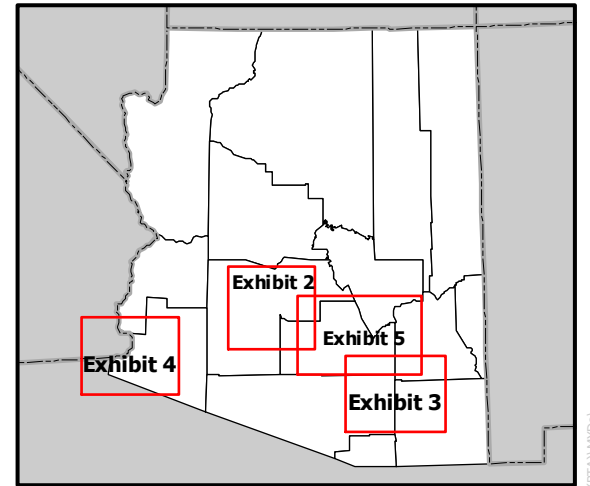
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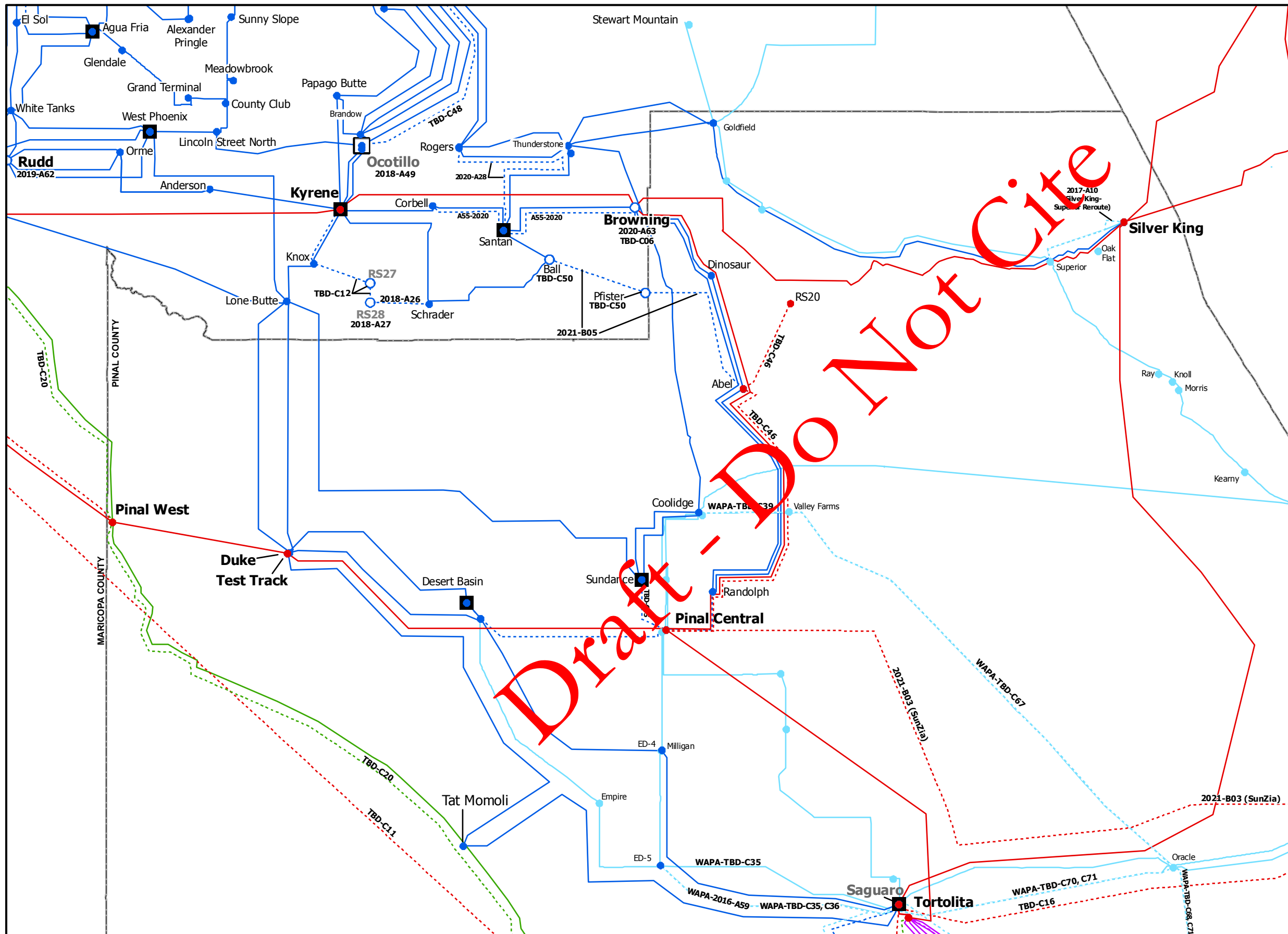
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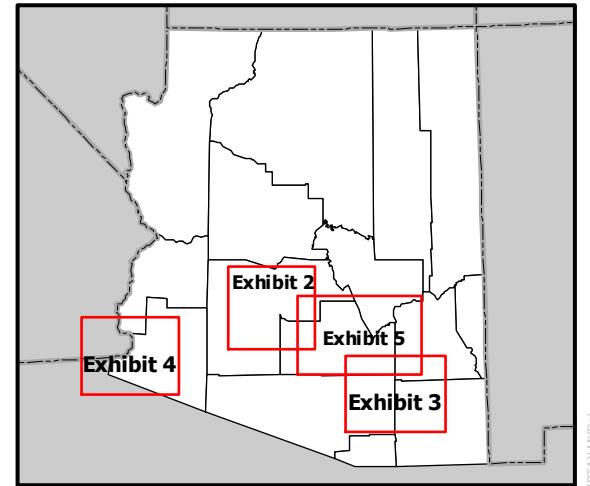
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## Exhibit 6 Arizona Planned Project Lookup Table

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
A04	San Rafael 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1
A07	Canoa Ranch 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2016	138	3
A08	Bicknell 115 kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1, 3
A10	Superior - Silver King 115 kV Re-Route	SRP	1	CEC Approved - Decision #73551	2017	115	5
A11	Hassayampa - Pinal West 500kV Line Loop-in to Jojoba Switchyard	TEP	N/A	Case # 124	2017	500	2
A14	Butterfield 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1
A16	Future Toro Switchyard - Rosemont Substation Radial 138kV Line	TEP	13.2	Case # 164 Dependent upon approval of Mine Record of Decision from United States Forestry Service	2017	138	3
A26	Price Road Corridor - Schrader - RS28 230 kV Line	SRP	19	CEC Not Yet Filed	2018	230	2, 5
A27	Price Road Corridor -RS28 230kV Substation	SRP	N/A	CEC Not Yet Filed	2018	230	2, 5
A28	Rogers - Santan 230kV Line Reconfiguration	SRP	9	CEC Not Required	2020	230	5
A29	Roberts Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2017	138	3
A30	Midvale Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2017	138	3
A32	Upgrade North Loop 138kV Capacitor Bank #1 & #2	TEP	N/A	CEC Not Required	2016	138	3
A33	Bowie 1,000MW Power Station	Southwestern Power Group, TEP	15	CEC Approved - Decision #70588 Amendments #69339, #71951	2020	345	1
A35	Crossroads Solar Energy 150MW Project	Solar Reserve	12	CEC Approved - Decision #72186, #72187	2020	230	1, 2
A36	Fort Mohave Solar 332MW Project	Tribal Solar	< 1	N/A	2019	230	1
A37	Orange Grove Loop-in of La Canada - Rillito 138kV Line	TEP	N/A	CEC Not Required	2017	138	3
A38	Mazatzal 345/69kV Substation	APS	0.95	CEC Approved - Case #160 - Decision #72302 on	2017	345	1

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					5/4/2011. CEC Extended to 2021 - Decision #75249			
<b>A40</b>	North Loop - Rancho Vistoso 138kV Line Re-Conductor	TEP	10.5		CEC Not Required	2018	138	3
<b>A41</b>	Tortolita Sub - Rancho Vistoso Sub Reconfiguration to Tortolita Sub - North Loop Sub #5 and North Loop Sub - Ranch Vistoso Sub	TEP	22		CEC Not Required	2017	138	3
<b>A46</b>	Morgan- Sun Valley Line	APS, CAWCD	38		CEC Approved - Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75002	2018	500	1, 2
<b>A47</b>	Valencia - CAP Black Mountain 115kV Line	SWTC, CAP	2.6		CEC Approved - Case #152 - Decision #71649	2018	115	3
<b>A48</b>	Buckeye Generation Center Power Project	Buckeye Generation Center	1		CEC Not Yet Filed	2019	230	1, 2
<b>A49</b>	Ocotillo Modernization Project (230kV Substation)	APS	1		CEC Issued - Case #169 - Decision #74812 on 11/13/2014	2018	230	2, 5
<b>A53</b>	Southline Transmission Project	Southline Transmission LLC	2.6		Estimated to be Filed 2nd Qtr 2016	2018	345	1, 3
<b>A54</b>	Mexico D.C. Interconnection	UNS Electric, TEP, Hunt Power, L.P.	5		Some may be covered in case #111	2018	230	1
<b>A55</b>	Browning - Corbell 230kV Reconfiguration	SRP	13		CEC Not Required	2020	230	2, 5
<b>A56</b>	(Phase 4) Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	4		CEC Approved - Case # 8	2020	138	3
<b>A57</b>	Irvington -Tucson Line #2 Loop-in with Kino	TEP	10.9		CEC Not Yet Filed	2020	138	3
<b>A58</b>	Irvington - 22nd Street Line Re-Conductor	TEP	4		CEC Not Required	2020	138	3
<b>A60</b>	Sun Streams Solar Project	Sun Streams	< 1		CEC Approved - Decision #74688	2020	500	1, 2
<b>A61</b>	Mohave County 500 MW Wind Farm	Mohave County Wind Farm	6		CEC Approved - Decision #73584	2018	500	1
<b>A62</b>	Rudd 230/69kV Transformer	SRP	N/A	N/A		2019	230	1,2,5
<b>A63</b>	Browning 230/69kV	SRP	N/A	N/A		2020	230	1,5

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Transformer							
<b>B01</b>	Tombstone Junction Project	SWTC, APS, SSVEC	TBD	CEC Status Not Provided	2021	230	1
<b>B02</b>	North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Issued - Case #163 - Decision #72801	2021	230	4
<b>B03</b>	SunZia Southwest Transmission 500kV Project	SunZia, SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved - Decision #75464	2021	500	1, 5
<b>B04</b>	Golden Valley 230kV Line (Harris Sub - Mineral Park Sub)	UNS Electric	17	Estimated to be filed 4th Qtr 2016	2021	230	1
<b>B05</b>	Abel- Pfister - Ball 230kV	SRP	N/A	CEC Approved - Case #144 - Decision #71441	2021	230	5
<b>B06</b>	Interconnection of North Loop - Rancho Vistoso 138kV line with future Naranja 138kV sub	TEP	1	CEC Not Yet Filed	2023	138	3
<b>B07</b>	Del Cerro - Tucson 138kV Line Re-Conductor	TEP	6.75	CEC Not Yet Filed	2023	138	3
<b>B08</b>	Hassayampa - Pinal West 500kV line #2	SRP, TEP	51	CEC Issued - Case #124 - Decision #67012	2024	500	1, 2
<b>B09</b>	Interconnection of existing Irvington-South Loop 138kV line into Future Corona 138kV Sub	TEP	1	CEC Not Yet Filed	2024	138	3
<b>B13</b>	Craycroft - Barrill Loop-in of Northeast - Snyder 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3
<b>B14</b>	Hartt Loop-in on Toro - Green Valley (South - Green Valley) 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3
<b>B15</b>	Marana Loop-in on one Tortolita - North Loop 138kV Circuit	TEP	4	CEC Not Yet Filed	2022	138	3
<b>C01</b>	Morgan - Sun Valley 230kV Line	APS	38	CEC Approved - Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75092	TBD	230	2
<b>C03</b>	Palm Valley - TS2-Trilby Wash 230kV Circuit #2	APS	12	CEC Issued - Decision #67828.	TBD	230	2
<b>C04</b>	Avery 230/69kV Substation	APS	1	CEC Issued - Case #120 - Decision #65997. CEC Extended to 2023 - Decision #73824	TBD	230	2
<b>C05</b>	Pinal Central- Sundance	APS, ED2	6	CEC Issued - Case #136 -	TBD	230	5

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	230kV Line				Decision #70325 on 4/29/2008			
<b>C06</b>	Ellsworth Technology Corridor Expansion	SRP	TBD		CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C07</b>	Orchard - Yucca 230kV Line	APS	19		CEC Approved - Case #163 - Decision #72801 on 2/2/2012	TBD	230	4
<b>C08</b>	Sun Valley - TS10 - TS11 230kV Line	APS	TBD		CEC Not Yet Filed	TBD	230	2
<b>C09</b>	Buckeye - TS11- Sun Valley 230kV Line	APS	TBD		CEC Not Yet Filed	TBD	230	2
<b>C10</b>	EI Sol- Westwing 230kV Line	APS	11		CEC Approved - Case #9 Docket #U-1345 on 7/26/1973	TBD	230	2
<b>C11</b>	Palo Verde - Saguaro 500kV Line	APS, TEP, SRP	130		CEC Approved - Case #24 - Decision #36802	TBD	500	1, 2, 3
<b>C12</b>	Price Road Corridor - Knox - RS27 - RS28 230kV lines and RS27 230kV substation	SRP	N/A		CEC Not Yet Filed	TBD	230	2, 5
<b>C13</b>	Saguaro to Tucson 115 kV Line Loop-in to Marana	SWTC	0.2		CEC Approved - Case #161 for original Marana Tap to Marana Project. This project would be a minor modification to this approved Case. Currently under study with Western Area Power Administration.	TBD	115	3
<b>C14</b>	Vail Substation - Irvington Substation	TEP	11		CEC Not Yet Filed	TBD	345	1, 3
<b>C15</b>	Irvington Substation - South Substation	TEP	16		CEC Not Required	TBD	345	3
<b>C15</b>	Irvington - South 138kV Line Re-Conductor	TEP	18		CEC Not Required	TBD	138	3
<b>C16</b>	Saguaro Substation - Winchester Substation	TEP	80		Case # 23	TBD	500	1, 3
<b>C17</b>	Vail Substation to South Substation - 2nd Circuit	TEP	14		Case # 15 Parallel and adjacent to existing Vail - South line	TBD	345	1, 3
<b>C18</b>	Springerville Substation - Greenlee Substation - 2nd Circuit	TEP	27		Certificate is part of cases # 12, 30, 63 and 73.	TBD	345	1
<b>C19</b>	Tortolita Substation - South Substation	TEP	68		Certificate is part of Case # 50	TBD	345	1, 3
<b>C20</b>	Westwing Substation - South Substation - 2nd Circuit	TEP	178		Case # 15	TBD	345	1, 2, 3, 5

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<b>C21</b>	(Phase 3) Vail - East Loop Line #3 138kV	TEP	22	CEC Approved - Case # 8	TBD	138	3
<b>C22</b>	Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	4	CEC Approved - Case # 66	TBD	138	3
<b>C23</b>	Gila Bend 833MW Power Plant	GBPP	6	CEC Approved - Case #106, Case #109, Case #119	TBD	500	1, 2
<b>C24</b>	New Superior - New Oak Flat 230kV	SRP	3.5	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C25</b>	Sun Valley - Trilby Wash 230kV Line 2nd circuit	APS	15	CEC Approved - Decision #67828. CEC Extended to 2030 - Decision #75045	TBD	230	2
<b>C26</b>	Griffith - North Havasu 230kV Line (Franconia - Griffith Phase)	UNS Electric	40	CEC Approved - Case # 88	TBD	230	1
<b>C27</b>	Ajo Improvement Project	AIC	47	CEC Approved - Decision #70957 Amended #74086	TBD	230	1
<b>C28</b>	New Oak Flat - Silver King 230kV	SRP	3	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C29</b>	Scatter Wash 230/69kV Substation	APS	< 1	CEC Approved - Case #120 - Decision #65997. CEC Extended to 2023 - Decision #73284	TBD	230	2
<b>C30</b>	Eastern Mining Expansion	SRP	14	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C31</b>	New Hayden 115kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	115	
<b>C40</b>	Superior 230kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C42</b>	Silver King - Known New Hayden 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C44</b>	RS26 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C45</b>	RS25 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C46</b>	Pinal Central - Abel - RS20 500kV	SRP	TBD	CEC Status Not Provided. Project has not advanced	TBD	500	1,5

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				since 8th BTA.			
<b>C48</b>	Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	2,5
<b>C49</b>	Abel 500kV Substation	SRP	N/A	CEC Approved - Case #126 - Decision #68093/68291	TBD	500	
<b>C50</b>	Ball 230kV Substation (Abel-Pfister - Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C51</b>	Pfister 230kV Substation (Abel- Pfister - Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C52</b>	Thunderstone - Browning 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C54</b>	Komatke 230/69kV Substation	APS	< 1	CEC Approved - Decision #62960	TBD	230	2
<b>C57</b>	Apache/Hayden to San Manuel 115kV Line	SWTC, APS	4.5	CEC Approved - Case #142 - Decision #71218	TBD	115	3
<b>C58</b>	Saguaro to Thornydale 115kV Line	SWTC, WAPA	15	CEC Approved - Case #149 - Decision #71420. The project will need approval by APS, TEP, and WAPA	TBD	115	3
<b>C59</b>	Thornydale SWTC - Twin Peaks CAP 115kV Line	SWTC, CAP	8	CEC Approved - #152 - Decision #71649	TBD	115	3
<b>C60</b>	CAP 115kV Line Tap to SWTC Sandario Sub	SWTC, CAP	0.5	CEC Approved - Case #152 - Decision #71649	TBD	115	3
<b>C61</b>	Ten West Link	Ten West Link, APS, SCE, DCR Transmission DGRT	114	Estimated to be filed in Oct 2016	TBD	500	1, 2
<b>C63</b>	Irvington - Drexel - Midvale - South 138kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138	3
<b>C65</b>	Irvington - Robert Bills - Vail 138 kV Line Re-Conductor	TEP	14	CEC Not Required	TBD	138	3
<b>C73</b>	White Wing 200MW Solar Project	White Wing Ranch North	3	Estimated to be Filed July 2016	TBD	500	1
<b>C74</b>	Greenlee Switching Station Through Hidalgo to Luna (Deming Area)	EPE	28	CEC Approved - Case #21	TBD	345	1
<b>C75</b>	Ball 230kV Loop-In	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C76</b>	Irvington - Vail 138kV Line Re-Conductor	TEP	11	CEC Not Required	TBD	138	3





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**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 <sup>2</sup> 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	
		Perkins - Mead 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

<sup>2</sup> Simultaneous limit with Path 47 is dependent on the amount of path 47 import scheduled through the Arroyo phase-shifting transformer.

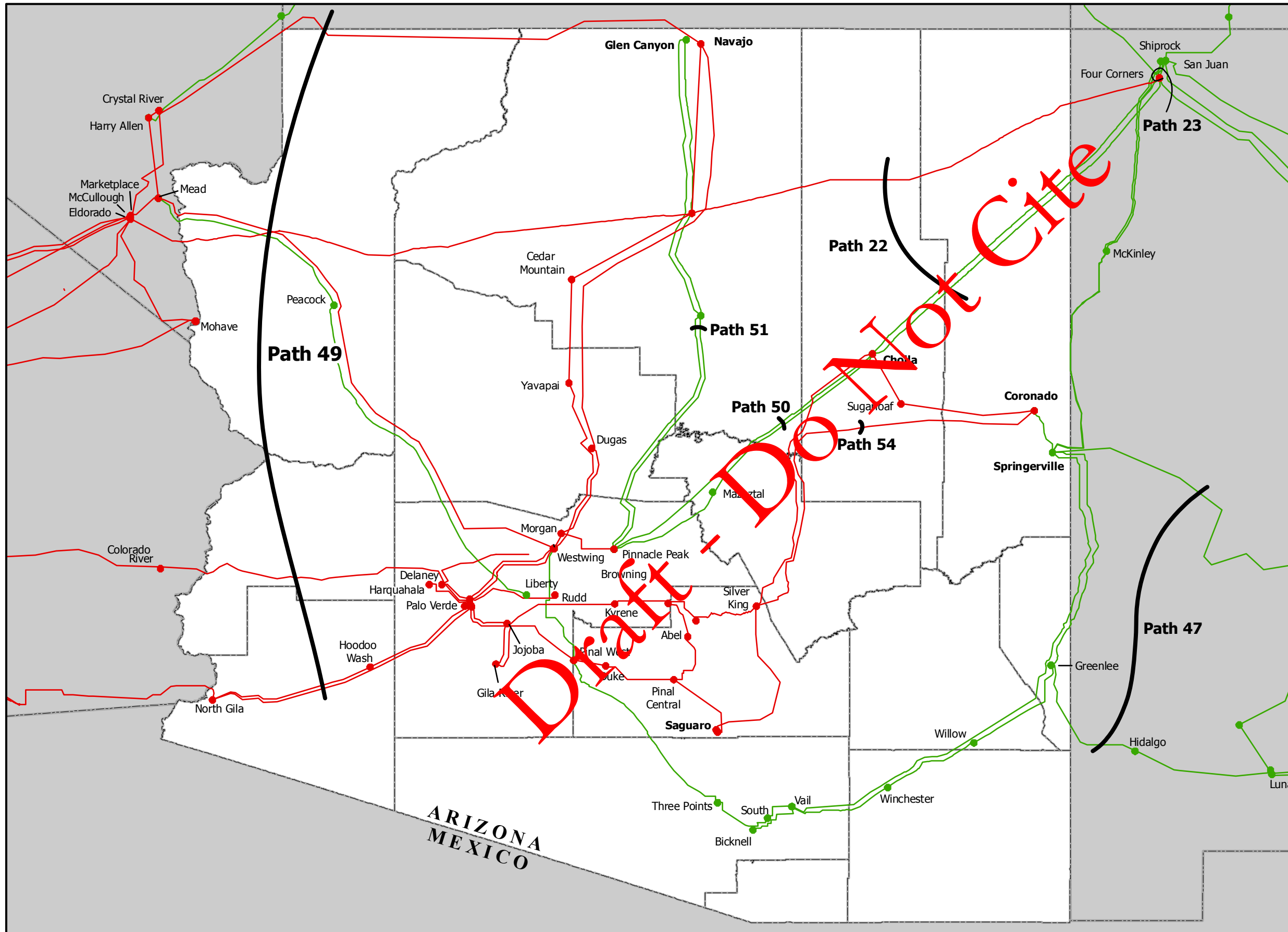




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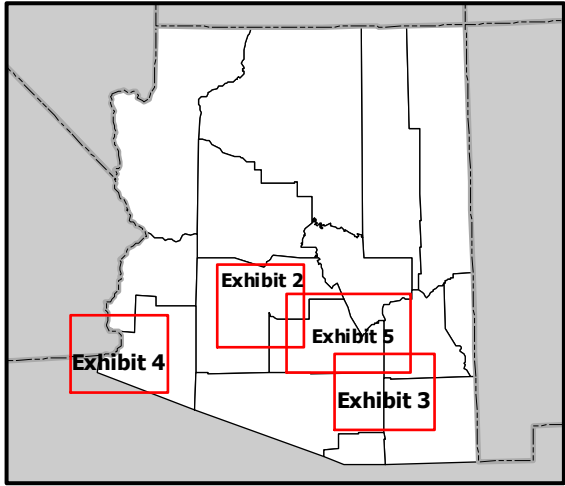
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### Existing Infrastructure

Substations		Transmission	
●	500 kV	—	500kV AC
●	345 kV	—	345kV AC




### 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-15-0001**  
**9th Biennial Transmission Assessment**

DISCLAIMER: Map not to scale. K.R. Saline & Associates P.L.C. does not warrant the accuracy or location of the facilities shown





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### Exhibit 9

## Arizona Demand Forecast Data

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<b>APS</b>										
5th BTA	9,624	9,888	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6th BTA	8,591	8,922	9,229	9,539	N/A	N/A	N/A	N/A	N/A	N/A
7th BTA	7,442	7,614	7,797	7,979	8,160	8,307	N/A	N/A	N/A	N/A
8th BTA	7,113	7,265	7,436	7,620	7,784	7,972	8,185	8,400	N/A	N/A
9th BTA	6,848	6,953	7,100	7,242	7,362	7,554	7,774	7,992	8,209	8,436
Change in 9th BTA (MW)	-265	-312	-336	-378	-422	-418	-411	-408		
Change in 9th BTA (as %)	-3.73%	-4.29%	-4.52%	-4.96%	-5.42%	-5.24%	-5.02%	-4.86%		
<b>SRP</b>										
5th BTA	9,323	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6th BTA	8,428	8,702	8,984	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7th BTA	7,201	7,354	7,528	7,694	7,858	N/A	N/A	N/A	N/A	N/A
8th BTA	7,221	7,404	7,608	7,846	8,075	8,403	8,661	N/A	N/A	N/A
9th BTA	6,926	7,093	7,296	7,456	7,612	7,765	7,948	8,131	8,335	
Change in 9th BTA (MW)	-295	-311	-312	-390	-463	-638	-713	N/A		
Change in 9th BTA (as %)	-4.09%	-4.20%	-4.10%	-4.97%	-5.73%	-7.52%	-8.23%	N/A		
<b>SWTC</b>										
5th BTA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6th BTA	725	747	769	792	N/A	N/A	N/A	N/A	N/A	N/A
7th BTA <sup>1</sup>	711	731	752	778	800	825	N/A	N/A	N/A	N/A
8th BTA	675	694	714	733	753	775	797	819	N/A	N/A
9th BTA	640	656	671	689	706	724	742	760	779	798
Change in 9th BTA (MW)	-36	-38	-42	-43	-47	-52	-55	-59		
Change in 9th BTA (as %)	-5.26%	-5.47%	-5.95%	-6.01%	-6.25%	-6.68%	-6.94%	-7.18%		
<b>TEP and UNSE</b>										
5th BTA	3,829	3,936	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6th BTA	3,197	3,251	3,304	3,355	N/A	N/A	N/A	N/A	N/A	N/A
7th BTA	2,984	3,024	3,062	3,102	3,147	3,206	N/A	N/A	N/A	N/A
8th BTA	2,891	2,919	2,955	2,980	3,019	3,059	3,091	3,096	N/A	N/A
9th BTA	2,823	2,901	2,978	3,048	3,076	3,073	3,110	3,166	3,165	3,190
Change in 9th BTA (MW)	-68	-78	23	68	57	14	19	70		
Change in 9th BTA (as %)	-2.35%	-2.62%	0.78%	2.28%	1.89%	0.46%	0.61%	2.26%		
<b>AZ Total</b>										
5th BTA	22,771									
6th BTA	20,941	21,622	22,286							
7th BTA <sup>1</sup>	18,338	18,723	19,139	19,553	19,965	20,196				
8th BTA	17,962	18,349	18,778	19,244	19,695	20,271	20,795			
9th BTA	17,237	17,603	18,045	18,435	18,756	19,116	19,574	20,049	20,488	
Change in 9th BTA (MW)	-664	-679	-667	-745	-875	-1,094	-1,160			
Change in 9th BTA (as %)	-3.71%	-3.71%	-3.57%	-3.88%	-4.46%	-5.41%	-5.60%			

<sup>1</sup> Studies performed by SWTC for the 2012-2021 ACC Ten Year Plan were stressed using non-coincident load values for worst case scenario analysis.



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**Exhibit 10**  
**Plan Changes Between Eighth and Ninth**  
Completed Projects

<u>Utility</u>	<u>Description</u>	<u>kV</u>	<u>Status</u>	<u>Previous Alias</u>
APS	Bagdad 115 kV Relocation Project	115	Completed	
APS	Delaney - Palo Verde 500kV Line	500	Completed	
APS	Delaney - Sun Valley 500kV Line	500	Completed	
APS	Hassayampa - North Gila 500kV #2 Line	500	Completed	
APS	Palm Valley - TS2-Trilby Wash 230kV Circuit #1	230	Completed	
APS	Sun Valley-Trilby Wash 230kV Line	230	Completed	
SRP	Browning - Rogers 230kV Line	230	Completed	Rogers - Santan 230kV Line
SRP	Desert Basin - Pinal Central 230kV Line	230	Completed	
SRP	Duke 500kV Substation	500	Completed	
SRP	Pinal Central - Browning 500kV Line	500	Completed	
SRP	Pinal Central - Randolph 230kV Line	500	Completed	
SRP	Pinal Central 230kV Substation	230	Completed	
SRP	Pinal Central 500kV shunt reactor	500	Completed	
SRP	Pinal Central 500kV Substation	500	Completed	
SRP	Pinal West – Duke – Pinal Central 500kV Line	500	Completed	
SRP	Pinal West – Duke – Pinal Central 230kV Line	230	Completed	
SWTC/ WAPA	Saguaro Bypass ED5 to Marana Tap (Joint Project)	115	Completed	
TEP	DeMoss Petrie - North Loop 138 kV Line Reconductor	138	Completed	
TEP	DeMoss Petrie - Northeast 138 kV Line Reconductor	138	Completed	
TEP	DeMoss Petrie - Tucson 138kV Line	138	Completed	
TEP	Greenlee 345kV Substation (Springerville - Greenlee 345kV Line) Series Capacitor Replacement	345	Completed	
TEP	North Loop - Rillito 138kV Line Reconductor	138	Completed	
TEP	North Loop Substation - West Ina 138kV Line Reconductor	138	Completed	
TEP	Northeast - Rillito 138kV Line Reconductor	138	Completed	
TEP	Pinal Central - Tortolita 500kV Line	500	Completed	
TEP	Vail 345kV Substation (Springerville - Vail 345kV Line) Series Capacitor Replacement	345	Completed	
TEP	Vail 345kV Substation (Winchester - Vail 345kV Line) Series Capacitor Replacement	345	Completed	
TEP	West Ina Substation - Del Cerro 138kV Line Re-conductor	138	Completed	

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**Exhibit 10**  
**Plan Changes Between Eighth and Ninth**  
**New Projects**

<u>Description</u>	<u>kV</u>	<u>Status</u>	<u>Previous Alias</u>
Four Corners 500/345kV Transformer	500	New	
Mexico D.C. Interconnection	230	New	
Golden Valley 230 kV Line	230	New	
North Loop - Rancho Vistoso 138kV Line Re-Conductor	138	New	
Interconnection of existing Irvington-South Loop 138kV line into Future Corona 138kV Sub	138	New	
Interconnection of North Loop - Rancho Vistoso 138kV line with future Naranja 138kV sub	138	New	
Irvington - Drexel - Midvale - South 138kV Line Re-conductor	138	New	
Irvington - Robert Bills - Vail 138 kV Line Re-conductor	138	New	

**Removed Projects**

<u>Description</u>	<u>kV</u>	<u>Status</u>	<u>Previous Alias</u>
Price Road Corridor – Kyrene - Knox	24	Removed	
Rudd - Orme 230kV Line Reconductor Project	230	Removed	
Irvington 138kV Capacitor Bank #1 and #2 Upgrades	138	Removed	
Irvington 138kV Capacitor Bank #3 Addition and Upgrade	138	Removed	
DeMoss Petrie 138kV Capacitor Bank #1 Upgrade	138	Removed	
DeMoss Petrie 138kV Capacitor Bank #2 Addition and Upgrade	138	Removed	

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**Exhibit 10  
Plan Changes Between Eighth and Ninth  
Advanced Projects**

<u>Description</u>	<u>kV</u>	<u>Status</u>	<u>Previous Alias</u>
Craycroft - Barrill Loop-in of Northeast - Snyder 138kV Line	138	Advanced from 2020 to 2021	
Harrison Loop-in of Roberts – East Loop 138kV Line	138	Advanced from 2021 to 2020	
Hartt Loop-in on Toro - Green Valley (South - Green Valley) 138kV Line	138	Advanced from 2022 to 2021	
Irvington -Tucson 138kV Line #2 Loop-in with Kino	138	Advanced from 2021 to 2020	
Marana Loop-in on one Tortolita - North Loop 138kV Circuit	138	Advanced from 2023 to 2022	
Orange Grove Loop-in of La Canada - Rillito 138kV Line	138	Advanced From 2020 to 2017	

**Delayed Projects**

<u>Description</u>	<u>kV</u>	<u>Status</u>	<u>Previous Alias</u>
Future Toro Switchyard - Rosemont Substation Radial 138kV Line	138	Delayed from 2015 to 2017	
Hassayampa - Pinal West 500kV Line Loop-in to Jojoba Switchyard	500	Delayed from 2015 to 2017	
Bowie 1,000MW Power Station	345	Delayed from 2016 to 2018	
Price Road Corridor - RS28 230kV Substation	230	Delayed from 2016 to 2018	
Price Road Corridor - Schrader - RS28 230kV Substation	230	Delayed from 2016 to 2018	
Crossroads Solar Energy 150MW Project	230	Delayed from 2016 to 2020	
Buckeye Generation Center 630MW Natural Gas	230	Delayed from 2018 to 2019	
SunZia Southwest Transmission 500kV Project	500	Delayed from 2018 to 2021	
Eastern Mining Expansion	230	Delayed from 2018 to TBD	
Abel 500kV Substation	500	Delayed from 2020 to TBD	

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Scatter Wash 230/69kV Substation	230	Delayed from 2021 to TBD	
Ellsworth Technology Corridor Expansion	230	Delayed from 2019 to TBD	
Morgan - Sun Valley 230kV Line	230	Delayed from 2024 to TBD	
Ocotillo Modernization Project	230	Delayed From 2017 to 2018	Ocotillo Modernization Project
Superior – Silver King 115kV Re-Route	115	Delayed From 2015 to 2017	
North Gila - Orchard 230kV Line Circuit #1	230	Delayed from 2018 to 2021	
New Oak Flat - Silver King 230kV	230	Delayed From 2021 to TBD	
New Superior - New Oak Flat 230kV	230	Delayed From 2021 to TBD	

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**Exhibit 11**

**Listing of Queue Interconnection Generation Projects**

<u>Queue<sup>1</sup></u>	<u>Location</u>	<u>MW (Max)</u>	<u>Generation Technology</u>	<u>In-Service Date</u>
APS Active	Moenkopi-Yavapai 500kV Line	161	Wind (101)/PV (60)	Sep 2017
APS Active	Cholla Substation 500kV	200	Wind	Dec 2019
APS Active	Cholla Substation 69kV	75	PV	Jan 2018
APS Active	Delaney Substation 69kV	209.25	PV/Battery Storage	Dec 2018
APS Active	Delaney Substation 500kV	300	PV	Jul 2021
APS Active	El Sol Substation 69kV	50	Battery Storage	Dec 2019
APS Active	Fairview Substation	17.5	PV	Dec 2016
APS Active	Foothills Substation 69kV	70	PV	Jun 2016
APS Active	Gila Bend Substation 230kV	150	PV	Dec 2019
APS Active	Hoodoo Wash Substation 500kV	500	PV	Dec 2018
APS Active	Hoodoo Wash Substation 500kV	200	PV	Dec 2019
APS Active	Hoodoo Wash Substation 500kV	200	PV	Jul 2021
APS Active	Hoodoo Wash Substation 500kV	200	PV	Jul 2021
APS Active	Jojoba Switchyard 230kV	634	Conventional	Mar 2018
APS Active	Jojoba Switchyard 69kV	20	PV	Jun 2017
APS Active	Ocotillo Switchyard 230kV	595	Gas	Nov 2017
APS Active	Saguaro Substation 115kV	47.3	PV	Dec 2016
APS Active	Saguaro Substation 230kV	213.75	PV/Battery Storage	Dec 2018
APS Active	Santa Rosa Substation 230kV	200	PV	Dec 2019
SRP Active	Carlota Substation 115kV	9	PV	Aug 2016
SRP Active	Dinosaur-Hunt 69kV Line	48	PV	Jun 2019
SRP Active	Quail-Florence 69kV Line	50	PV	Aug 2017
SRP Active	Hassayampa Switchyard 500kV	150	PV	Feb 2023
SRP Active	Hassayampa Switchyard 500kV	125	PV	Feb 2023
SRP Active	Hassayampa Switchyard 500kV	338	CC/PV	Jan 2020
SRP Active	Hassayampa Switchyard 500kV	175	PV	Oct 2014
SRP Active	Hassayampa Switchyard 500kV	175	PV	Apr 2016
SRP Active	Hassayampa Switchyard 500kV	175	PV	Oct 2017
SRP Active	Hassayampa Switchyard 500kV	200	PV	May 2013
SRP Active	Hassayampa Switchyard 500kV	150	PV	Dec 2016
SRP Active	Jojoba Switchyard 500kV	300	PV	Dec 2018
SRP Active	Pinal Central 230kV	50	PV	Aug 2016
TEP Active	Greenlee-Winchester 345kV Line	500	Combined Cycle	Dec 2016
TEP Active	Vail Substation 345kV	206	Gas	Dec 2018
TEP Active	Winchester Substation 345kV	55	PV/Wind	May 2015
Western Active	Mead-Davis 230kV Line	300	Wind	Nov 2006
Western Active	Peacock Substation	425	Wind	Mar 2007
Western Active	Bouse-Gila 161kV Line	110	Solar Thermal	Oct 2008
Western Active	Parker-Blythe 161kV Line	150	Solar Thermal	Nov 2008
Western Active	Mead Substation 230kV	180	PV	Jul 2012

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<b>Western Active</b>	Liberty-Meade 345kV Line	300	PV	Aug 2013
<b>Western Active</b>	Blythe Substation 161kV	539	Gas	Aug 2014

<sup>1</sup>All generation interconnection queue projects are subject to changes; please refer to the utility's current listing here [The above queues reflect the following listing dates: APS 6/20/2016, SRP joint participation 6/15/2016, SRP ANPP HVS 6/13/2016, SRP ANPP VTS 2/22/16, SRP 5/23/2016, SRP Palo Verde-Pinal Central 6/27/16, TEP 3/9/2016, WAPA DSW 2/23/2015](#)

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**Exhibit 12**  
**Listing of Projects Sorted by In-Service Date**  
**2016-2020**

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
A04	San Rafael 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1
A07	Canoa Ranch 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2016	138	3
A08	Bicknell 115 kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1, 3
A14	Butterfield 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1
A32	Upgrade North Loop 138kV Capacitor Banks #1 & #2	TEP	N/A	CEC Not Required	2016	138	3
A10	Superior - Silver King 115 kV Re-Route	SRP	1	CEC Approved - Decision #73551	2017	115	5
A11	Hassayampa - Pinal West 500kV Line Loop-in to Jojoba Switchyard	TEP	N/A	Case # 124	2017	500	2
A16	Future Toro Switchyard - Rosemont Substation Radial 138kV Line	TEP	13.2	Case # 164 Dependent upon approval of Mine Record of Decision from United States Forestry Service	2017	138	3
A29	Roberts Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2017	138	3
A30	Midvale Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2017	138	3
A37	Orange Grove Loop-in of La Canada - Rillito 138kV Line	TEP	N/A	CEC Not Required	2017	138	3
A38	Mazatzal 345/69kV Substation	APS	0.95	CEC Approved - Case #160 - Decision #72302 on 5/4/2011. CEC Extended to 2021 - Decision #75249	2017	345	1
A41	Tortolita Sub - Rancho Vistoso Sub Reconfiguration to Tortolita Sub - North Loop Sub #5 and North Loop Sub - Ranch Vistoso Sub	TEP	22	CEC Not Required	2017	138	3
A26	Price Road Corridor -Schrader - RS28 230 kV Line	SRP	19	CEC Not Yet Filed	2018	230	2, 5
A27	Price Road Corridor -RS28 230kV Substation	SRP	N/A	CEC Not Yet Filed	2018	230	2, 5

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<b>A40</b>	North Loop - Rancho Vistoso 138kV Line Re-Conductor	TEP	10.5	CEC Not Required	2018	138	3
<b>A46</b>	Morgan- Sun Valley 500kV Line	APS, CAWCD	38	CEC Approved - Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75092	2018	500	1, 2
<b>A47</b>	Valencia - CAP Black Mountain 115kV Line	SWTC, CAP	2.6	CEC Approved - Case #152 - Decision #71649	2018	115	3
<b>A49</b>	Ocotillo Modernization Project (230kV Substation)	APS	1	CEC Issued - Case #169 - Decision #74812 on 11/13/2014	2018	230	2, 5
<b>A53</b>	Southline Transmission Project	Southline Transmission LLC	246	Estimated to be Filed 2nd Qtr 2016	2018	345	1, 3
<b>A54</b>	Mexico D.C. Interconnection	UNS Electric, TEP, Hunt Power,L.P.	5	Some may be covered in case #1	2018	230	1
<b>C75</b>	Mohave County 500 MW Wind Farm	Mohave County Wind Farm	6	CEC Approved - Decision #73584	2018	500	1
<b>A36</b>	Fort Mohave Solar 332MW Project	Tribal Solar	< 1	N/A	2019	230	1
<b>A48</b>	Buckeye Generation Center Power Project	Buckeye Generation Center	1	CEC Not Yet Filed	2019	230	1, 2
<b>A62</b>	Rudd 230/69kV Transformer	SRP	N/A	N/A	2019	230	1,2,5
<b>A28</b>	Rogers - Santan 230kV Line Reconfiguration	SRP	9	CEC Not Required	2020	230	5
<b>A33</b>	Bowie 1,000MW Power Station	Southwestern Power Group, TEP	15	CEC Approved - Decision #70588 Amendments #69339, #71951	2020	345	1
<b>A35</b>	Crossroads Solar Energy 150MW Project	Solar Reserve	12	CEC Approved - Decision #72186, #72187	2020	230	1, 2
<b>A55</b>	Browning - Corbell 230kV Reconfiguration	SRP	13	CEC Not Required	2020	230	2, 5
<b>A56</b>	(Phase 4) Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	4	CEC Approved - Case # 8	2020	138	3
<b>A57</b>	Irvington -Tucson 138kV Line #2 Loop-in with Kino	TEP	10.9	CEC Not Yet Filed	2020	138	3
<b>A58</b>	Irvington - 22nd Street 138kV Line Re-Conductor	TEP	4	CEC Not Required	2020	138	3
<b>A60</b>	Sun Streams Solar 150MW	Sun Streams	< 1	CEC Approved -	2020	500	1, 2

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Project	Decision #74688						
<b>A63</b>	Browning 230/69kV Transformer	SRP	N/A	N/A	2020	230	1,5

<u>2021-2025</u>							
<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
<b>B01</b>	Tombstone Junction Project	SWTC, APS, SSVEC	TBD	CEC Status Not Provided	2021	230	1
<b>B02</b>	North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Issued - Case #1163 - Decision #72801	2021	230	4
<b>B03</b>	SunZia Southwest Transmission 500kV Project	SunZia, SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved - Decision #75464	2021	500	1, 5
<b>B04</b>	Golden Valley 230kV Line (Harris Sub - Mineral Park Sub)	UNS Electric	17	Estimated to be filed 4th Ctr 2016	2021	230	1
<b>B05</b>	Abel- Pfister - Ball 230kV	SRP	N/A	CEC Approved - Case #148 - Decision #71441	2021	230	5
<b>B13</b>	Craycroft - Barrill Loop-in of Northeast - Snyder 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3
<b>B14</b>	Hartt Loop-in on Toro - Green Valley (South - Green Valley) 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3
<b>B15</b>	Marana Loop-in on one Tortolita - North Loop 138kV Circuit	TEP	4	CEC Not Yet Filed	2022	138	3
<b>B06</b>	Interconnection of North Loop - Rancho Vistoso 138kV line with future Naranja 138kV sub	TEP	1	CEC Not Yet Filed	2023	138	3
<b>B07</b>	Del Cerro - Tucson 138kV Line Re-Conductor	TEP	6.75	CEC Not Yet Filed	2023	138	3
<b>B08</b>	Hassayampa - Pinal West 500kV line #2	SRP, TEP	51	CEC Issued - Case #124 - Decision #67012	2024	500	1, 2
<b>B09</b>	Interconnection of existing Irvington-South Loop 138kV line into Future Corona 138kV Sub	TEP	1	CEC Not Yet Filed	2024	138	3

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### Beyond 2025

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
<b>C01</b>	Morgan - Sun Valley 230kV Line	APS	38	CEC Approved - Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75092	TBD	230	2
<b>C03</b>	Palm Valley - TS2-Trilby Wash 230kV Circuit #2	APS	12	CEC Issued - Decision #67828.	TBD	230	2
<b>C04</b>	Avery 230/69kV Substation	APS	1	CEC Issued - Case #120 - Decision #65997. CEC Extended to 2025 - Decision #73824	TBD	230	2
<b>C05</b>	Pinal Central- Sundance 230kV Line	APS, ED2	6	CEC Issued - Case #136 - Decision #70325 on 4/29/2008	TBD	230	5
<b>C06</b>	Ellsworth Technology Corridor Expansion	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C07</b>	Orchard - Yucca 230kV Line	APS	19	CEC Approved - Case #163 - Decision #72801 on 2/2/2012	TBD	230	4
<b>C08</b>	Sun Valley - TS10 - TS11 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
<b>C09</b>	Buckeye - TS11- Sun Valley 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
<b>C10</b>	EI Sol- Westwing 230kV Line	APS	11	CEC Approved - Case #9 - Docket #U-1345 on 7/26/1973	TBD	230	2
<b>C11</b>	Palo Verde - Saguaro 500kV Line	APS, TEP, SRP	130	CEC Approved - Case #24 - Decision #46802	TBD	500	1, 2, 3
<b>C12</b>	Price Road Corridor - Knowlton - RS27 - RS28 230kV lines and RS27 230kV substation	SRP	N/A	CEC Not Yet Filed	TBD	230	2, 5
<b>C13</b>	Saguaro to Tucson 115 kV Line Loop-in to Marana	SWTC	0.2	CEC Approved - Case #161 for original Marana Tap to Marana Project. This project would be a minor modification to this approved Case. Currently under study with Western Area Power Administration.	TBD	115	3
<b>C14</b>	Vail Substation - Irvington Substation	TEP	11	CEC Not Yet Filed	TBD	345	1, 3

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<b>C15</b>	Irvington Substation - South Substation	TEP	16	CEC Not Required	TBD	345	3
<b>C15</b>	Irvington - South 138kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138	3
<b>C16</b>	Saguaro Substation - Winchester Substation	TEP	80	Case # 23	TBD	500	1, 3
<b>C17</b>	Vail Substation to South Substation - 2nd Circuit	TEP	14	Case # 15 Parallel and adjacent to existing Vail - South line	TBD	345	1, 3
<b>C18</b>	Springerville Substation - Greenlee Substation - 2nd Circuit	TEP	27	Certificate is part of cases # 12, 30, 63 and 73.	TBD	345	1
<b>C19</b>	Tortolita Substation - South Substation	TEP	68	Certificate is part of Case # 50	TBD	345	1, 3
<b>C20</b>	Westwing Substation - South Substation - 2nd Circuit	TEP	178	Case # 15	TBD	345	1, 2, 3, 5
<b>C21</b>	(Phase 3) Vail - East Loop Line #3 138kV	TEP	22	CEC Approved - Case # 8	TBD	138	3
<b>C22</b>	Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	4	CEC Approved - Case # 66	TBD	138	3
<b>C23</b>	Gila Bend 833MW Power Plant	GBPP	6	CEC Approved - Case #106, Case #109, Case #119	TBD	500	1, 2
<b>C24</b>	New Superior - New Oak Flat 230kV	SRP	3.5	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C25</b>	Sun Valley - Trilby Wash 230kV Line 2nd circuit	APS	15	CEC Approved - Decision #67828. CEC Extended to 2030 - Decision #75045	TBD	230	2
<b>C26</b>	Griffith - North Havasu 230kV Line (Franconia - Griffith Phase)	UNNS Electric	40	CEC Approved - Case # 88	TBD	230	1
<b>C27</b>	Ajo Improvement Project	AIC	47	CEC Approved - Decision #70957, Amended #74086	TBD	230	1
<b>C28</b>	New Oak Flat - Silver King 230kV	SRP	3	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C29</b>	Scatter Wash 230/69kV Substation	APS	< 1	CEC Approved - Case #120 - Decision #65997. CEC Extended to 2023 - Decision #73284	TBD	230	2
<b>C30</b>	Eastern Mining Expansion	SRP	14	CEC Status Not Provided. Project has not advanced	TBD	230	5





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				since 8th BTA.			
<b>C31</b>	New Hayden 115kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	115	
<b>C40</b>	Superior 230kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C42</b>	Silver King - Knoll - New Hayden 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C44</b>	RS26 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C45</b>	RS25 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C46</b>	Pinal Central - Abel - RS20 500kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	500	1,5
<b>C48</b>	Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	2,5
<b>C49</b>	Abel 500kV Substation	SRP	N/A	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	500	
<b>C50</b>	Ball 230kV Substation (Abel-Pfister - Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C51</b>	Pfister 230kV Substation (Abel- Pfister - Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C52</b>	Thunderstone - Browning 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C54</b>	Komatke 230/69kV Substation	APS	< 1	CEC Approved - Decision #62960	TBD	230	2
<b>C57</b>	Apache/Hayden to San Manuel 115kV Line	SWTC, APS	4.5	CEC Approved - Case #142 - Decision # 71218	TBD	115	3
<b>C58</b>	Saguaro to Thornydale 115kV Line	SWTC, WAPA	15	CEC Approved - Case #149 - Decision #71420. The project will need approval by APS, TEP, and WAPA	TBD	115	3
<b>C59</b>	Thornydale SWTC - Twin Peaks CAP 115kV Line	SWTC, CAP	8	CEC Approved - #152 - Decision #71649	TBD	115	3
<b>C60</b>	CAP 115kV Line Tap to SWTC Sandario Sub	SWTC, CAP	0.6	CEC Approved - Case #152 - Decision #71649	TBD	115	3
<b>C61</b>	Ten West Link	Ten West	114	Estimated to be filed in	TBD	500	1, 2

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	Link, APS, SCE, DCR Transmission DCRT			Oct 2016			
<b>C63</b>	Irvington - Drexel - Midvale - South 138kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138	3
<b>C65</b>	Irvington - Robert Bills - Vail 138 kV Line Re-Conductor	TEP	14	CEC Not Required	TBD	138	3
<b>C73</b>	White Wing 200MW Solar Project	White Wing Ranch North	3	Estimated to be Filed July 2016	TBD	500	1
<b>C76</b>	Irvington - Vail 138kV Line Re-Conductor	TEP	11	CEC Not Required	TBD	138	3
<b>C74</b>	Greenlee Switching Station Through Hidalgo to Luna (Deming Area)	EPE	28	CEC Approved - Case #21	TBD	345	1
<b>C75</b>	Ball 230kV Loop-In	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th EIA.	TBD	230	5

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**Exhibit 13**  
**Listing of Projects Sorted by Voltage**  
**500kV**

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
<b>A11</b>	Hassayampa - Pinal West 500kV Line Loop-in to Jojoba Switchyard	TEP	N/A	Case # 124	2017	500	2
<b>A46</b>	Morgan- Sun Valley 500kV Line	APS, CAWCD	38	CEC Approved - Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75092	2018	500	1, 2
<b>A60</b>	Sun Streams Solar 150MW Project	Sun Streams	< 1	CEC Approved - Decision #74688	2020	500	1, 2
<b>B03</b>	SunZia Southwest Transmission 500kV Project	SunZia, SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved - Decision #75464	2021	500	1, 5
<b>B08</b>	Hassayampa - Pinal West 500kV line #2	SRP, TEP	51	CEC Issued - Case #124 - Decision #67012	2024	500	1, 2
<b>C11</b>	Palo Verde - Saguaro 500kV Line	APS, TEP, SRP	130	CEC Approved - Case #24 - Decision #46802	TBD	500	1, 2, 3
<b>C16</b>	Saguaro Substation - Winchester Substation	TEP	80	Case # 23	TBD	500	1, 3
<b>C23</b>	Gila Bend 833MW Power Plant	GBPP	0	CEC Approved - Case #106, Case #109, Case #119	TBD	500	1, 2
<b>C46</b>	Pinal Central - Abel - RS20 500kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	500	1,5
<b>C49</b>	Abel 500kV Substation	SRP	N/A	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	500	
<b>C61</b>	Ten West Link	Ten West Link, APS, SCE, DCR Transmission DCRT	114	Estimated to be filed in Oct 2016	TBD	500	1, 2
<b>C73</b>	White Wing 200MW Solar Project	White Wing Ranch North	3	Estimated to be Filed July 2016	TBD	500	1
<b>C75</b>	Mohave County 500 MW Wind Farm	Mohave County Wind Farm	6	CEC Approved - Decision #73584	2018	500	1

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<b>345kV</b>							
<b>A33</b>	Bowie 1,000MW Power Station	Southwestern Power Group, TEP	15	CEC Approved - Decision #70588 Amendments #69339, #71951	2020	345	1
<b>A38</b>	Mazatzal 345/69kV Substation	APS	0.95	CEC Approved - Case #160 - Decision #72302 on 5/4/2011. CEC Extended to 2021 - Decision #75249	2017	345	1
<b>A53</b>	Southline Transmission Project	Southline Transmission LLC	246	Estimated to be Filed 2nd Qtr 2016	2018	345	1, 3
<b>C14</b>	Vail Substation - Irvington Substation	TEP	11	CEC Not Yet Filed	TBD	345	1, 3
<b>C15</b>	Irvington Substation - South Substation	TEP	16	CEC Not Required	TBD	345	3
<b>C17</b>	Vail Substation to South Substation - 2nd Circuit	TEP	14	Case # 15 Parallel and adjacent to existing Vail - South line	TBD	345	1, 3
<b>C18</b>	Springerville Substation - Greenlee Substation - 2nd Circuit	TEP	27	Certificate is part of cases # 12, 30, 63 and 73.	TBD	345	1
<b>C19</b>	Tortolita Substation - South Substation	TEP	68	Certificate is part of Case # 50	TBD	345	1, 3
<b>C20</b>	Westwing Substation - South Substation - 2nd Circuit	TEP	178	Case # 15	TBD	345	1, 2, 3, 5
<b>C44</b>	RS26 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C45</b>	RS25 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C74</b>	Greenlee Switching Station Through Hidalgo to Luna (Deming Area)	EPE	28	CEC Approved - Case #21	TBD	345	1
<b>230kV</b>							
<b>A26</b>	Price Road Corridor - Schrader - RS28 230 kV Line	SRP	19	CEC Not Yet Filed	2018	230	2, 5
<b>A27</b>	Price Road Corridor - RS28 230kV Substation	SRP	N/A	CEC Not Yet Filed	2018	230	2, 5
<b>A28</b>	Rogers - Santan 230kV Line Reconfiguration	SRP	9	CEC Not Required	2020	230	5
<b>A35</b>	Crossroads Solar Energy 150MW Project	Solar Reserve	12	CEC Approved - Decision #72186, #72187	2020	230	1, 2

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<b>A36</b>	Fort Mohave Solar 332MW Project	Tribal Solar	< 1	N/A	2019	230	1
<b>A48</b>	Buckeye Generation Center Power Project	Buckeye Generation Center	1	CEC Not Yet Filed	2019	230	1, 2
<b>A49</b>	Ocotillo Modernization Project (230kV Substation)	APS	1	CEC Issued - Case #169 - Decision #74812 on 11/13/2014	2018	230	2, 5
<b>A54</b>	Mexico D.C. Interconnection	UNS Electric, TEP, Hunt Power,L.P.	5	Some may be covered in case #111	2018	230	1
<b>A55</b>	Browning - Corbell 230kV Reconfiguration	SRP	13	CEC Not Required	2020	230	2, 5
<b>B01</b>	Tombstone Junction Project	SWTC, APS, SSVEC	TBD	CEC Status Not Provided	2021	230	1
<b>B02</b>	North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Issued - Case #165 - Decision #71801	2021	230	4
<b>B04</b>	Golden Valley 230kV Line (Harris Sub - Mineral Park Sub)	UNS Electric	17	Estimated to be filed 4th Qtr 2016	2021	230	1
<b>B05</b>	Abel- Pfister - Ball 230kV	SRP	N/A	CEC Approved - Case #148 - Decision #71441	2021	230	5
<b>C01</b>	Morgan - Sun Valley 230kV Line	APS	38	CEC Approved - Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75092	TBD	230	2
<b>C03</b>	Palm Valley - TS2-Trilby Wash 230kV Circuit #2	APS	12	CEC Issued - Decision #67828.	TBD	230	2
<b>C04</b>	Avery 230/69kV Substation	APS	1	CEC Issued - Case #120 - Decision #65997. CEC Extended to 2023 - Decision #73824	TBD	230	2
<b>C05</b>	Pinal Central- Sundance 230kV Line	APS, ED2	6	CEC Issued - Case #136 - Decision #70325 on 4/29/2008	TBD	230	5
<b>C06</b>	Ellsworth Technology Corridor Expansion	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C07</b>	Orchard - Yucca 230kV Line	APS	19	CEC Approved - Case #163 - Decision #72801 on 2/2/2012	TBD	230	4
<b>C08</b>	Sun Valley - TS10 - TS11 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
<b>C09</b>	Buckeye - TS11- Sun Valley 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
<b>C10</b>	EI Sol- Westwing 230kV Line	APS	11	CEC Approved - Case #9 - Docket #U-1345 on 7/26/1973	TBD	230	2

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<b>C12</b>	Price Road Corridor - Knox - RS27 - RS28 230kV lines and RS27 230kV substation	SRP	N/A	CEC Not Yet Filed	TBD	230	2, 5
<b>C24</b>	New Superior - New Oak Flat 230kV	SRP	3.5	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C25</b>	Sun Valley - Trilby Wash 230kV Line 2nd circuit	APS	15	CEC Approved - Decision #67828. CEC Extended to 2030 - Decision #75045	TBD	230	2
<b>C26</b>	Griffith - North Havasu 230kV Line (Franconia - Griffith Phase)	UNS Electric	40	CEC Approved - Case # 88	TBD	230	1
<b>C27</b>	Ajo Improvement Project	AIC	47	CEC Approved - Decision #70957, Amended #74086	TBD	230	1
<b>C28</b>	New Oak Flat - Silver King 230kV	SRP	3	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C29</b>	Scatter Wash 230/69kV Substation	APS	< 1	CEC Approved - Case #120 - Decision #65997. CEC Extended to 2023 - Decision #73284	TBD	230	2
<b>C30</b>	Eastern Mining Expansion	SRP	14	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C40</b>	Superior 230kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C42</b>	Silver King - Knoll - New Hayden 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C48</b>	Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	2,5
<b>C50</b>	Ball 230kV Substation (Abel- Pfister - Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C51</b>	Pfister 230kV Substation (Abel- Pfister - Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C52</b>	Thunderstone - Browning 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C54</b>	Komatke 230/69kV Substation	APS	< 1	CEC Approved - Decision #62960	TBD	230	2
<b>A62</b>	Rudd 230/69kV	SRP	N/A	N/A	2019	230	1,2,5

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Transformer								
<b>A63</b>	Browning 230/69kV Transformer	SRP	N/A	N/A		2020	230	1,5
<b>C75</b>	Ball 230kV Loop-In	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.		TBD	230	5
138kV								
<b>A07</b>	Canoa Ranch 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required		2016	138	3
<b>A16</b>	Future Toro Switchyard - Rosemont Substation Radial 138kV Line	TEP	13.2	Case # 164 Dependent upon approval of Mine Record of Decision from United States Forestry Service		2017	138	3
<b>A29</b>	Roberts Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required		2017	138	3
<b>A30</b>	Midvale Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required		2017	138	3
<b>A32</b>	Upgrade North Loop 138kV Capacitor Banks #1 & #2	TEP	N/A	CEC Not Required		2016	138	3
<b>A37</b>	Orange Grove Loop-in of La Canada - Rillito 138kV Line	TEP	N/A	CEC Not Required		2017	138	3
<b>A40</b>	North Loop - Rancho Vistoso 138kV Line Re-Conductor	TEP	10.5	CEC Not Required		2018	138	3
<b>A41</b>	Tortolita Sub - Rancho Vistoso Sub Reconfiguration to Tortolita Sub - North Loop Sub #5 and North Loop Sub - Rancho Vistoso Sub	TEP	22	CEC Not Required		2017	138	3
<b>A56</b>	(Phase 4) Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	4	CEC Approved - Case # 8		2020	138	3
<b>A57</b>	Irvington -Tucson 138kV Line #2 Loop-in with Kino	TEP	10.9	CEC Not Yet Filed		2020	138	3
<b>A58</b>	Irvington - 22nd Street 138kV Line Re-Conductor	TEP	4	CEC Not Required		2020	138	3
<b>B06</b>	Interconnection of North Loop - Rancho Vistoso	TEP	1	CEC Not Yet Filed		2023	138	3

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	138kV line with future Naranja 138kV sub							
<b>B07</b>	Del Cerro - Tucson 138kV Line Re-Conductor	TEP	6.75	CEC Not Yet Filed	2023	138	3	
<b>B09</b>	Interconnection of existing Irvington-South Loop 138kV line into Future Corona 138kV Sub	TEP	1	CEC Not Yet Filed	2024	138	3	
<b>B13</b>	Craycroft - Barrill Loop-in of Northeast - Snyder 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3	
<b>B14</b>	Hartt Loop-in on Toro - Green Valley (South - Green Valley) 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3	
<b>B15</b>	Marana Loop-in on one Tortolita - North Loop 138kV Circuit	TEP	4	CEC Not Yet Filed	2022	138	3	
<b>C15</b>	Irvington - South 138kV Line Re-Conductor	TEP	18	CEC Not Required	TBD	138	3	
<b>C21</b>	(Phase 3) Vail - East Loop Line #3 138kV	TEP	22	CEC Approved - Case # 8	TBD	138	3	
<b>C22</b>	Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	4	CEC Approved - Case # 66	TBD	138	3	
<b>C63</b>	Irvington - Drexel - Midvale - South 138kV Line Re-Conductor	TEP	15	CEC Not Required	TBD	138	3	
<b>C65</b>	Irvington - Robert Bills - Vail 138 kV Line Re-Conductor	TEP	14	CEC Not Required	TBD	138	3	
<b>C76</b>	Irvington - Vail 138kV Line Re-Conductor	TEP	11	CEC Not Required	TBD	138	3	
<b>115kV</b>								
<b>A04</b>	San Rafael 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1	
<b>A08</b>	Bicknell 115 kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1, 3	
<b>A10</b>	Superior - Silver King 115 kV Re-Route	SRP	1	CEC Approved - Decision #73551	2017	115	5	
<b>A14</b>	Butterfield 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1	
<b>A47</b>	Valencia - CAP Black Mountain 115kV Line	SWTC, CAP	2.6	CEC Approved - Case #152 - Decision #71649	2018	115	3	
<b>C13</b>	Saguaro to Tucson 115 kV Line Loop-in to Marana	SWTC	0.2	CEC Approved - Case #161 for original Marana Tap to Marana	TBD	115	3	





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				Project. This project would be a minor modification to this approved Case. Currently under study with Western Area Power Administration.			
<b>C31</b>	New Hayden 115kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	115	
<b>C57</b>	Apache/Hayden to San Manuel 115kV Line	SWTC, APS	4.5	CEC Approved - Case #142 - Decision # 71218	TBD	115	3
<b>C58</b>	Saguaro to Thornydale 115kV Line	SWTC, WAPA	15	CEC Approved - Case #149 - Decision #71420. The project will need approval by APS, TEP, and WAPA	TBD	115	3
<b>C59</b>	Thornydale SWTC - Twin Peaks CAP 115kV Line	SWTC, CAP	8	CEC Approved - #152 - Decision #71649	TBD	115	3
<b>C60</b>	CAP 115kV Line Tap to SWTC Sandario Sub	SWTC, CAP	0.6	CEC Approved - Case #152 - Decision #71649	TBD	115	3

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**Exhibit 14**  
**Arizona Public Service Project Summary**

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
A38	Mazatzal 345/69kV Substation	APS	0.95	CEC Approved – Case #160 - Decision #72302 on 5/4/2011. CEC Extended to 2021 - Decision #75249	2017	345	1
A46	Morgan- Sun Valley 500kV Line	APS, CAWCD	38	CEC Approved – Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75092	2018	500	1, 2
A49	Ocotillo Modernization Project (230kV Substation)	APS	1	CEC Issued – Case #169 – Decision #74812 on 11/13/2014	2018	230	2, 5
B02	North Gila - Orchard 230kV Line Circuit #1	APS	13	CEC Issued – Case #163 – Decision #72801	2021	230	4
C01	Morgan - Sun Valley 230kV Line	APS	38	CEC Approved – Case 138 - Decision #70850 on 3/17/2009. CEC Extended to 2021 - Decision #75092	TBD	230	2
C03	Palm Valley - TS2-Trilby Wash 230kV Circuit #2	APS	12	CEC Issued – Decision #67828.	TBD	230	2
C04	Avery 230/69kV Substation	APS	1	CEC Issued - Case #120 - Decision #65997. CEC Extended to 2023 - Decision #73824	TBD	230	2
C05	Pinal Central- Sundance 230kV Line	APS, ED2	6	CEC Issued – Case #136 – Decision #70325 on 4/29/2008	TBD	230	5
C07	Orchard - Yucca 230kV Line	APS	19	CEC Approved – Case #163 – Decision #72801 on 2/2/2012	TBD	230	4
C08	Sun Valley - TS10 - TS11 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
C09	Buckeye - TS11- Sun Valley 230kV Line	APS	TBD	CEC Not Yet Filed	TBD	230	2
C10	EI Sol- Westwing 230kV Line	APS	11	CEC Approved – Case #9 - Docket #U-1345 on 7/26/1973	TBD	230	2

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<b>C11</b>	Palo Verde - Saguaro 500kV Line	APS, TEP, SRP	130	CEC Approved - Case #24 - Decision #46802	TBD	500	1, 2, 3
<b>C25</b>	Sun Valley - Trilby Wash 230kV Line 2nd circuit	APS	15	CEC Approved – Decision #67828. CEC Extended to 2030 - Decision #75045	TBD	230	2
<b>C29</b>	Scatter Wash 230/69kV Substation	APS	< 1	CEC Approved - Case #120 - Decision #65997. CEC Extended to 2023 - Decision #73284	TBD	230	2
<b>C54</b>	Komatke 230/69kV Substation	APS	< 1	CEC Approved – Decision #62960	TBD	230	2

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**Exhibit 15  
Salt River Project Summary**

<b>ID</b>	<b>Description</b>	<b>Participants</b>	<b>Length (mi)</b>	<b>Permitting/Siting Status</b>	<b>Year</b>	<b>kV</b>	<b>Map Exhibit</b>
<b>A10</b>	Superior – Silver King 115 kV Re-Route	SRP	1	CEC Approved – Decision #73551	2017	115	5
<b>A26</b>	Price Road Corridor - Schrader - RS28 230 kV Line	SRP	19	CEC Not Yet Filed	2018	230	2, 5
<b>A27</b>	Price Road Corridor - RS28 230kV Substation	SRP	N/A	CEC Not Yet Filed	2018	230	2, 5
<b>A62</b>	Rudd 230/69kV Transformer	SRP	N/A	N/A	2019	230	1,2,5
<b>A63</b>	Browning 230/69kV Transformer	SRP	N/A	N/A	2020	230	1,5
<b>A28</b>	Rogers - Santan 230kV Line Reconfiguration	SRP	9	CEC Not Required	2020	230	5
<b>A55</b>	Browning - Corbell 230kV Reconfiguration	SRP	13	CEC Not Required	2020	230	2, 5
<b>B05</b>	Abel- Pfister - Ball 230kV	SRP	20	CEC Approved - Case #148 - Decision #71441	2021	230	5
<b>B08</b>	Hassayampa - Pinal West 500kV line #2	SRP, TEP	51	CEC Issued - Case #124 - Decision #67012	2024	500	1, 2
<b>C12</b>	Price Road Corridor – Knox - RS27 - RS28 230kV lines and RS27 230kV substation	SRP	N/A	CEC Not Yet Filed	TBD	230	2, 5
<b>C50</b>	Ball 230kV Substation (Abel- Pfister – Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C51</b>	Pfister 230kV Substation (Abel- Pfister – Ball 230 kV)	SRP	N/A	CEC Approved - Case #148 - Decision #71441	TBD	230	5
<b>C06</b>	Ellsworth Technology Corridor Expansion	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C24</b>	New Superior - New Oak Flat 230kV	SRP	3.5	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C28</b>	New Oak Flat - Silver King 230kV	SRP	3	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C30</b>	Eastern Mining Expansion	SRP	14	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5

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<b>C31</b>	New Hayden 115kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	115	
<b>C40</b>	Superior 230kV Loop-in	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C42</b>	Silver King - Knoll - New Hayden 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5
<b>C44</b>	RS26 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C45</b>	RS25 Project	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	345	
<b>C46</b>	Pinal Central - Abel - RS20 500kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	500	1,5
<b>C48</b>	Pinnacle Peak - Brandow 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	2,5
<b>C49</b>	Abel 500kV Substation	SRP	N/A	CEC Approved - Case #126 - Decision #68093768291. Project has not advanced since 8th BTA.	TBD	500	
<b>C52</b>	Thunderstone - Browning 230kV	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	
<b>C75</b>	Ball 230kV Loop-In	SRP	TBD	CEC Status Not Provided. Project has not advanced since 8th BTA.	TBD	230	5

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**Exhibit 16**  
**Arizona G&T Cooperatives Project Summary**

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
A04	San Rafael 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1
A08	Bicknell 115 kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1, 3
A14	Butterfield 115kV Capacitor Installation	SWTC	N/A	N/A	2016	115	1
A47	Valencia - CAP Black Mountain 115kV Line	SWTC, CAP	2.6	CEC Approved - Cas. #152 - Decision #71649	2018	115	3
B01	Tombstone Junction Project	SWTC, APS, SSVEC	TBD	CEC Status Not Provided	2021	230	1
C13	Saguaro to Tucson 115 kV Line Loop-in to Marana	SWTC	0.2	CEC Approved – Case #161 for original Marana Tap to Marana Project. This project would be a minor modification to this approved Case. Currently under study with Western Area Power Administration.	TBD	115	3
C57	Apache/Hayden to San Manuel 115kV Line	SWTC, APS	4.5	CEC Approved - Case #142 - Decision # 71218	TBD	115	3
C58	Saguaro to Thornydale 115kV Line	SWTC, WAPA	15	CEC Approved - Case #149 - Decision #71420. The project will need approval by APS, TEP, and WAPA	TBD	115	3
C59	Thornydale SWTC - Twin Peaks CAP 115kV Line	SWTC, CAP	8	CEC Approved - #152 - Decision #71649	TBD	115	3
C60	CAP 115kV Line Tap to SWTC Sandario Sub	SWTC, CAP	0.6	CEC Approved - Case #152 - Decision #71649	TBD	115	3

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**Exhibit 17  
Tucson Electric Power Project Summary**

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
A07	Canoa Ranch 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2016	138	3
A11	Hassayampa - Pinal West 500kV Line Loop-in to Jojoba Switchyard	TEP	N/A	Case # 124	2017	500	2
A16	Future Toro Switchyard - Rosemont Substation Radial 138kV Line	TEP	13.2	Case # 164 Dependent upon approval of Mine Record of Decision from United States Forestry Service	2017	138	3
A29	Roberts Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2017	138	3
A30	Midvale Substation 138kV Capacitor Bank #1 Addition	TEP	N/A	CEC Not Required	2017	138	3
A32	Upgrade North Loop 138kV Capacitor Banks #1 & #2	TEP	N/A	CEC Not Required	2016	138	3
A37	Orange Grove Loop-in of La Canada - Rillito 138kV Line	TEP	N/A	CEC Not Required	2017	138	3
A40	North Loop - Rancho Vistoso 138kV Line Re-Conductor	TEP	10.5	CEC Not Required	2018	138	3
A41	Tortolita Sub - Rancho Vistoso Sub Reconfiguration to Tortolita Sub - North Loop Sub #5 and North Loop Sub - Ranch Vistoso Sub	TEP	22	CEC Not Required	2017	138	3
A56	(Phase 4) Harrison Loop-in of Roberts - East Loop 138kV Line	TEP	4	CEC Approved - Case # 8	2020	138	3
A57	Irvington -Tucson 138kV Line #2 Loop-in with Kino	TEP	10.9	CEC Not Yet Filed	2020	138	3
A58	Irvington - 22nd Street 138kV Line Re-Conductor	TEP	4	CEC Not Required	2020	138	3

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<b>B06</b>	Interconnection of North Loop - Rancho Vistoso 138kV line with future Naranja 138kV sub	TEP	1	CEC Not Yet Filed	2023	138	3
<b>B07</b>	Del Cerro - Tucson 138kV Line Re-Conductor	TEP	6.75	CEC Not Yet Filed	2023	138	3
<b>B09</b>	Interconnection of existing Irvington-South Loop 138kV line into Future Corona 138kV Sub	TEP	1	CEC Not Yet Filed	2024	138	3
<b>B13</b>	Craycroft - Barrill Loop-in of Northeast - Snyder 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3
<b>B14</b>	Hartt Loop-in on Toro - Green Valley (South - Green Valley) 138kV Line	TEP	N/A	CEC Not Yet Filed	2021	138	3
<b>B15</b>	Marana Loop-in on one Tortolita - North Loop 138kV Circuit	TEP	4	CEC Not Yet Filed	2022	138	3
<b>C14</b>	Vail Substation - Irvington Substation	TEP	11	CEC Not Yet Filed	TBD	345	1, 3
<b>C15</b>	Irvington Substation - South Substation	TEP	16	CEC Not Required	TBD	345	3
<b>C16</b>	Saguaro Substation - Winchester Substation	TEP	80	Case # 23	TBD	500	1, 3
<b>C17</b>	Vail Substation to South Substation - 2nd Circuit	TEP	14	Case # 15 Parallel and adjacent to existing Vail - South line	TBD	345	1, 3
<b>C18</b>	Springerville Substation - Greenlee Substation - 2nd Circuit	TEP	27	Certificate is part of cases # 12, 30, 63 and 73.	TBD	345	1
<b>C19</b>	Tortolita Substation - South Substation	TEP	68	Certificate is part of Case # 50	TBD	345	1, 3
<b>C20</b>	Westwing Substation - South Substation - 2nd Circuit	TEP	178	Case # 15	TBD	345	1, 2, 3, 5
<b>C21</b>	(Phase 3) Vail - East Loop Line #3 138kV	TEP	22	CEC Approved - Case # 8	TBD	138	3
<b>C22</b>	Irvington - East Loop Project - Phase 3 (Irvington - 22nd Street #2 Line)	TEP	4	CEC Approved - Case # 66	TBD	138	3

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<b>C15</b>	Irvington – South 138kV Line Re-conductor	TEP	18	CEC Not Required	TBD	138	3
<b>C63</b>	Irvington - Drexel - Midvale - South 138kV Line Re-conductor	TEP	18	CEC Not Required	TBD	138	3
<b>C65</b>	Irvington - Robert Bills - Vail 138 kV Line Re- conductor	TEP	14	CEC Not Required	TBD	138	3
<b>C76</b>	Irvington – Vail 138kV Line Re-Conductor	TEP	11	CEC Not Required	TBD	138	3

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**Exhibit 18**  
**UniSource Electric Project Summary**

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
<b>A54</b>	Mexico D.C. Interconnection	UNS Electric, TEP, Hunt Power,L.P.	5	Some may be covered in case #111	2018	230	1
<b>B04</b>	Golden Valley 230kV Line (Harris Sub - Mineral Park Sub)	UNS Electric	17	Estimated to be filed 4 <sup>th</sup> Qtr 2016	2021	230	1
<b>C26</b>	Griffith - North Havasu 230kV Line (Franconia - Griffith Phase)	UNS Electric	40	CEC Approved - Case # 88	TBD	230	1

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

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
<b>C75</b>	Mohave County 500 MW Wind Farm	Mohave County Wind Farm	6	CEC Approved - Decision #73584	2018	500	1
<b>A53</b>	Southline Transmission Project	Southline Transmission LLC	246	Estimated to be Filed 2 <sup>nd</sup> Qtr 2016	2018	345	1, 3
<b>A48</b>	Buckeye Generation Center Power Project	Buckeye Generation Center	1	CEC Not Yet Filed	2019	230	1, 2
<b>A36</b>	Fort Mohave Solar 332MW Project	Tribal Solar	< 1	N/A	2019	230	1
<b>A33</b>	Bowie 1,000MW Power Station	Southwestern Power Group, TEP	15	CEC Approved - Decision #70588 Amendments #69339, #71951	2020	345	1
<b>A35</b>	Crossroads Solar Energy 150MW Project	Solar Reserve	12	CEC Approved - Decision #72186, #72187	2020	230	1, 2
<b>A60</b>	Sun Streams Solar 150MW Project	Sun Streams	< 1	CEC Approved – Decision #74688	2020	500	1, 2
<b>B03</b>	SunZia Southwest Transmission 500kV Project	SunZia, SWPG, SRP, TEP, Shell, TSGT	200	CEC Approved – Decision #75464	2021	500	1, 5
<b>C27</b>	Ajo Improvement Project	AIC	47	CEC Approved – Decision #70957, Amended #74086	TBD	230	1
<b>C23</b>	Gila Bend 833MW Power Plant	GBPP	6	CEC Approved - Case #106, Case #109, Case #119	TBD	500	1, 2
<b>C61</b>	Ten West Link	Ten West Link, APS, SCE, DCR Transmission DCRT	114	Estimated to be filed in Oct 2016	TBD	500	1, 2
<b>C73</b>	White Wing 200MW Solar Project	White Wing Ranch North	3	Estimated to be Filed July 2016	TBD	500	1
<b>C74</b>	Greenlee Switching Station Through Hidalgo to Luna (Deming Area)	El Paso Electric	28	CEC Approved - Case #21	TBD	345	1

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**Exhibit 20\***  
**Transmission and Generation Projects That Did Not File TYP**

<u>ID</u>	<u>Description</u>	<u>Participants</u>	<u>Length (mi)</u>	<u>Permitting/Siting Status</u>	<u>Year</u>	<u>kV</u>	<u>Map Exhibit</u>
<b>A62</b>	TransWest Express 600kV HVDC	TransWest Express	0	CEC Not Yet Filed	2020	600	1
<b>A63</b>	EnviroMission 200MW Solar Tower	EnviroMission	TBD	CEC Not Yet Filed	2020	230	1
<b>A64</b>	Harcuvar Transmission Project	CAWCD	65	CEC Not Yet Filed	2020	230	1
<b>A65</b>	North Gila – Imperial Valley #2	Southwest Transmission Partners, LLC	50	CEC Not Yet Filed	2020	500	1
<b>B16</b>	Longview Energy Exchange 2,000 MW Pumped Storage	Longview Energy Exchange	50	CEC Not Yet Filed	2021	500	1

\*Projects in Exhibit 19 were not considered for the adequacy assessment; nor were they included in the Ten-Year Plan statistics compiled for this BTA

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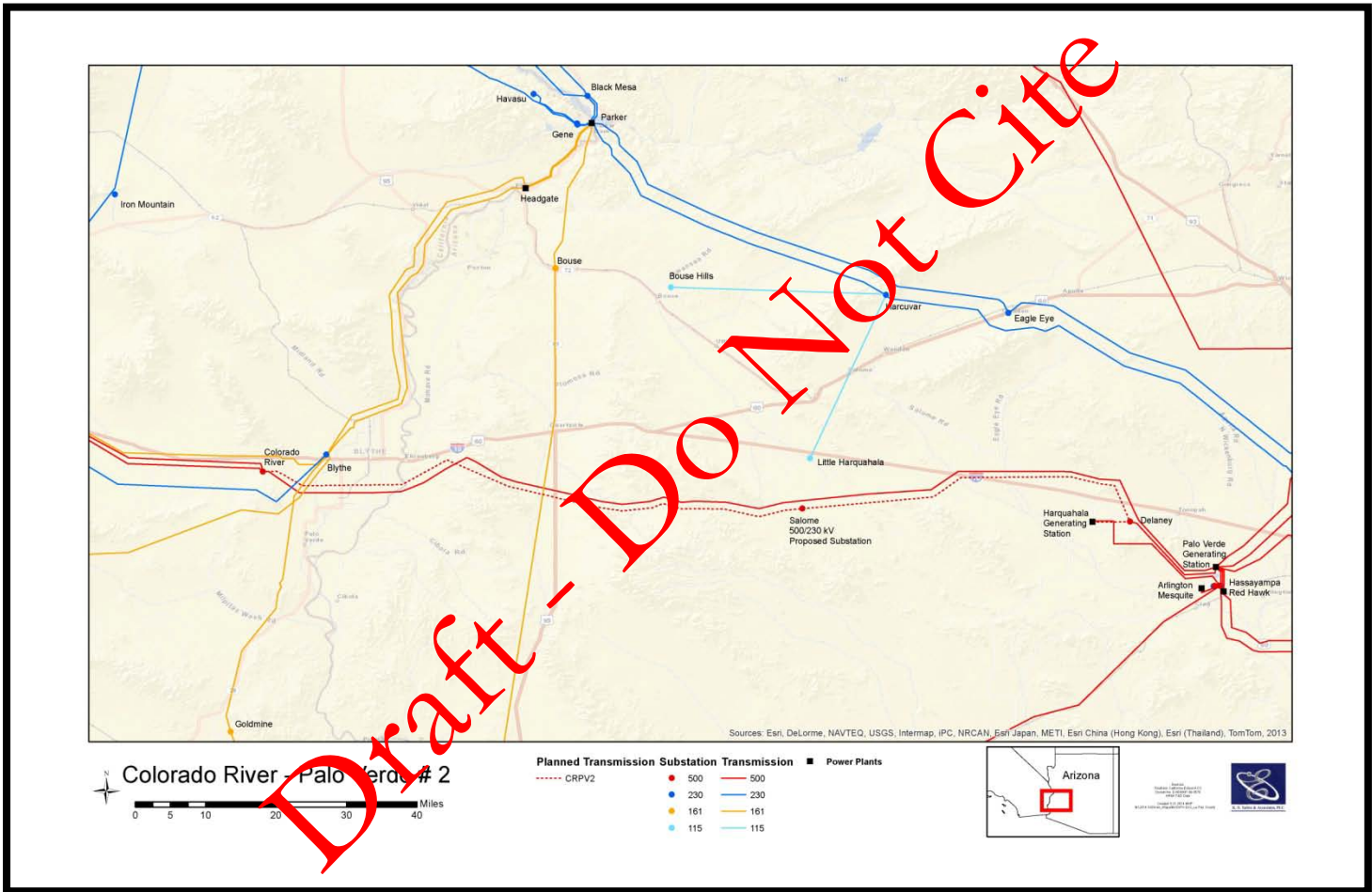
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### Exhibit 21 – Overview Map of Ten-West Link (Delaney – Colorado River) 500 kV Project





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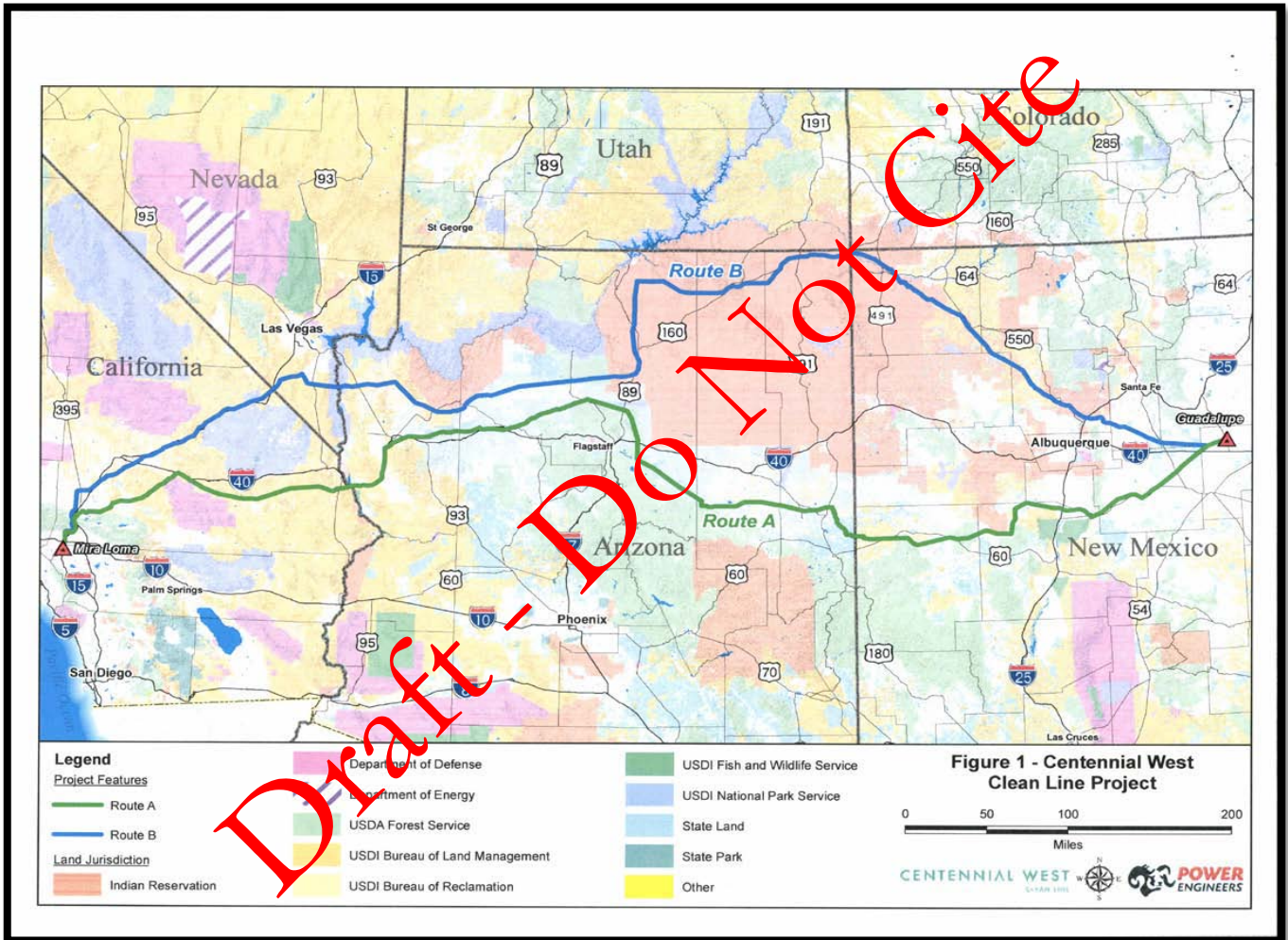
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### Exhibit 22 – Overview Map of Centennial West Clean Line Project





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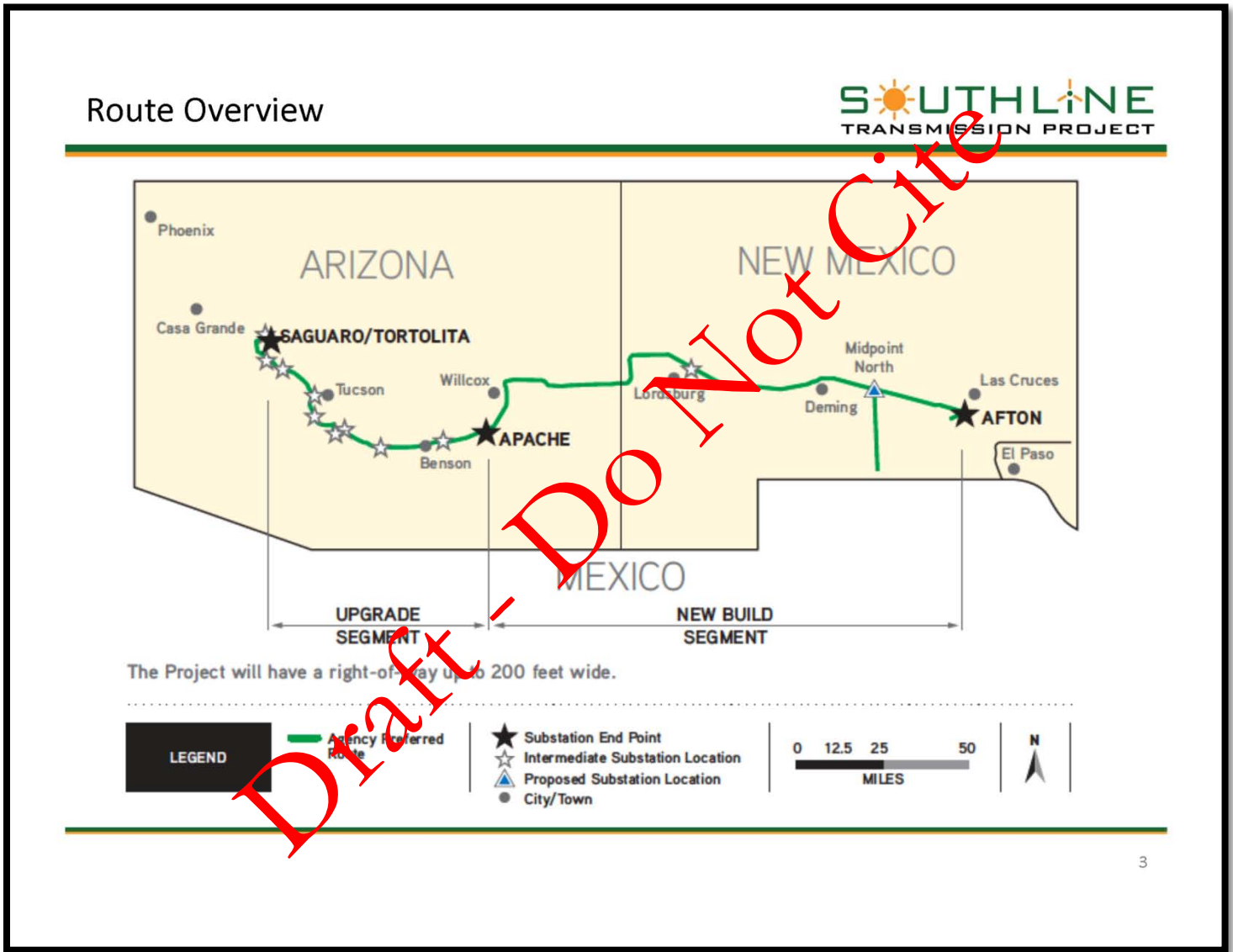
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### Exhibit 23 – Overview Map of Southline Transmission Project





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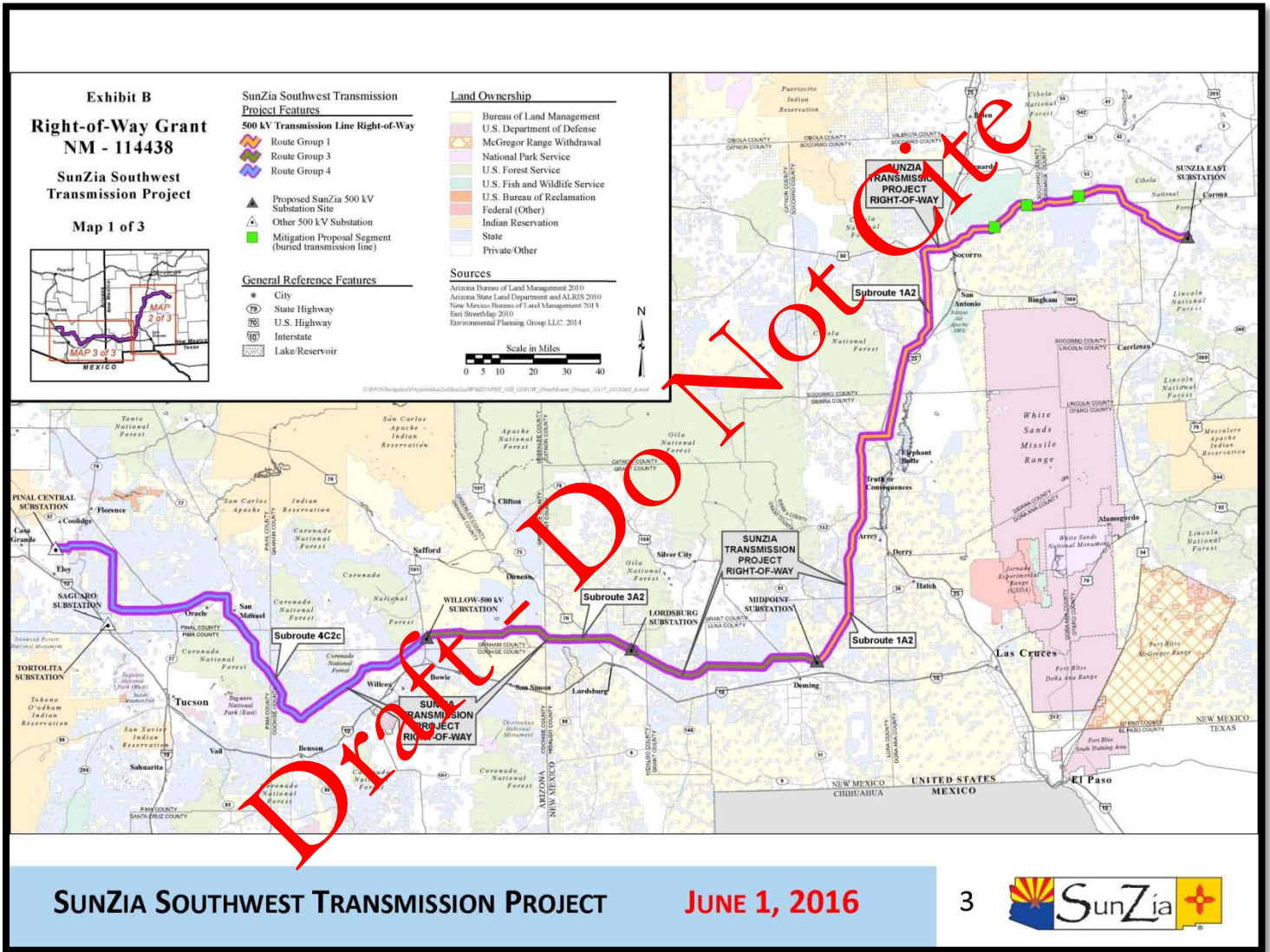
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### Exhibit 24 – Overview Map of SunZia Southwest Transmission Project





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