

**APS/SRP Stakeholder Meeting  
For Transmission Planning  
FERC Order 890  
OATT Attachment K  
(APS Attachment E)**

**APS Transmission Planning  
SRP Transmission Planning**  
Phoenix, Arizona  
June 27, 2011



# Agenda

1. Welcome, Introductions, and Meeting Overview
2. Status of Action Items-12/16/10 Joint APS/SRP 4<sup>th</sup> Quarter Public Planning Meeting
3. APS Planning
  - a. APS Planning Calendar & Methodology
  - b. APS Filed Ten-Year Plan
  - c. 2011 Study Assumptions
  - d. Interconnection Requests and APS Generation Queue Status update
  - e. Transmission Service Requests
  - f. Requests received for Economic Planning Studies
  - g. Stakeholders invited to submit requests for additional transmission studies
  - h. Comments/Questions
4. SRP Planning
  - a. SRP Planning Calendar & Methodology
  - b. SRP Filed Ten-Year Plan Review
  - c. 2011 Study Assumptions
  - d. Interconnection Requests and SRP Generator Queue Status update
  - e. Transmission Service Requests
  - f. Requests Received for Economic Planning Studies
  - g. Stakeholders invited to submit requests for additional transmission studies
  - h. Comments/Questions
5. Current Activities Update
6. Stakeholder Questions/Comments
7. Action Items

- Welcome
- Introductions
- Meeting Overview

## 2. Status of Action Items

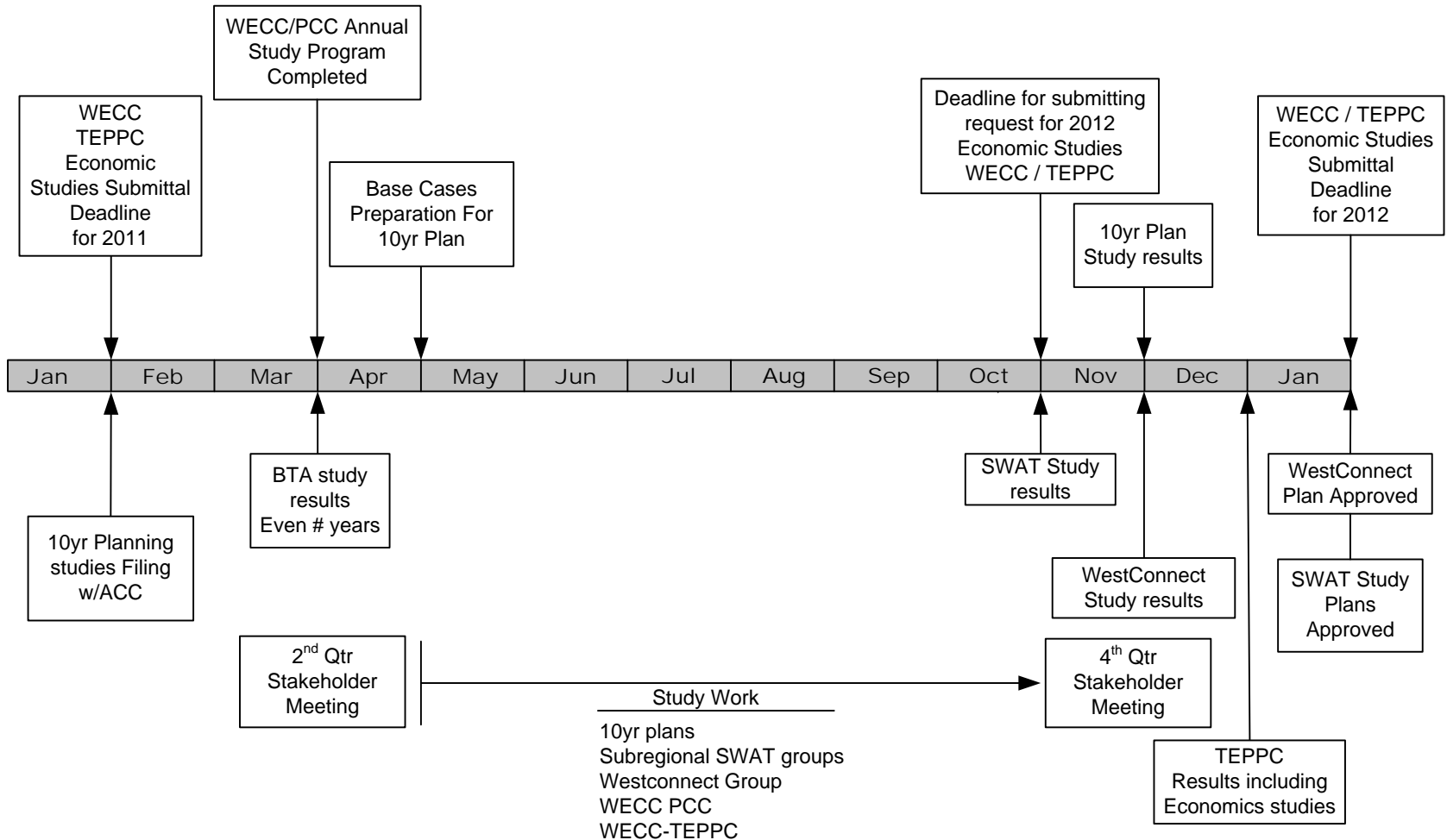
- There were no action items to report from previous meeting

## 3.a. APS Planning Calendar & Methodology

- WECC/TEPPC/WestConnect Planning Calendar
- APS Planning Calendar
- Planning Process/Methodology

# 2011 Synchronized Study Plan

## WECC PCC / WECC - TEPPC / WESTCONNECT



# Planning Calendar for Ten-Year Planning Cycle

## APS Transmission Planning – 10 Yr Plan

## Stakeholder Input

## Other Subregional Coordination

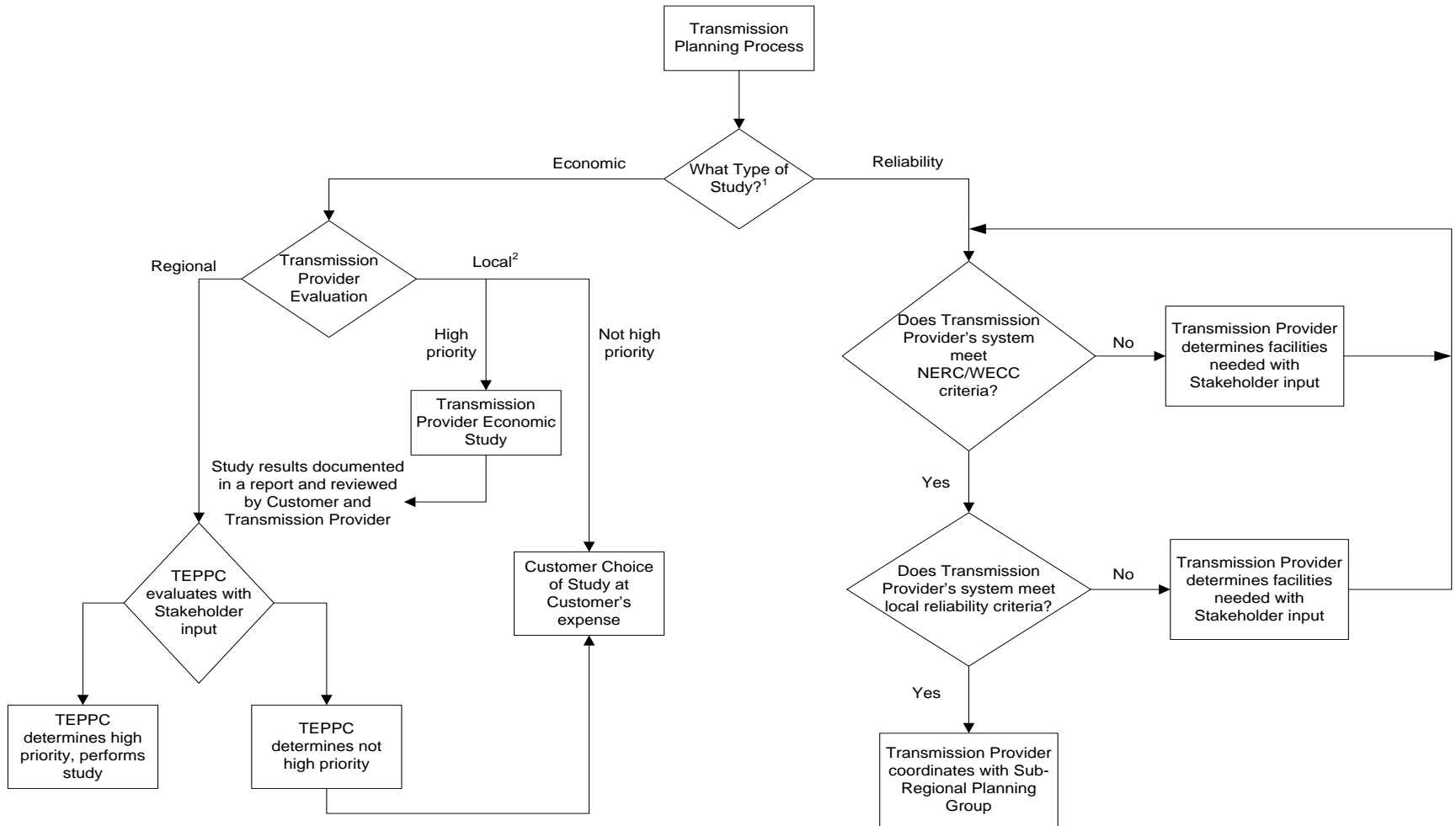
Jan.  
Feb.  
Mar.  
Apr.  
May  
Jun.  
Jul.  
Aug.  
Sep.  
Oct.  
Nov.  
Dec.

Jan.	10yr Plan – Filed with ACC by Jan. 31
Feb.	
Mar.	APS Corporate Load Forecast
Apr.	
May	Develop 10yr base cases from AZ seed cases
Jun.	
Jul.	10yr. Plan study effort – Determination of projects, timings, and scope
Aug.	
Sep.	APS Corporate Load Forecast – Post Summer
Oct.	
Nov.	10yr. Plan – New load forecast sensitivity
Dec.	

Jan.	WestConnect Coordinated base case development	10yr. Plans filed by others
Feb.		
Mar.		
Apr.	Arizona Utilities coordinated seed case development – from WestConnect cases	
May	2 <sup>nd</sup> Quarter Stakeholder Meeting – Stakeholder input on studies, request study alternatives, updates on current projects	
Jun.		
Jul.		
Aug.		
Sep.	Sep. 1 – Network Transmission Customers and all other Transmission Customers Load & Resource Forecast	
Oct.	Oct. 31 – Deadline to submit Economic Study Requests for 4 <sup>th</sup> Quarter Meeting review	
Nov.	4 <sup>th</sup> Quarter Stakeholder Meeting – Review draft of current 10yr plan, discussion Economic Study requests, receive stakeholder input	
Dec.		

<u>Activities Throughout the Year</u>
<ul style="list-style-type: none"> <li>• APS/SRP Coordination Meeting</li> <li>• APS/WAPA Coordination Meeting</li> <li>• WestConnect Meetings</li> <li>• SWAT Meetings                             <ul style="list-style-type: none"> <li>○ CATS</li> <li>○ CRT</li> <li>○ AZ/NM</li> <li>○ SATS</li> <li>○ Renewables</li> <li>○ Short-circuit Working Group</li> </ul> </li> </ul>

# Exhibit 1 – APS Attachment E



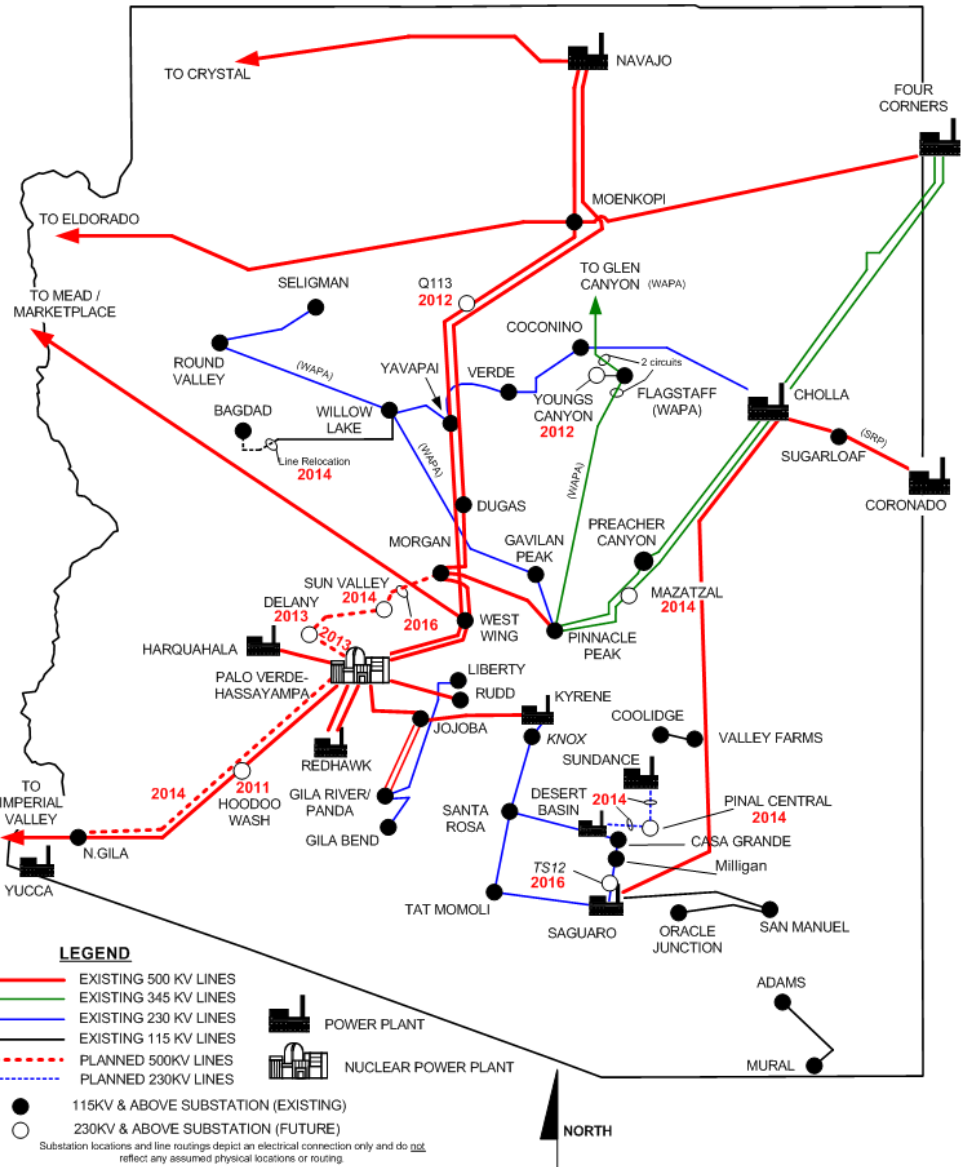
1. Generator Interconnection Request studies are performed pursuant to the Large Generator Interconnection Procedure contained in the Transmission Provider's Open Access Transmission Tariff (OATT). Transmission Service Requests are also performed pursuant to OATT procedures.

2. All requests for economic planning studies received by the Transmission Provider are forwarded to TEPPC for inclusion in the TEPPC Master List. TEPPC will evaluate only those requests that have regional impacts.

## 3.b. APS Ten Year Plan Projects 2010-2019

Transmission Plan  
Filed on Jan. 28, 2011

# APS EHV & OUTER DIVISION 115/230 KV TRANSMISSION PLANS 2011 - 2020



## 2010 (In-Service):

- Morgan 500/230kV substation
- Morgan-Pinnacle Peak 500kV line

## 2011:

- Hoodoo Wash 500kV switchyard

## 2012:

- Youngs Canyon 345/69kV substation

## 2013:

- Delaney-Palo Verde 500kV line

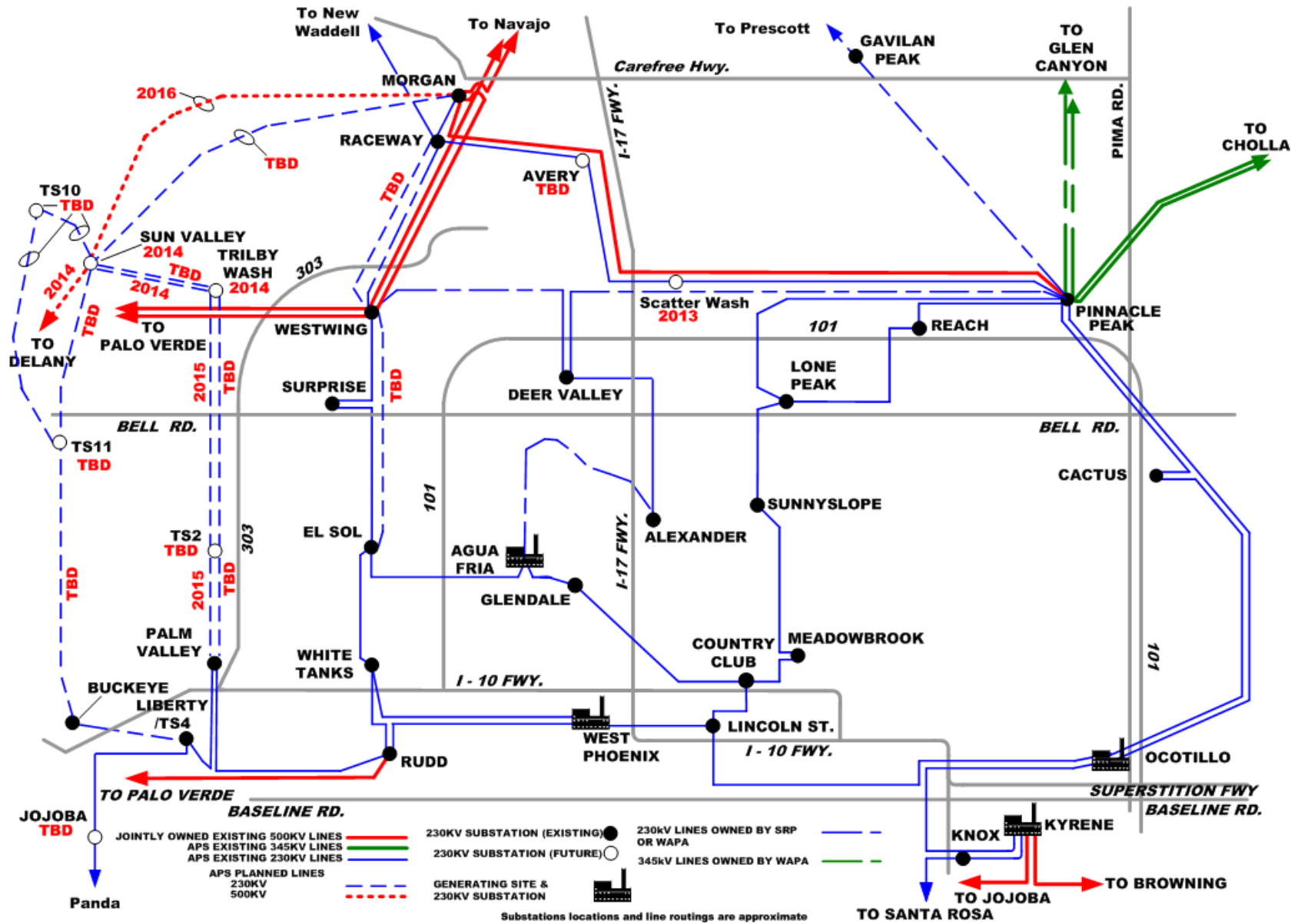
## 2014:

- Delaney-Sun Valley 500kV line
- Hassayampa-N.Gila 500kV line
- D. Basin-Pinal Central 230kV line
- Pinal Central-Sundance 230kV line
- Mazatzal 345/69kV substation
- Bagdad 115kV relocation

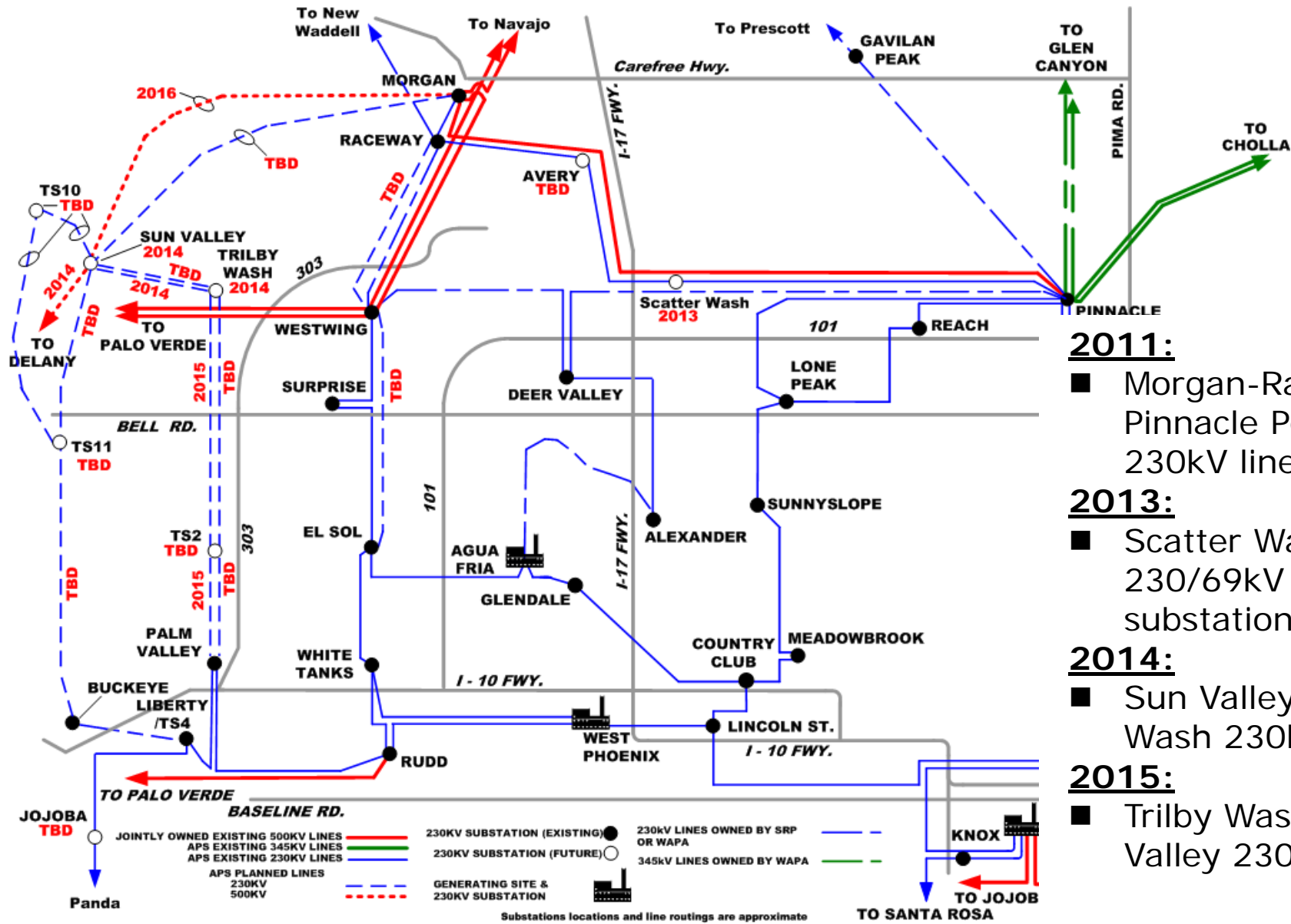
## 2016:

- Morgan-Sun Valley 500kV line
- TS12 230/69kV substation

# PHOENIX METROPOLITAN AREA TRANSMISSION PLANS 2011-2020

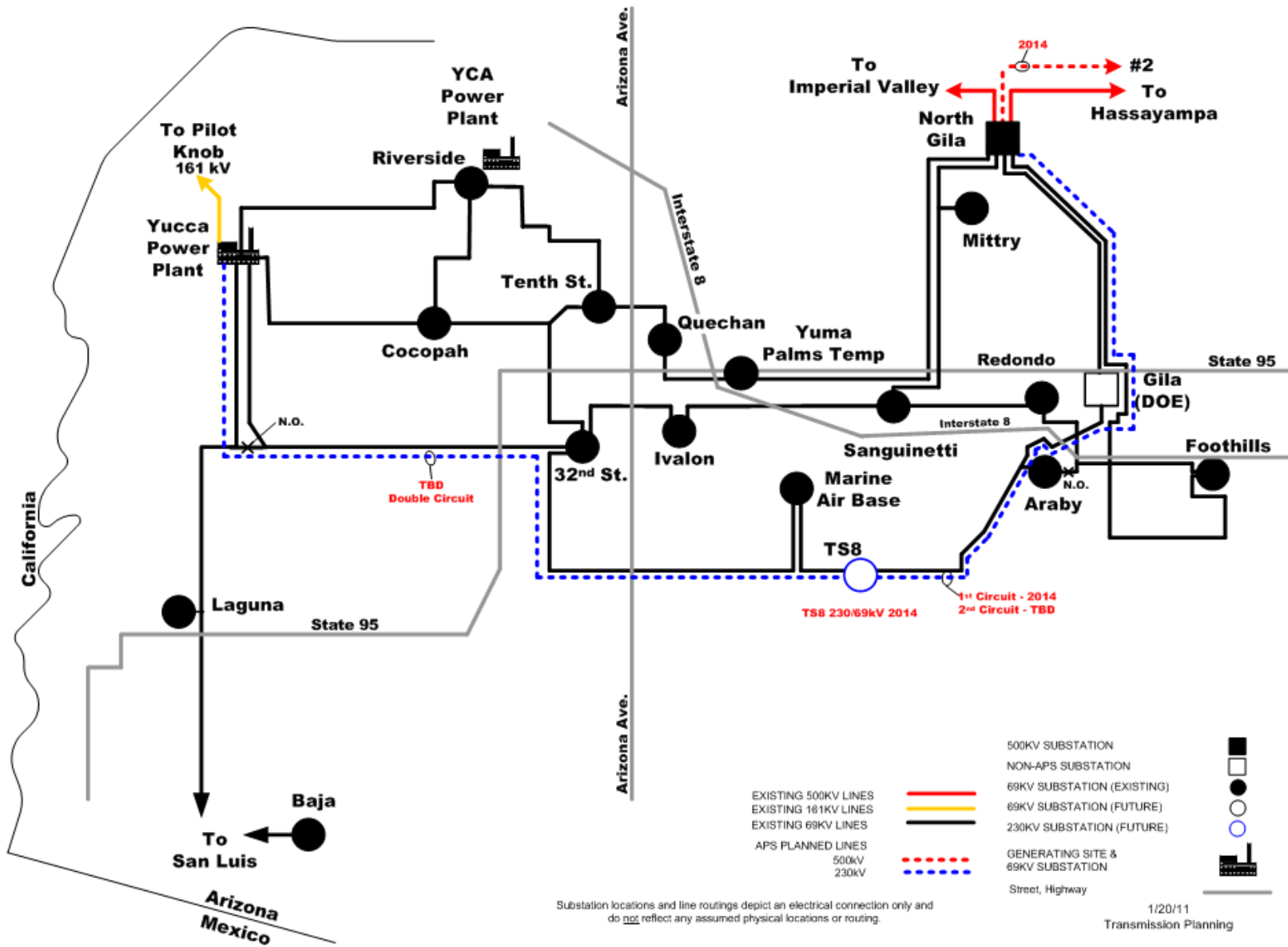


# PHOENIX METROPOLITAN AREA TRANSMISSION PLANS 2011-2020



- 2011:**
  - Morgan-Raceway-Pinnacle Peak 230kV line
- 2013:**
  - Scatter Wash 230/69kV substation
- 2014:**
  - Sun Valley-Trilby Wash 230kV line
- 2015:**
  - Trilby Wash-Palm Valley 230kV line

# Yuma Area Transmission Plans 2011- 2020

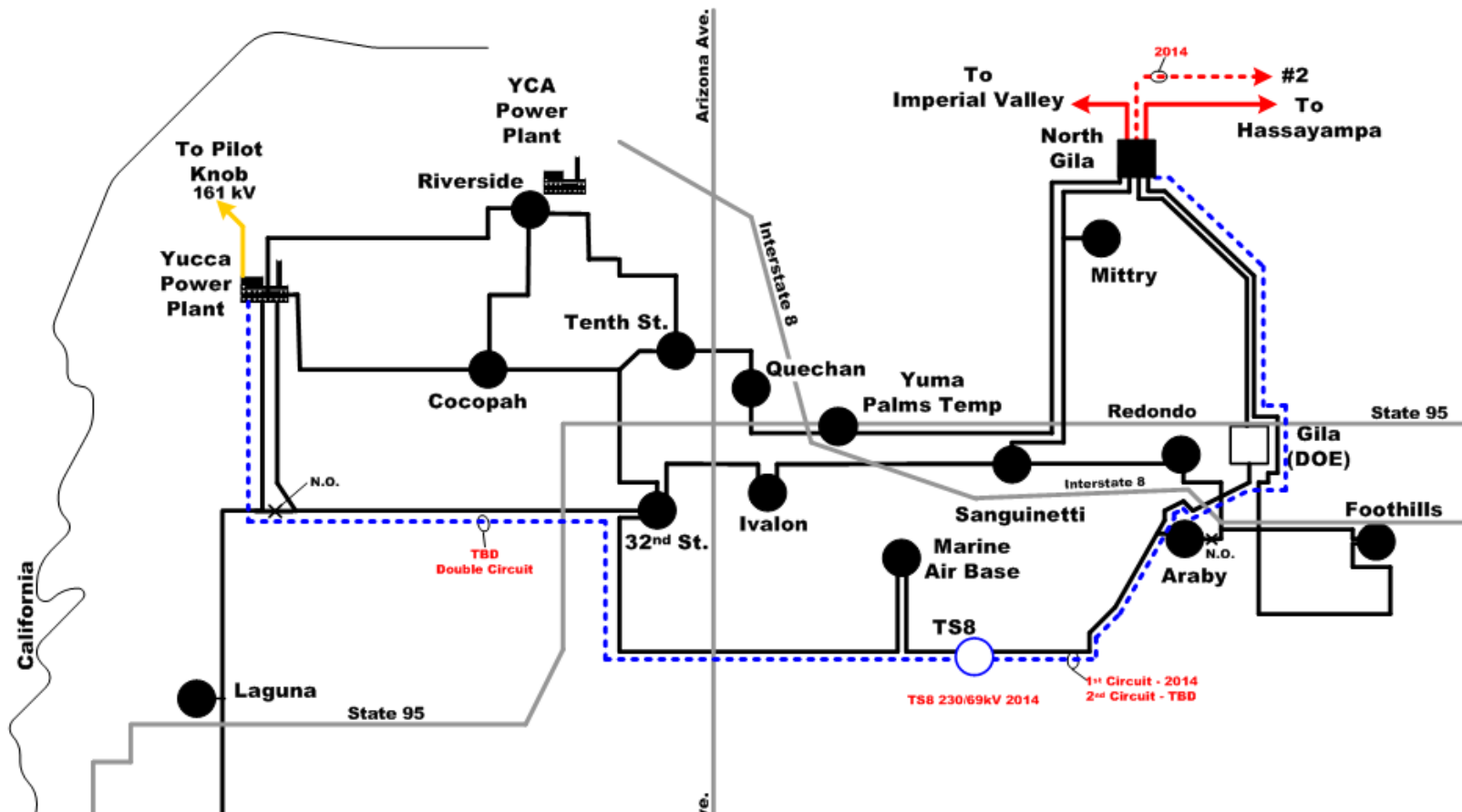


Substation locations and line routings depict an electrical connection only and do not reflect any assumed physical locations or routing.

- 500KV SUBSTATION
- NON-APS SUBSTATION
- 69KV SUBSTATION (EXISTING)
- 69KV SUBSTATION (FUTURE)
- 230KV SUBSTATION (FUTURE)
- GENERATING SITE & 69KV SUBSTATION
- Street, Highway

1/20/11  
Transmission Planning

# Yuma Area Transmission Plans 2011- 2020



## 2014:

- Palo Verde Hub-North Gila 500kV #2 line
- North Gila-TS8 230kV line

EXISTING 500KV LINES		500KV SUBSTATION	
EXISTING 161KV LINES		NON-APS SUBSTATION	
EXISTING 69KV LINES		69KV SUBSTATION (EXISTING)	
APS PLANNED LINES		69KV SUBSTATION (FUTURE)	
500kV		230KV SUBSTATION (FUTURE)	
230kV		GENERATING SITE & 69KV SUBSTATION	
		Street, Highway	

Substation locations and line routings depict an electrical connection only and do not reflect any assumed physical locations or routing.

1/20/11  
Transmission Planning

# Bulk Transformer Additions/Replacements

<u>Description</u>	<u>Year</u>
Black Peak 161/69kV Transformer Replacement	2011
Kyrene 500/230kV Transformer #3	2011
Pinnacle Peak 230/69kV Transformer #4	2011
El Sol 230/69kV Transformer #3	2013
Buckeye 230/69kV Transformer #2 Replacement	2016
Lincoln St. 230/69kV Transformer #2	2016
Yavapai 230/69kV Transformer #2	2016
Palm Valley 230/69kV Transformer #2	2017
Raceway 230/69kV Transformer #2	2017
Scatter Wash 230/69kV Transformer #2	2017

# In-Service Date Changes

<u>Project Name</u>	<u>Previous in-service date</u>	<u>New in-service date</u>
TS12 Loop-in of Saguaro-Milligan 230kV line	2012	2016
Delany-Palo Verde 500kV line	2012	2013
Mazatzal loop-in of Cholla-Pinnacle Peak 345kV line	2013	2014

## 3.c. 2010 NERC/WECC Reliability Studies

- Summer Peak cases
  - TPL-001 & TPL-002
    - Thermal analysis (All 10 years)
    - Post-Transient (All 10 years)
    - Transient Stability (2012 & 2020)
  - TPL-003 & TPL-004 (2013 & 2019)
- Maximum Load Serving Capability for Phx & Yuma (All 10 years)
  - TPL-001 & TPL-002 Thermal and Post Transient
- Low Load case (2014)
  - Thermal, Transient Stability, & Post Transient
  - TPL-001 thru TPL-004

# 2010 NERC/WECC Studies

APS TPL Planning Methodology: Summer				
NERC STANDARD		STUDIES COMPLETED		
TPL -001(n-0)		Thermal	Transient Stability	Post Transient
2013	SIL	X		
2013	PEAK	X		
2019	SIL	X		
2019	PEAK	X		
TPL-002 (n-1)				
2013	SIL (Lines, xfmrs, gens)	X		X
2013	PEAK (Lines, xfmrs, gens)	X	X	X
2013	MLSC (Lines, xfmrs, gens)	X		X
2019	SIL (Lines, xfmrs, gens)	X		X
2019	PEAK (Lines, xfmrs, gens)	X	X	X
2019	MLSC (Lines, xfmrs, gens)	X		X
TPL-003 (n-2)				
2013	Stuck Breaker/Breaker Failure	X	X	X
2013	N-1-1	X	X	X
2013	Bus Section	X	X	X
2019	Stuck Breaker/Breaker Failure	X	X	X
2019	N-1-1	X	X	X
2019	Bus Section	X	X	X
TPL-004 (n-xx)				
2013	Major Substations With/Without Generation	X	X	X
2013	Stuck Breaker/Breaker Failure	X	X	X
2013	Common Corridor	X	X	X
2019	Major Substations With/Without Generation	X	X	X
2019	Stuck Breaker/Breaker Failure	X	X	X
2019	Common Corridor	X	X	X

# 2010 NERC/WECC Studies

APS TPL Planning Methodology: WINTER SEASON - Low load				
NERC STANDARD		STUDIES COMPLETED		
<b>TPL -001(n-0)</b>		<b>Thermal</b>	<b>Transient Stability</b>	<b>Post Transient</b>
2014	WINTER - Low load	X		
<b>TPL-002 (n-1)</b>				
2014	TRANSMISSION LINE	X	X	X
2014	XFMR	X		X
2014	GENERATION	X		X
2014	REACTORS	X		X
<b>TPL-003 (n-2)</b>				
2014	Stuck Breaker	X	X	X
2014	N-1-1	X	X	X
<b>TPL-004 (n-xx)</b>				
2014	Loss of All Generation Units at a Station	X	X	X
2014	Common Corridor	X	X	X

## 3.c. 2011/2012 Study Assumptions

- Coordinated Base Cases (Seed Cases)
  - 2014 - WECC 2014hs3sa case
  - 2021 - WECC 2021hs1a case
- 69kV transmission models incorporated
- Most up-to-date forecasts for peak summer loads

## 3.c. 2011 NERC/WECC Reliability Studies

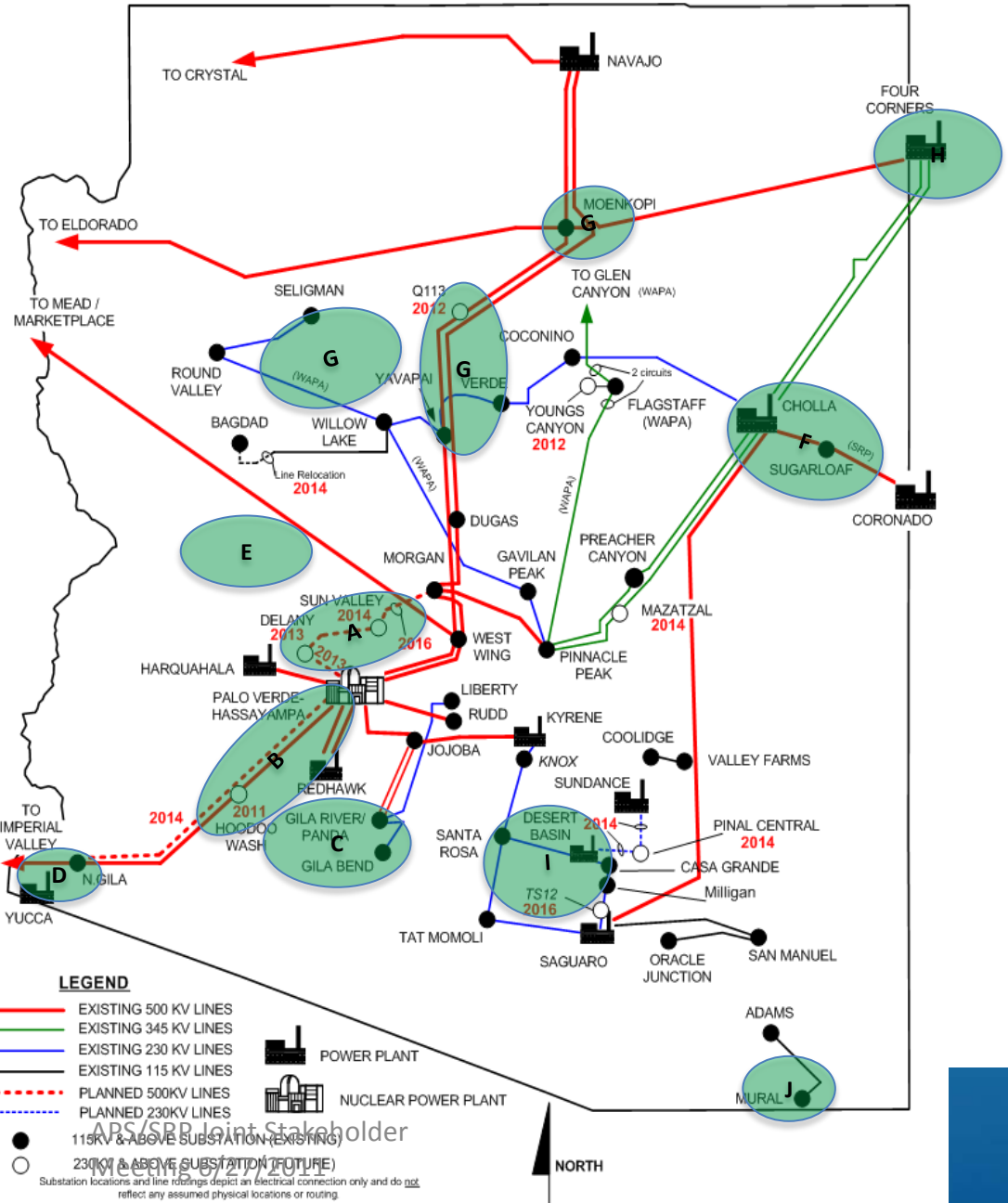
- Summer Peak cases
  - TPL-001 & TPL-002
    - Thermal analysis (All 10 years)
    - Post-Transient (All 10 years)
    - Transient Stability (2014 & 2021)
  - TPL-003 & TPL-004 (2012 & 2020)
- Maximum Load Serving Capability for Phx & Yuma (All 10 years)
  - TPL-001 & TPL-002 Thermal and Post Transient
- Low Load case (2012 & 2016)
  - Thermal, Transient Stability, & Post Transient
  - TPL-001 thru TPL-004

## 3.d. Generation Interconnection Requests

- Generation Interconnection requests
  - APS OASIS contains Generation Interconnection Queue
    - <http://www.oatioasis.com/azps/index.html>
    - 74 Solar projects - 5766.85 MW
    - 13 Wind projects - 3378.8 MW
    - 1 Biomass project - 2 MW
    - 1 natural gas project - 320 MW
      - 620 MW NG/PV combo

Note: Generator Queue information as of 6/3/11

# APS EHV & OUTER DIVISION 115/230 KV TRANSMISSION PLANS 2011 - 2020



## A - Delaney/Sun Valley

- 5 projects
- 2420 MW

## B - HAA-NG 500kV line

- 9 projects
- 2598 MW

## C - Gila Bend/Buckeye

- 43 projects
- 1413 MW

## D - Yuma

- 5 projects
- 516 MW

## E - La Paz

- 4 projects
- 110 MW

## F - Cholla/Showlow

- 10 projects
- 1317 MW

## G - Northern AZ

- 8 projects
- 2264 MW

## H - Four Corners

- 6 projects
- 600 MW

## I - Pinal County

- 2 projects
- 31 MW

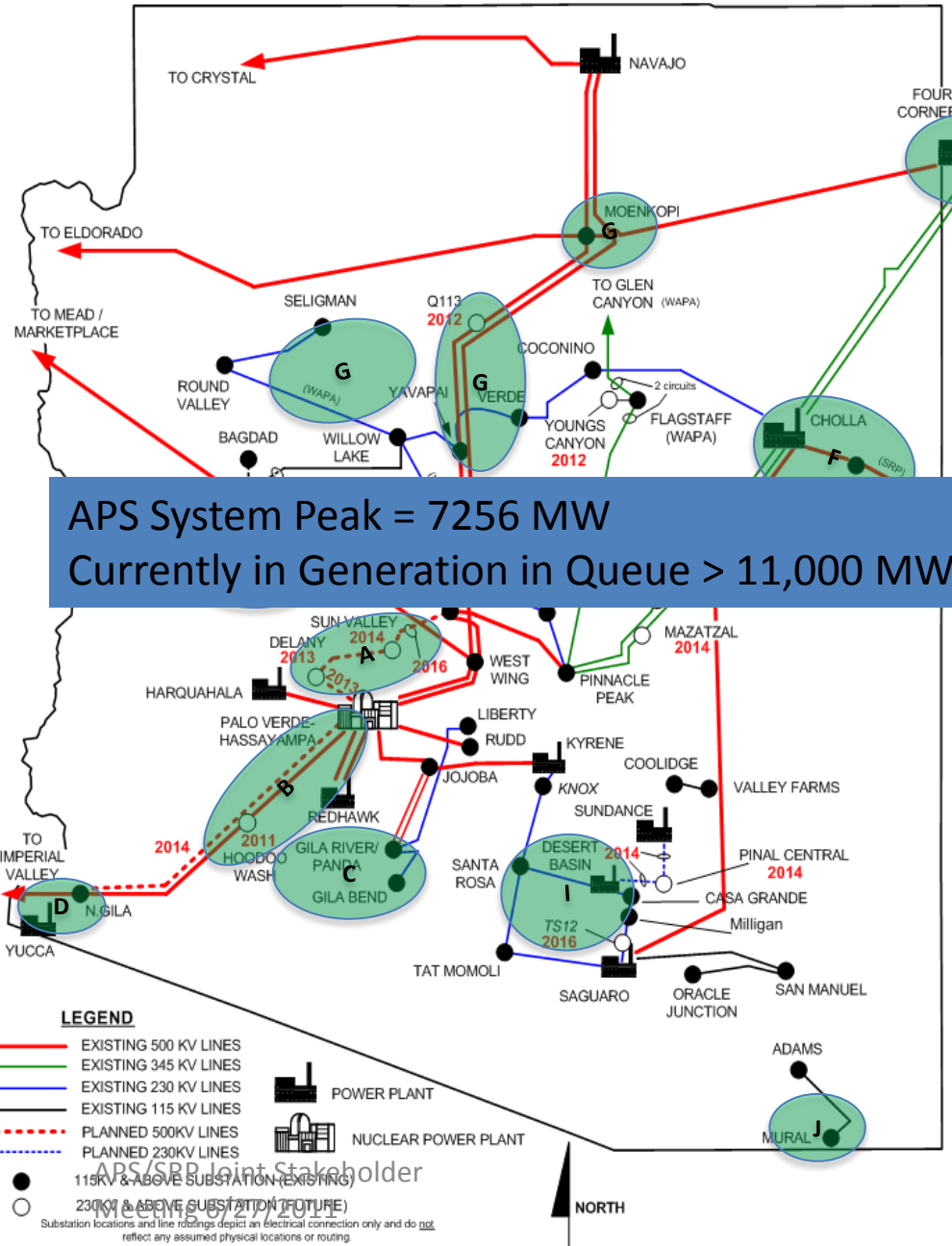
## J - Cochise County

- 3 projects
- 55 MW

Note 1: Generator Queue information as of 6/3/11  
 Note 2: Figures displayed do not represent complete queue



# APS EHV & OUTER DIVISION 115/230 KV TRANSMISSION PLANS 2011 - 2020



APS System Peak = 7256 MW  
 Currently in Generation in Queue > 11,000 MW

## A - Delaney/Sun Valley

- 5 projects
- 2420 MW

## B - HAA-NG 500kV line

- 9 projects
- 2598 MW

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- 3 projects
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Note 1: Generator Queue information as of 6/3/11  
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APS/SRP Joint Stakeholder Meeting 6/27/2011



## 3.e&f. Transmission Interconnection & Study Requests

- 1 Wires to Wires Interconnection Requests
- 1 Transmission Service Requests waiting to begin study
- Currently no Economic Study Requests

## 3.g. Stakeholder Study Requests

- Study requests can be taken at today's meeting
- Study requests can be made at any time to:
  - [apstransmission@aps.com](mailto:apstransmission@aps.com)

# 3.h. Comments & Question

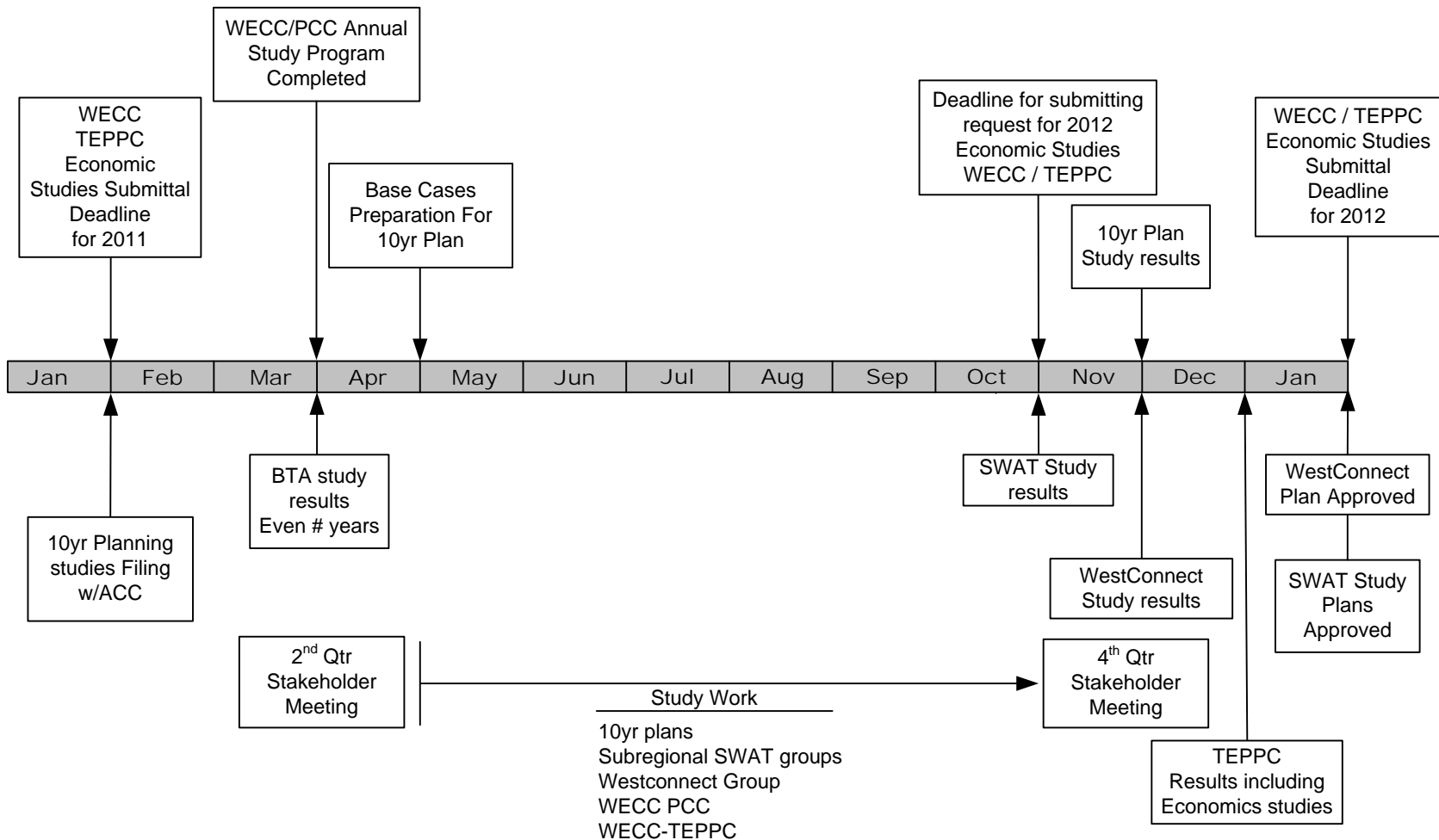
- Comments???????
- Questions!!!!!!!!!!!!

## 4.a. SRP Planning Calendar & Methodology

- i. WECC/TEPPC/WestConnect Planning Calendar
- ii. SRP Planning Calendar
- iii. Planning Process/Methodology

# 2011 Synchronized Study Plan

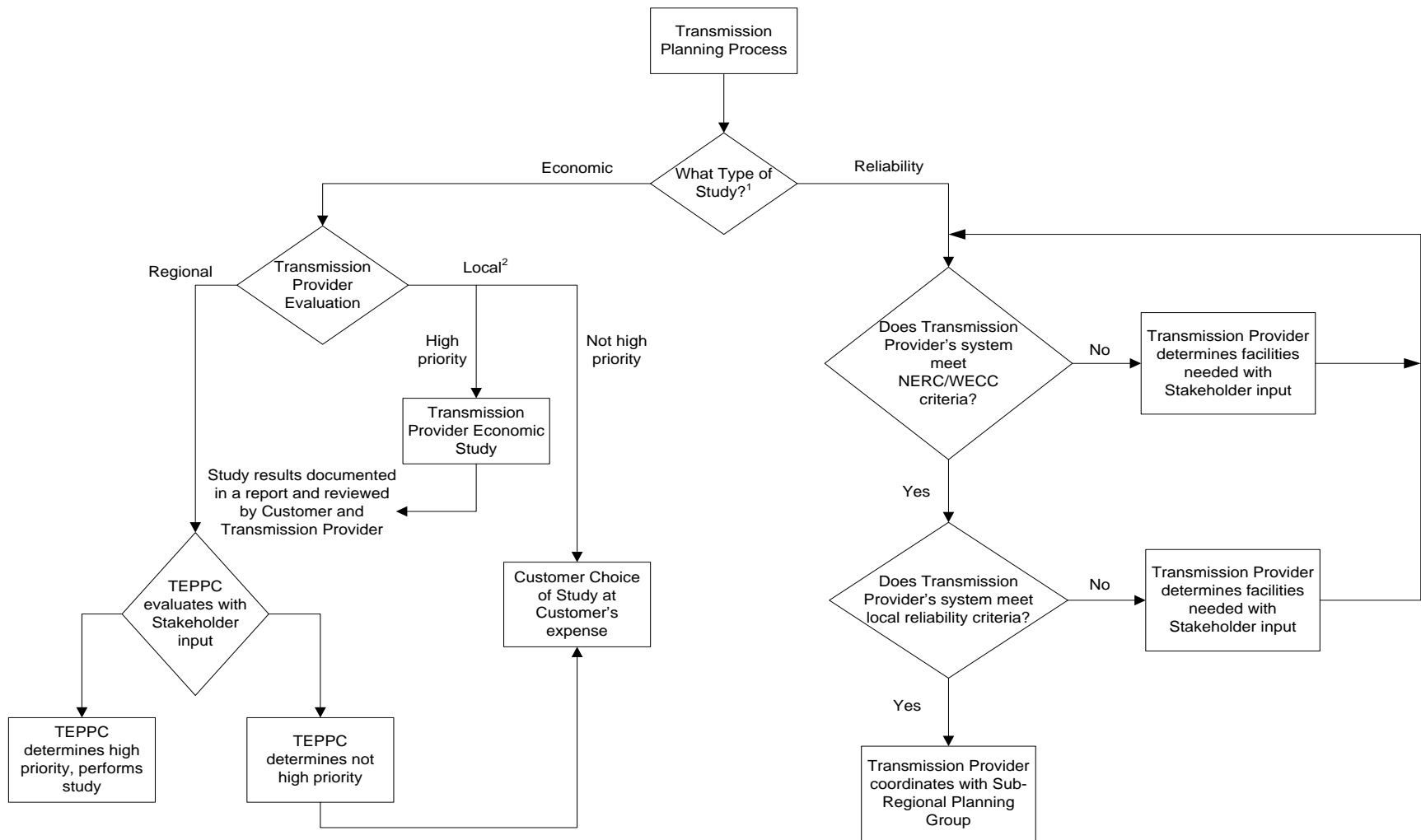
## WECC PCC / WECC - TEPPC / WESTCONNECT



# Planning Calendar for Ten-Year Planning Cycle

	<u>SRP Transmission Planning – 10 Yr Plan</u>	<u>Stakeholder Input</u>	<u>Other Subregional Coordination</u>
Jan.	10yr Plan – Filed with ACC by Jan. 31		<p><b><u>Activities Throughout the Year</u></b></p> <ul style="list-style-type: none"> <li>• APS/SRP Coordination Meeting</li> <li>• SRP/WAPA Coordination Meeting</li> <li>• WestConnect Meetings</li> <li>• SWAT Meetings               <ul style="list-style-type: none"> <li>○ CATS</li> <li>○ CRT</li> <li>○ AZ/NM</li> <li>○ SATS</li> <li>○ Renewables</li> <li>○ Short-circuit Working Group</li> </ul> </li> </ul>
Feb.		WestConnect Coordinated base case development	
Mar.	SRP Corporate Load Forecast		
Apr.		Arizona Utilities coordinated seed case development – from WestConnect cases	
May	Develop 10yr base cases from AZ seed cases	2 <sup>nd</sup> Quarter Stakeholder Meeting – Stakeholder input on studies, request study alternatives, updates on current projects	
Jun.			
Jul.	10yr. Plan study effort – Determination of projects, timings, and scope		
Aug.			
Sep.	SRP Corporate Load Forecast – Post Summer	Sep. 1 – Network Transmission Customers and all other Transmission Customers Load & Resource Forecast	
Oct.		Oct. 31 – Deadline to submit Economic Study Requests for 4 <sup>th</sup> Quarter Meeting review	
Nov.	10yr. Plan – New load forecast sensitivity	4 <sup>th</sup> Quarter Stakeholder Meeting – Review draft of current 10yr plan, discussion Economic Study requests, receive stakeholder input	
Dec.			

# Exhibit 1 – SRP Attachment K



1. Generator Interconnection Request studies are performed pursuant to the Large Generator Interconnection Procedure contained in the Transmission Provider's Open Access Transmission Tariff (OATT). Transmission Service Requests are also performed pursuant to OATT procedures.

2. All requests for economic planning studies received by the Transmission Provider are forwarded to TEPPC for inclusion in the TEPPC Master List. TEPPC will evaluate only those requests that have regional impacts.

## 4.a.iii. SRP Planning Process & Methodology

- Assumptions and Methodology
- Types of Studies Performed
- Proposed 2011–2020 Ten Year Plan

## 4.a.iii. SRP Planning Process & Methodology

- Coordinated Base Cases (Seed Cases)
  - NERC Compliance Studies
    - 2013 – APS/SRP 2013 coordinated case
    - 2017 – APS/SRP 2017 coordinated case
  - BTA Studies
    - 2020 – WECC 2020 HS coordinated case
- 69kV transmission models incorporated
- Most up-to-date forecasts for peak summer loads

# 4.a.iii. SRP Planning Process & Methodology

## NERC Compliance Studies Cases

- 2013 & 2017 Summer Peak & Off-peak Cases
- 2013 & 2017 Off-peak Cases are Low Load (winter conditions) and High Import (shoulder cases with low generation in the Phoenix Metro Area).
- Following analysis are conducted:
  - Thermal analysis
  - Post-Transient
  - Transient Stability

# Planning Methodology

NERC STANDARD		Type of Studies Completed		
TPL-001 (N-0)		Thermal	Transient Stability	Post-transient
2013	Peak	X		
2013	Low Load	X		
2013	High Import	X		
2017	Peak	X		
2017	Low Load	X		
2017	High Import	X		
2017	All-in	X		
TPL-002 (N-1)		Thermal	Transient Stability	Post-transient
2013	Peak	X	X	X
2013	Low Load	X	X	X
2013	High Import	X	X	X
2017	Peak	X	X	X
2017	Low Load	X	X	X
2017	High Import	X	X	X

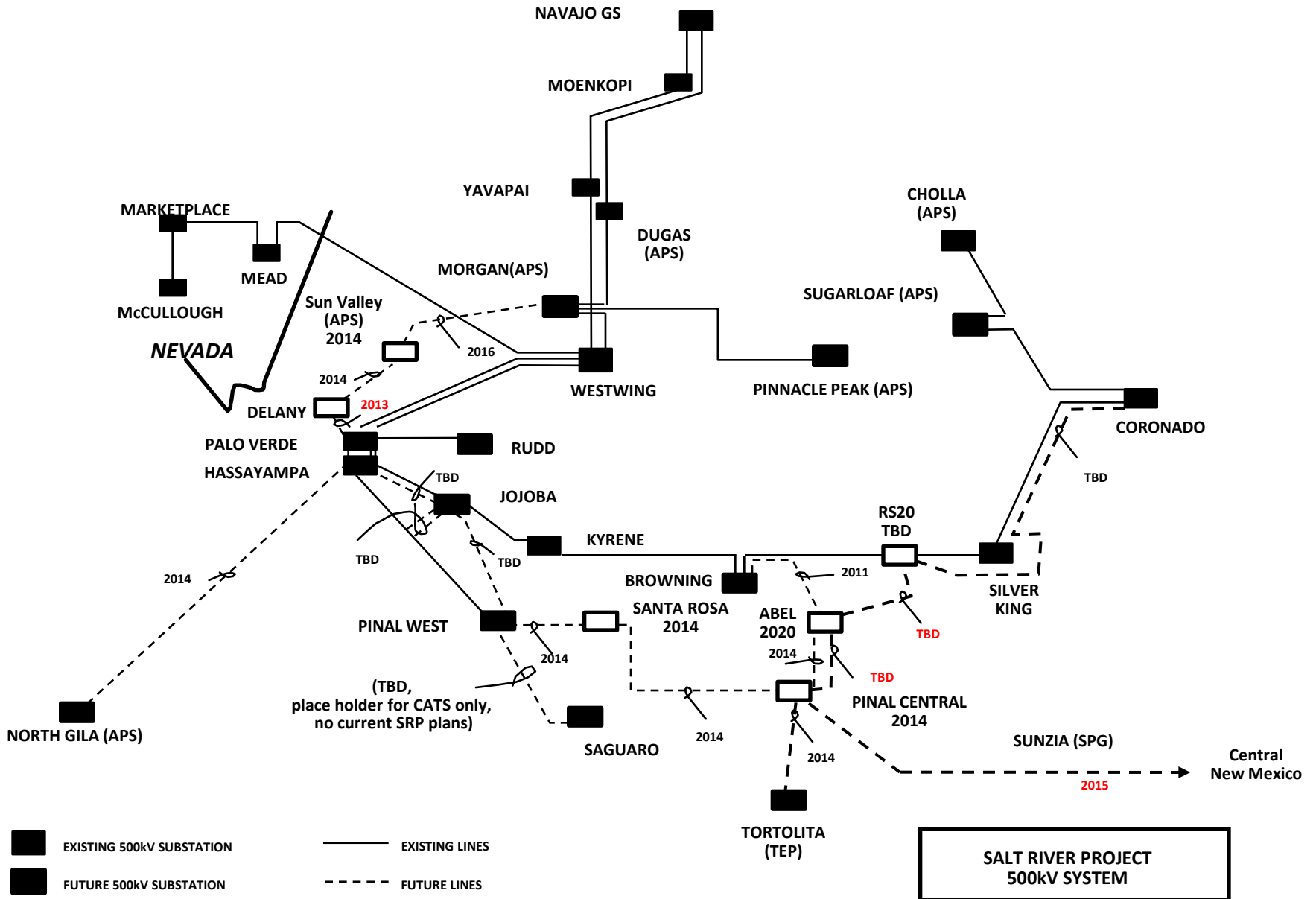
# Planning Methodology

NERC STANDARD		Type of Studies Completed		
TPL-003 (N-2)		Thermal	Transient Stability	Post-transient
2013	Bus outages	X	X	X
2013	Contingency of towers	X	X	X
2013	Stuck breaker	X	X	X
2013	Common Corridor	X	X	X
2013	N-1-1	X	X	X
2017	Bus outages	X	X	X
2017	Contingency of towers	X	X	X
2017	Stuck breaker	X	X	X
2017	Common Corridor	X	X	X
2017	N-1-1	X	X	X
TPL-004 (N-X)		Thermal	Transient Stability	Post-transient
2013	Substations with generation	X	X	
2013	Common Corridor/Substation without generation	X	X	

**Note: TPL-003 studies were performed on Peak, Low Load & High Import cases**

**4.b**  
**SRP Ten Year Plan**  
**2011-2020**

**Filed**



## **2011:**

- Browning-Pinal Central 500kV (it will be energized as Randolph-Browning 230kV until 2014)

## **2013:**

- Palo Verde-Delany 500kV

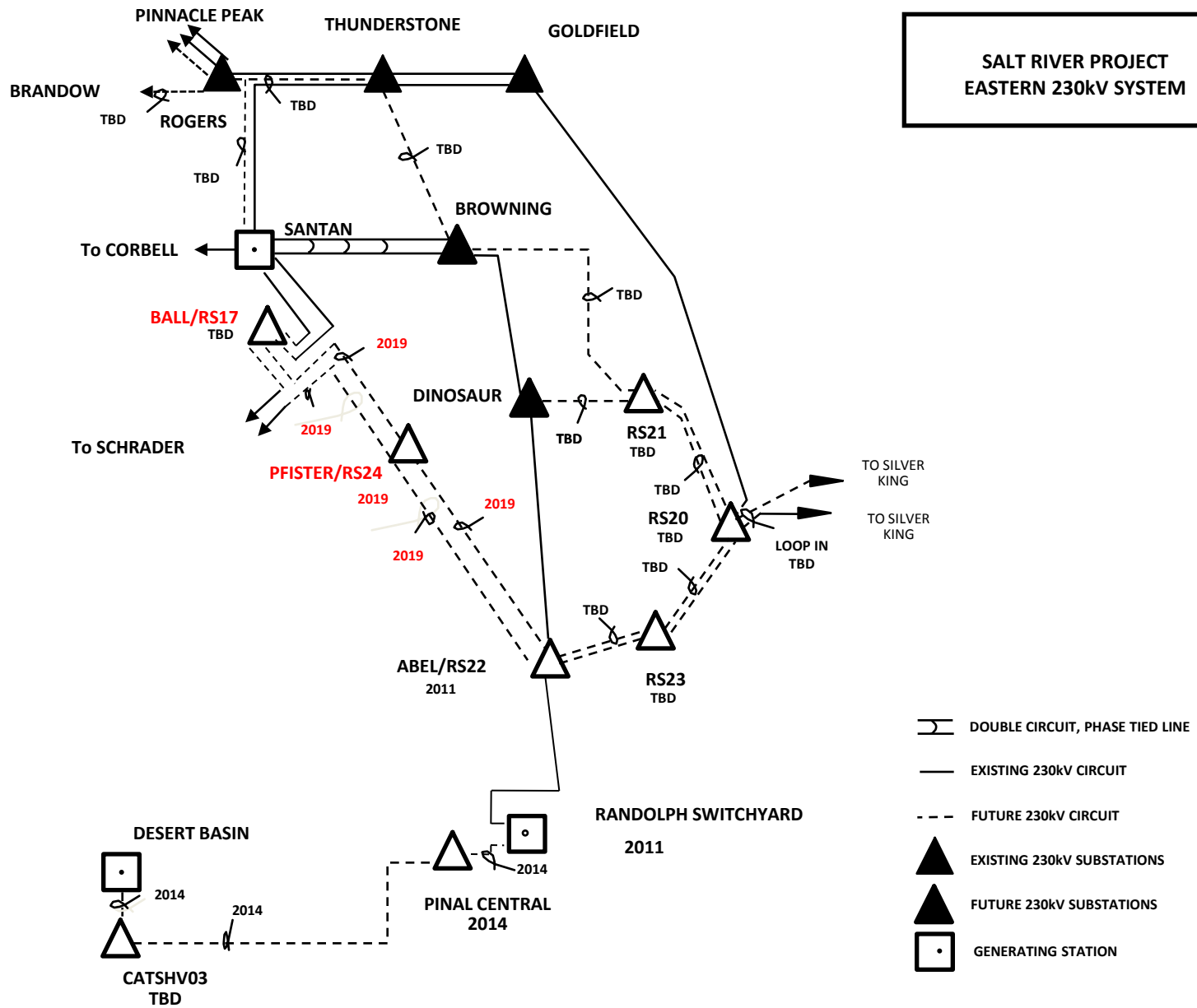
## **2014:**

- Delany-Sun Valley 500kV
- Hassayampa-N.Gila #2 500kV line
- Pinal West-Pinal Central 500kV
- Pinal Central - Tortolita 500kV line

## **2016:**

- Sun Valley-Morgan 500kV

**SALT RIVER PROJECT  
EASTERN 230kV SYSTEM**



## **2011:**

- Dinosaur-Abel-Randolph 230kV

## **2014:**

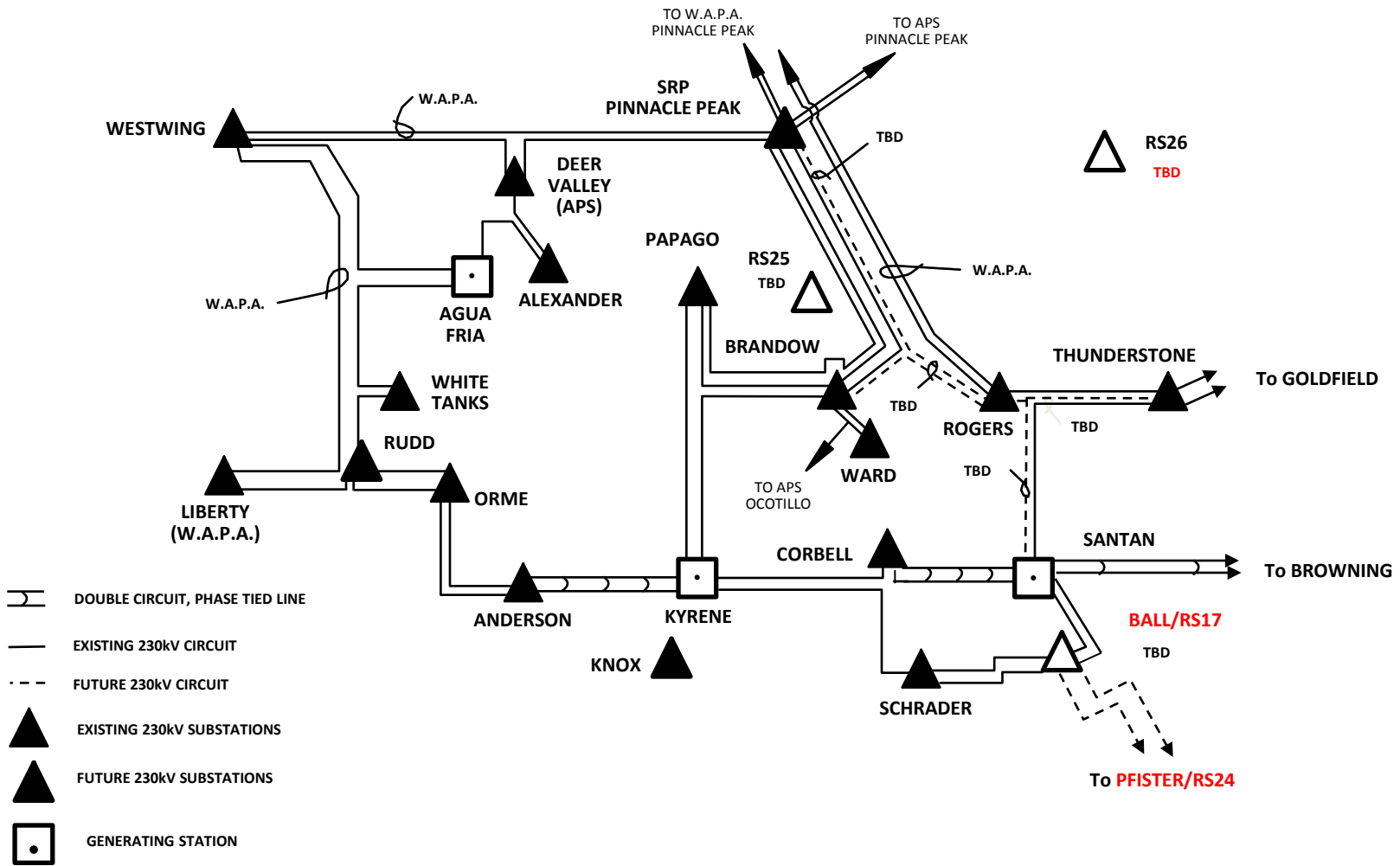
- Desert Basin-Pinal Central 230kV line
- Pinal Central - Randolph 230kV line







## **2019:**

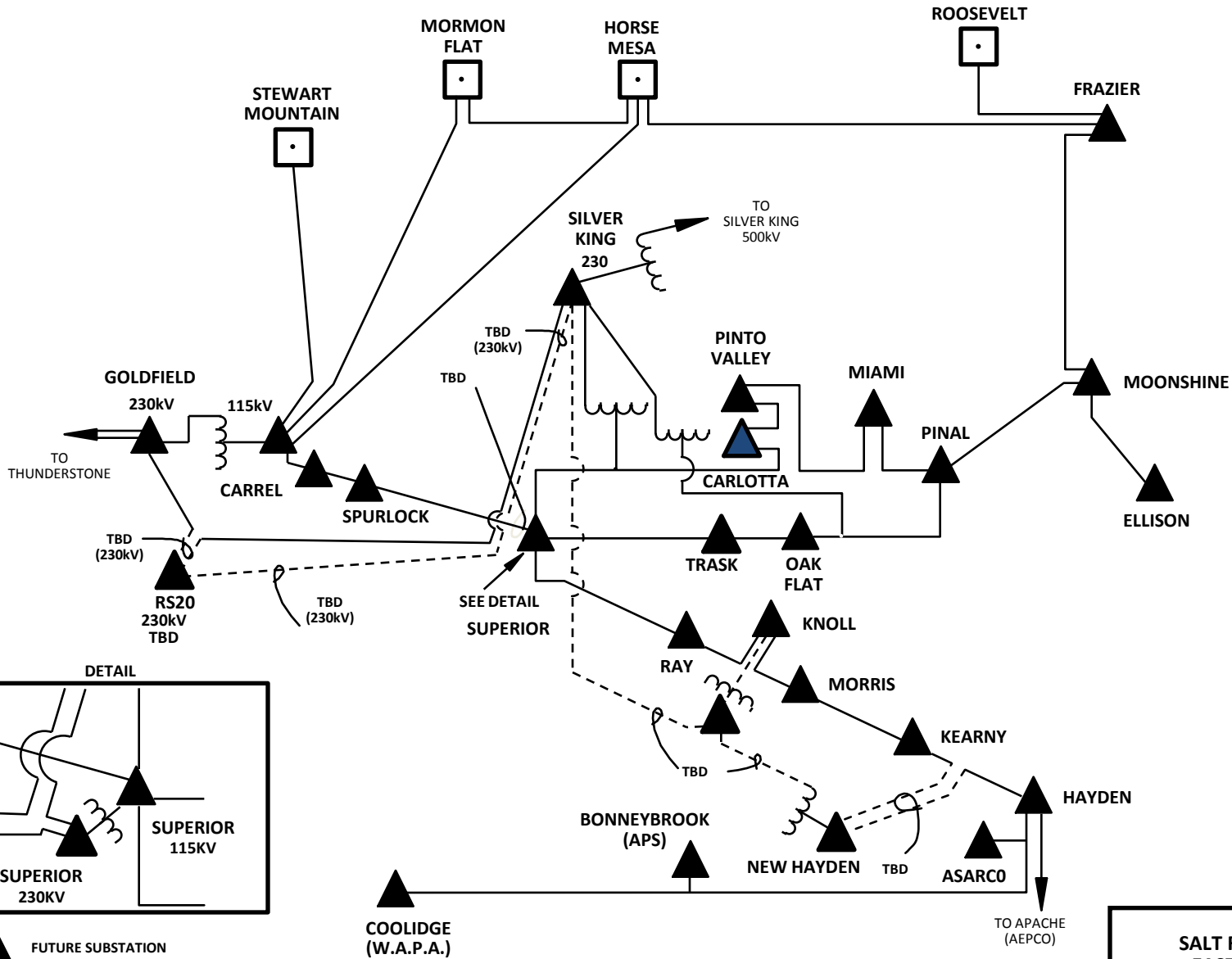
- Pfister(RS24) 230/69kV substation
- Abel-Pfister(RS24)-Schrader 230kV
- Abel-Pfister(RS24)-Santan 230kV

SALT RIVER PROJECT  
EASTERN 230kV SYSTEM

**SALT RIVER PROJECT  
WESTERN 230kV SYSTEM**



-  DOUBLE CIRCUIT, PHASE TIED LINE
-  EXISTING 230kV CIRCUIT
-  FUTURE 230kV CIRCUIT
-  EXISTING 230kV SUBSTATIONS
-  FUTURE 230kV SUBSTATIONS
-  GENERATING STATION



**SALT RIVER PROJECT  
EASTERN MINING  
AREA SYSTEM**

# Electric System Additions/Upgrades

Equipment	Year
Abel 1 <sup>st</sup> 230/69kV transformer	2011
Kyrene 3 <sup>rd</sup> 500/230kV transformer	2012
Rudd 1 <sup>st</sup> 230/69kV transformer	2013
Pinal Central 1 <sup>st</sup> & 2 <sup>nd</sup> 500/230kV transformers	2014
Schrader 3 <sup>rd</sup> 230/69kV transformer	2015
Pfister (RS-24) 1 <sup>st</sup> 230/69kV transformer	2019

# SRP Changes from 2010 to 2011

## 500kV Projects

- 2015 SunZia Project  
Delayed from 2013/2014
- TBD Pinal Central – Abel #2  
Delayed from 2020

## 230kV Projects

- 2019 Pfister(RS24) 230kV Transmission Project  
Delayed from 2018/2019
- TBD RS26 230kV Project  
Delayed from 2014

## 4.c 2011 Study Assumptions

- Coordinated Base Cases (Seed Cases)
  - 2014 WECC 2014hs3sa case
  - 2021 WECC 2021hs1a case
- 69kV transmission models incorporated
- Most up-to-date forecasts for peak summer loads

## 4.c 2011 Study Assumptions

### 2012-2021 SRP Ten-Year Plan

- TPL-001 & TPL-002 Studies Conducted for all ten years
- Studies conducted using Summer Peak Cases

### NERC Compliance Studies

- 2014 & 2018 Summer Peak & Off-peak Cases
- 2014 & 2018 Off-peak Cases are Low Load (winter conditions) and High Import (shoulder cases with low generation in the Phoenix Metro Area).

# 4.c 2011 Study Assumptions

## NERC Compliance Studies

- Following analysis are conducted:
  - Thermal analysis
  - Post-Transient
  - Transient Stability

# 4.c 2011 Study Assumptions

NERC STANDARD		Type of Studies Completed		
TPL-001 (N-0)		Thermal	Transient Stability	Post-transient
2014	Peak	X		
2014	Low Load	X		
2014	High Import	X		
2018	Peak	X		
2018	Low Load	X		
2018	High Import	X		
2018	All-in	X		
TPL-002 (N-1)		Thermal	Transient Stability	Post-transient
2014	Peak	X	X	X
2014	Low Load	X	X	X
2014	High Import	X	X	X
2018	Peak	X	X	X
2018	Low Load	X	X	X
2018	High Import	X	X	X

# 4.c 2011 Study Assumptions

NERC STANDARD		Type of Studies Completed		
TPL-003 (N-2)		Thermal	Transient Stability	Post-transient
2014	Bus outages	X	X	X
2014	Contingency of towers	X	X	X
2014	Stuck breaker	X	X	X
2014	Common Corridor	X	X	X
2014	N-1-1	X	X	X
2018	Bus outages	X	X	X
2018	Contingency of towers	X	X	X
2018	Stuck breaker	X	X	X
2018	Common Corridor	X	X	X
2018	N-1-1	X	X	X
TPL-004 (N-X)		Thermal	Transient Stability	Post-transient
2014	Stuck breaker for 3PH faults	X	X	
2014	Substations with generation	X	X	
2014	Common Corridor/Substation without generation	X	X	

**Note: TPL-003 studies were performed on Peak, Low Load & High Import cases**

# SRP Planning - Study Requests

- Generation Interconnection Requests
- Transmission Interconnection Requests
- Transmission Service Requests
- Economic Study Requests

## 4.d. SRP Planning –Interconnection Requests (Generation)

- Generation Interconnection Requests listed at the next slide are for SRP solely owned transmission.
- The generation interconnecting in SRP's queue is:

3 Natural Gas Projects	1359 MW
1 Wind Project	200 MW
6 Solar Projects	170 MW

LARGE AND SMALL GENERATOR INTERCONNECTION REQUEST QUEUE  
FOR SRP SOLELY OWNED TRANSMISSION

UPDATED: 5/31/2011

INTERCONNECTION REQUEST						GENERATING FACILITY LOCATION	POINT OF INTERCONNECTION	GENERATING FACILITY				SCOPING MEETING	STUDY AVAILABILITY*			
QUEUE POSITION	RECEIVED DATE	QUEUE DATE	STATUS	TYPE OF SERVICE	IN-SERVICE DATE REQUESTED	COUNTY & STATE	TRANSMISSION LINE OR STATION	TYPE	FUEL	SUMMER MAX MW	WINTER MAX MW	DATE	IFES	ISIS	IFAS	OS
1	9/6/2005	9/6/2005	Withdrawn	NRIS	3/1/2007	Navajo, AZ	CO-CH,CO-SK500kV	WT	W	150	150	11/1/2005	IP **			
2	5/22/2007	5/22/2007	OS	ERIS/NRIS	9/1/2010	Pinal, AZ	Randolph 230kV	CT	NG	495	562	6/28/2007	NA	C	C	C
3	7/14/2008	7/14/2008	Withdrawn	ERIS/NRIS	6/30/2015	NM	Coronado 500kV	WT	W	700	700	8/5/2008	C	IP		
4	8/22/2008	8/22/2008	IFAS	ERIS/NRIS	5/1/2016	Pinal, AZ	Abel 230kV	CT	NG	546	606	9/2/2008	NA	C		
5	8/22/2008	8/22/2008	IFAS	ERIS/NRIS	5/1/2015	Pinal, AZ	Abel 69kV	CT	NG	273	303	9/2/2008	NA	C		
6	8/25/2008	8/25/2008	IFAS	ERIS/NRIS	5/1/2018	Pinal, AZ	Pinal NewSub	CT	NG	540	540	9/2/2008	NA	C		
7	10/3/2008	10/3/2008	ISIS	ERIS/NRIS	12/1/2013	Navajo, AZ	CO-CH 500kV	WT	W	200	200	11/5/2008	C	IP		
8	6/19/2010	6/19/2010	Withdrawn	ERIS/NRIS	12/31/2013	Navajo, AZ	Cholla to Sugarloaf 500kV	WT	W	150	150	8/2/2010				
9	6/19/2010	6/19/2010	Withdrawn	ERIS/NRIS	12/31/2014	Navajo, AZ	Cholla to Sugarloaf 500kV	WT	W	150	150	8/2/2010				
10	6/25/2010	6/25/2010	Scope	ERIS/NRIS	11/1/2012	Pinal, AZ	Dinosaur 69kV	PV	S	50	50	12/1/2010				
11	7/23/2010	7/23/2010	Withdrawn	SGIP	12/1/2014	Pinal, AZ	Desert Basin 230kV	PV	S	20	20					
12	7/29/2010	7/29/2010	Withdrawn	SGIP	5/1/2012	Pinal, AZ	Abel 69kV	PV	S	20	20	10/13/2010	NA			
13	7/29/2010	7/29/2010	Scope	NRIS	5/1/2012	Pinal, AZ	Abel 69kV	PV	S	40	40	10/13/2010	NA			
14	10/7/2010	10/7/2010	Withdrawn	SGIP	3/31/2012	Pinal, AZ	Quail 69kV	PV	S	20	20	11/11/2010				
15	10/7/2010	10/7/2010	Withdrawn	SGIP	3/31/2012	Pinal, AZ	Quail 69kV	PV	S	20	20	11/11/2010				
16	10/12/2010	10/12/2010	Scope	SGIP	3/31/2012	Maricopa, AZ	Germann 69kV	PV	S	20	20	11/11/2010				
17	11/1/2010	11/1/2010	Withdrawn	SGIP	6/1/2012	Pinal, AZ	Hayden to Coolidge 115kV	PV	S	20	20	12/2/2010				
18	11/1/2010	11/1/2010	Withdrawn	SGIP	6/1/2012	Pinal, AZ	Hayden to Coolidge 115kV	PV	S	20	20	12/2/2010				
19	11/1/2010	11/1/2010	Withdrawn	SGIP	6/1/2012	Pinal, AZ	Hayden to Coolidge 115kV	PV	S	20	20	12/2/2010				
20	11/15/2010	11/15/2010	Scope	SGIP	7/1/2012	Pinal, AZ	Germann 69kV	PV	S	20	20	12/13/2010				
21	12/1/2010	12/1/2010	Scope	SGIP	12/31/2013	Pinal, AZ	Hayden to Coolidge 115kV	PV	S	20	20	1/17/2011				
22	12/10/2010	12/10/2010	Scope	SGIP	3/1/2012	Pinal, AZ	Quail to Dinosaur 69kV	PV	S	20	20	12/20/2010				
23	12/10/2010	12/10/2010	Withdrawn	SGIP	3/1/2012	Pinal, AZ	Quail to Dinosaur 69kV	PV	S	20	20	12/20/2010				

GLOSSARY

Type of Service: ERIS = Energy Resource Interconnection Service, NRIS = Network Resource Interconnection Service  
 Generator Type: CC = Combined Cycle, CT = Combustion Turbine, H = Hydro, IC = Internal Combustion, ST = Steam Turbine, PV = Photovoltaic, WT = Wind Turbine  
 Fuel Type: B = Biomass, C = Coal, LFG = Landfill Gas, NG = Natural Gas, NU = Nuclear, O = Oil, S = Solar, W = Wind, WTR = Water  
 Interconnection Studies: IFES = Interconnection Feasibility Study, ISIS = Interconnection System Impact Study, IFAS = Interconnection Facilities Study, OS = Optional Study  
 Study Availability: NA = not applicable, IP = in progress, C = complete

NOTES

\* Interconnection Studies available upon request  
 \*\* Timeline deviation per mutual agreement

## 4.d. SRP Planning –Interconnection Requests (Transmission)

- Currently there are no Transmission Interconnection Requests under study

## 4.e. SRP Planning - Transmission Service Requests

- Currently there are no Transmission Service Requests under study

## 4.f. SRP Planning – Economic Study Requests

- Currently there are no Economic Study Requests

## 4.g. Stakeholders Requests

- SRP invites Stakeholders to submit request for additional transmission studies

## 4.h. SRP Planning – Comments & Questions

- Stakeholder comments/questions on 2011 Study Results or 2012 Study Requests
- Requests can be made at any time to:
  - [SRP.TransmissionPlanning@srpnet.com](mailto:SRP.TransmissionPlanning@srpnet.com)

# 5. Current Activities Updates

- 2012 - Seventh Biennial Transmission Assessment Studies
  - RMR studies
    - APS Performing Phoenix and Yuma RMR studies
    - 2014 and 2021 years
    - Same methodology as prior studies
  - Tenth Year Snapshot Study - 2021
    - Includes all planned projects within the 10yr planning horizon
    - Removes each planned project (one at a time or multiple projects if interdependent) and perform N-0/N-1 analysis
  - Extreme Corridor Study
    - Studies the outages of select 500kV and 345kV corridors in AZ
    - Studies the outages of all xfmrs in a substation with multiple banks and no physical protection between units

# 6. Stakeholder Questions and Comments

- Open discussion

## Reference Material

- WestConnect –  
<http://www.westconnect.com/documents.php>
- APS OASIS –  
<http://www.oatioasis.com/azps/index.html>
- SRP OASIS –  
<http://www.oatioasis.com/srp/index.html>

# 7. Action Items

- Review any action items identified for follow up
- Information addressing action items to be posted on APS and/or SRP OASIS and WestConnect website