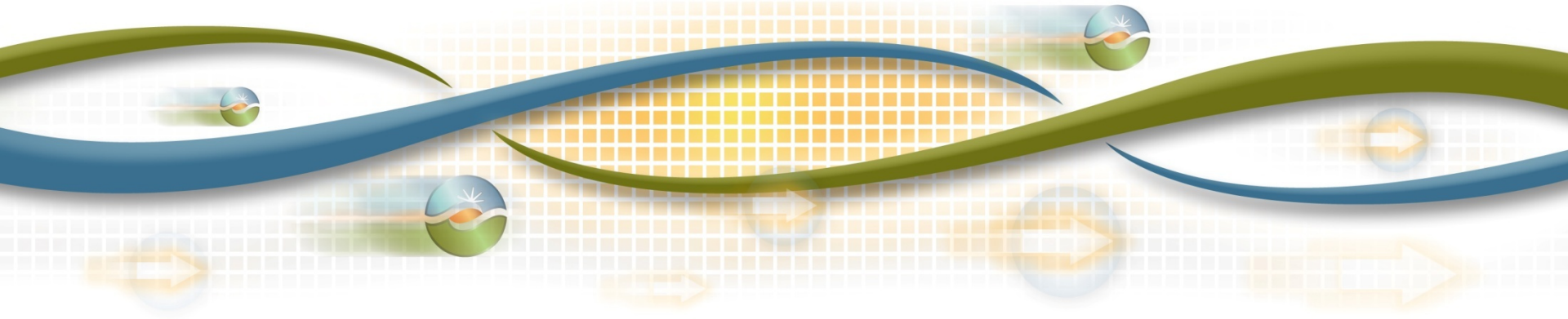


Agenda

Imperial County Transmission Consultation Stakeholder Meeting

Tom Cuccia
Lead Stakeholder Engagement and Policy Specialist
October 8, 2014



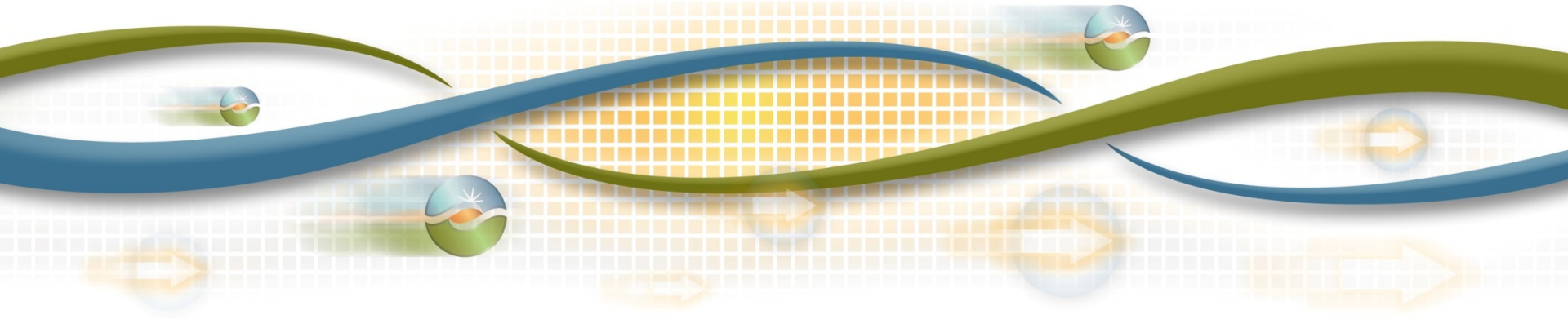
Imperial County Transmission Consultation Meeting - Today's Agenda

Topic	Presenter
Welcome and Logistics	Mercy Parker Helget
Overview & Stakeholder Process	Gary DeShazo
General Summary of Stakeholder Comments	Gary DeShazo
Current Resource Deliverability Capabilities from Imperial Valley Technical Addendum to the July 2, 2014 Imperial County Transmission Consultation Draft Discussion Paper	Neil Millar
Clarification of Maximum Import Capability	Catalin Micsa
Addendum to Transmission Options and Potential Corridor Designations in Southern California in Response to Closure of San Onofre Nuclear Generating Station (SONGS).	Susan Lee/Brewster Birdsall
Conclusions & Open Discussion	Neil Millar/All

Overview and Stakeholder Process and General Summary of Stakeholder Comments

Imperial County Transmission Consultation Stakeholder Meeting

Gary DeShazo
Director – Regional Coordination, Infrastructure Development
October 8, 2014



There is varied interest in the Imperial County area including factors that drive the need for study

- In July 2014 the CAISO initiated the Imperial Valley Consultation to inform the 2014-2015 planning process
- CAISO perceived a need to involve stakeholders in a consultation on import deliverability from Imperial County
- Generally, stakeholders are aware of deliverability impacts related to SONGS retirement and Once-Through-Cooling implementation; further discussion would be valuable
- Resultant transmission proposals are under consideration and visibility of recent CEC/Aspen environmental assessment was considered relevant to the discussion
- Possible synergies in achieving further reliability benefits in the LA Basin/San Diego area

The second discussion paper aligns with the key objectives presented in the first consultation meeting

- Elevate visibility of the CAISO's 2014-2015 transmission planning effort's focus on Imperial County deliverability
- Facilitate dialog on proposed transmission options to address Imperial County import deliverability and consideration of other options to consider
- Provide visibility of existing CEC/Aspen environmental assessments and consideration of additional assessments
- Consider the possibility of reallocating a portion of the Maximum Import Capability that is allocated to the transmission path from Arizona to enable increased import capability from Imperial County

Proposed stakeholder consultation schedule

Date	Milestone
July 2	Post first discussion paper [Completed]
July 14	Stakeholder meeting (in person) [Completed]
July 28	Stakeholder comments to be submitted to regionaltransmission@caiso.com [Completed]
September 24-25	Stakeholder Meeting #2 of the 2014-2015 Transmission Planning Process [Completed]
October 1	Post Revised Discussion Paper [Completed]
October 1	Post stakeholder comment matrix [Completed]
October 8	Second Stakeholder Meeting
October 15	Stakeholder comments to be submitted to regionaltransmission@caiso.com
October 31	Post finalized discussion paper
November 19-20	Stakeholder Meeting #3 of the 2014-2015 Transmission Planning Process
January 2015	California ISO Posts Draft 2014-2015 Transmission Plan



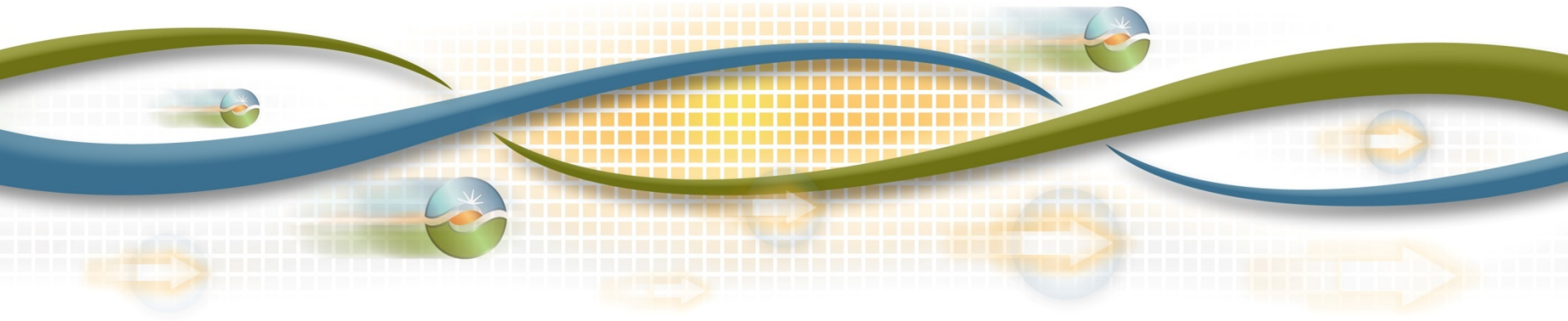
General Summary of Comments

Imperial County Transmission Consultation Stakeholder Meeting

Gary DeShazo

Director – Regional Coordination, Infrastructure Development

October 8, 2014



Comments from stakeholders covered a broad range of topics

- Comments were received from 23 stakeholders
- All comments and corresponding CAISO responses have been captured in a stakeholder comment matrix
- Stakeholders were asked to consider several questions
 - In addition to the transmission options under consideration, are there other options to consider?
 - Considering the information presented by Aspen, what additional information could be provided by Aspen?
 - Is the reallocation of Maximum Import Capability a viable option?
 - If so, what approaches should be considered by the CAISO to implement this proposal?

In addition to the transmission options under consideration, are there other options to consider?

- Several new options were proposed for consideration
- Proposed options utilized existing right-of-way, lowered construction costs, and/or increased overall import deliverability
- A common theme among some entities was consideration of reliability benefits to be gained by completing segments of some of the larger routes that were suggested for Aspen to consider
- The ability to stage the development of segments of the various alternatives may alter permitting assumptions on individual segments, while the overall alternative may be ranked as “very challenging”
- Such considerations could provide an interim arrangement, providing additional time to consider other options

Considering the information presented by Aspen, what additional information could be provided by Aspen?

- On balance, commenters positively embraced the inclusion of Aspen’s environmental information, however others were confused by the inclusion of this information as more current information had not been included
- As a result, the CAISO worked with the CEC and Aspen to prepare an addendum to their report to include recent data
- Once again, the concept of breaking down a “large scale” project into an “openly developed collection of segments drawn from the various aspects of large-scale project proposals”
- Such an approach might resolve the reliability issues for the long term by informing stakeholders of “avenues to solutions that can be assembled successfully while helping address critical reliability issues segment–by–segment”

Is the reallocation of Maximum Import Capability a viable option?

- On balance, commenters supported consideration of developing a reallocation methodology
- Considered an appropriate alternative to building new, high cost transmission facilities
- Comments also posited that there is no state policy to drive deliverability and as such, new transmission should not be built at ratepayer expense if it is needed to increase import capability from Imperial County
- Comparability across all CAISO import ties must be maintained

If so, what approaches should be considered by the CAISO to implement this proposal?

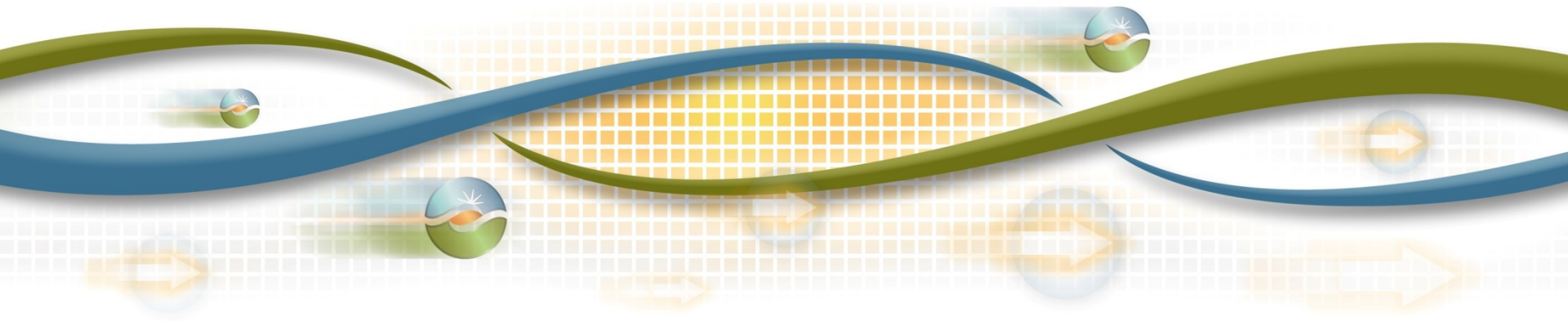
- Many commenters suggested that the existing MIC “look back” methodology should be replaced with a “forward looking” study based approach
- Additionally, opportunity costs that might be associated with a reallocation would need to be considered
- Broader stakeholder effort and rigorous testing is required to address any and all concerns related to existing and proposed new MIC methodology
- Preserving Existing Transmission Contracts (ETC), Transmission Ownership Rights (TOR), and old contracts (Pre-RA Import commitments) across all import ties are important legacy rights that should be retained
- “Constraint of simultaneity” must be maintained



Technical Addendum to the July 2, 2014 Imperial County Transmission Consultation Draft Discussion Paper

Imperial County Transmission Consultation Stakeholder Meeting

Neil Millar
Executive Director, Infrastructure Development
October 8, 2014



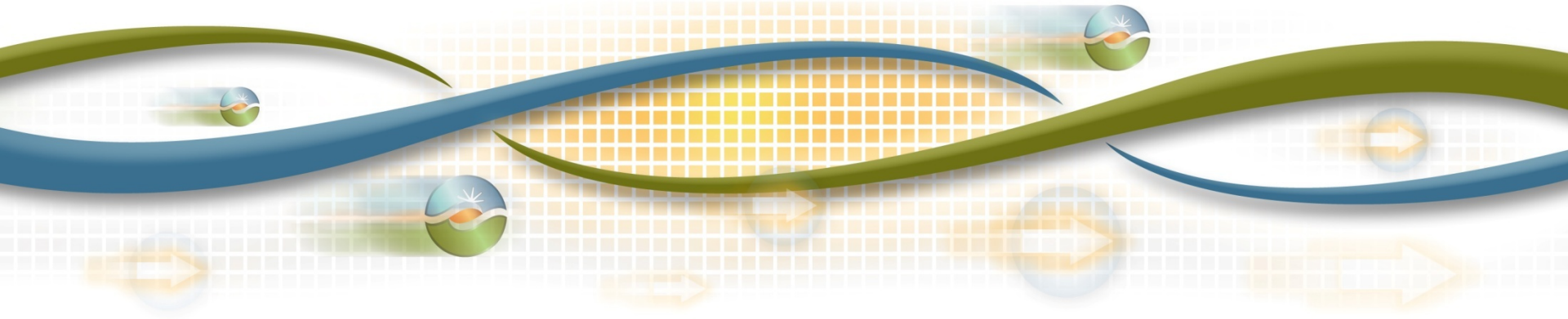
Technical addendum – Imperial County Deliverability

- CAISO learned from the July 14 stakeholder meeting that clarity regarding the current deliverability capability for the Imperial county area was needed
- As a result, the CAISO posted a technical addendum to the July 2, 2014 Imperial County Transmission Consultation Draft Paper
- Addendum clarified the 1,400 MW forecast IID MIC target used in 2011 renewables portfolio standard procurement process and the 1700 MW Imperial area target provided by the CPUC for the 2012-2013 planning cycle.
- Addendum clarified that the CAISO 2013-2014 transmission plan supports an existing IID MIC of 462 MW plus 1000 MW of deliverability in the Imperial zone (and indicated that about 1000 MW was connecting directly to the ISO grid.
- Addendum will be modified (as noted in revised discussion paper) to account for 200 MW of additional renewables that are proceeding in IID with capacity contracts to ISO load serving entities.

Clarification of Maximum Import Capability

Imperial County Transmission Consultation Stakeholder Meeting

Catalin Micsa
Lead Engineer, Infrastructure Development
October 8, 2014



Deliverability to the aggregate of load

- **Basics**

- A resource must be demonstrated to be “deliverable” to count for RA
- Deliverability conveys no priority rights when a resource utilizes the ISO controlled grid

- **Study Methodology**

- Peak load condition
- “Generation Pocket” concept - generation in an area may exceed the transmission capacity available to deliver resource outside the area

- **Resources**

- Imports (into the control area)
- Generation

Resource Deliverability to the aggregate of load

- Imports (into the control area) – deliverable amount determined based on average of highest historical usage during summer peak conditions plus forward looking methodology – both described here
- External generation – not given “deliverability” – energy ONLY. The LSEs can make any unit deliverable by using their RA Import Allocation
- Internal generation – deliverable amount determined based on studies under normal A(N-0), single B(N-1), and common mode C.5 (N-2) contingencies, with “deliverable imports” enforced
- Resource transitions – units that move from outside the control area to inside the control area – also described here

“Import Deliverability” is assigned every year to LSEs

- **Assignment of RA import capability to LSEs** – MIC on each intertie is available to LSEs for procuring RA capacity from external resources; it is not assigned directly to external resources
- **Process for allocating MIC to LSEs** – Steps 2-13 in Tariff Section 40.4.6.2.1, Available Import Capability Assignment Process
- **Annual determination of MIC** – MIC values for each intertie will still be calculated annually for a one-year term

Available Import Capability Assignment Process

13 Steps in Tariff Section 40.4.6.2.1

Step 1	Determine Maximum Import Capability (MIC)
	Total ETC
	Total ETC for non-ISO BAA Loads
Step 2	Available Import Capability
	Total Import Capability to be shared
Step 3	Existing Contract Import Capability (ETC inside loads)
Step 4	Total Pre-RA Import Commitments & ETC
	Remaining Import Capability after Step 4
Step 5	Allocate Remaining Import Capability by Load Share Ratio
Step 6	CAISO Posts Assigned and Unassigned Capability per Steps 1-5
Step 7	CAISO Notifies SCs of LSE Assignments
Step 8	Transfer [Trading] of Import Capability among LSEs or Market Participants.
Step 9	Initial SC Request to ISO to Assign Remaining Import Capability by Intertie.
Step 10	CAISO Notifies SCs of LSE Assignments & Posts unassigned Available Import Capability
Step 11	Secondary SC Request to ISO to Assign Remaining Import Capability by Intertie.
Step 12	CAISO Notifies SCs of LSE Assignments & Posts unassigned Available Import Capability
Step 13	SCs may submit Requests for Balance of Year Unassigned Available Import Capability

Maximum Import Capability (MIC) Methodology, Step 1

Historically Based

- Select 4 hours by choosing 2 in each one of the last two years (and different days within the same year) with the highest total net import level when peak load was at least 90% of the annual system peak load
- The average of net import schedules (0 MW is assigned when net imports are negative) + the average of unused ETC (adjusted for future year availability) technically should represent the Maximum Import Capability (MIC) for each tie
- In order to assure that all pre-RA import commitments (already contracted by ratepayers) are allowed to count for RA until they expire, an uplift is added to the above established methodology for certain branch groups and this higher number is published and divided among LSEs as MIC

Historical MIC – reality vs. myth and misconception

- The methodology was agreed upon by all market participants through a FERC directed technical conference call since no forward looking methodology was agreeable to all parties at the time
- Despite its name, the methodology is self correcting – only the average schedules for the last two years are taken into account, so as old contracts don't get scheduled by the LSEs their participation is 50% lost the first year and eliminated after the second. Same goes for new contracts once scheduled they will increase MIC by 50% first year and full increase in two years
- Based on still active Pre-RA Import Commitments (contracts signed before March 10, 2006) of 2015 MIC (16,228 MW) only about 640 MW are due to coal or less than 4%

Current forward looking MIC - Motivating the change

- **Low RA import capacity at certain interties limits ability of external resources to provide RA capacity and their ability to obtain project financing**
 - MIC is calculated on amount of energy ISO Balancing Authority Area (“BAA”) imported historically during peak system load hours
 - Low MIC values at certain interties limits use of external resources in those areas to meet RA requirements
 - Inability to offer RA creates a disadvantage for external renewable resources seeking contracts with load-serving entities within the ISO
 - Project financing for new resources depends on sufficient and stable long-term contractual revenue stream

Expanding Resource Adequacy (“RA”) Import Capability

Solution consists of two components

- Expansion of RA import capability is an element of public policy objective for Transmission Planning Process (“TPP”) to identify needed transmission
 - Based on amount of external resources in 33% RPS portfolios, specify required or “target” Maximum Import Capability (“MIC”) MW values for RA deliverability
 - Determine whether additional network upgrades are needed to support target MIC MW values
 - Include these upgrades in Comprehensive Transmission Plan
- In annual MIC assessment, expand MIC values to target levels as required in order to meet public policy objectives

Resources Portfolios

- Expanded MIC open to all technology types if they are required in order to meet public policy goals
- Stakeholder opportunity to comment in TPP
- MIC expansion tied to policy-driven related transmission upgrades

Terminology

1. **Prospective RIC**

- Based on policy portfolios
- Currently intertie capacity required for new renewable capacity from resource rich areas outside ISO

2. **Expanded MIC (historical and prospective)**

- Blend the two together to assure that new Expanded RIC can accommodate all required new policy driven imports as well as the remaining Pre-RA Import Commitments, ETCs and TORs.
- To be modeled in next round of cluster studies

(continued)

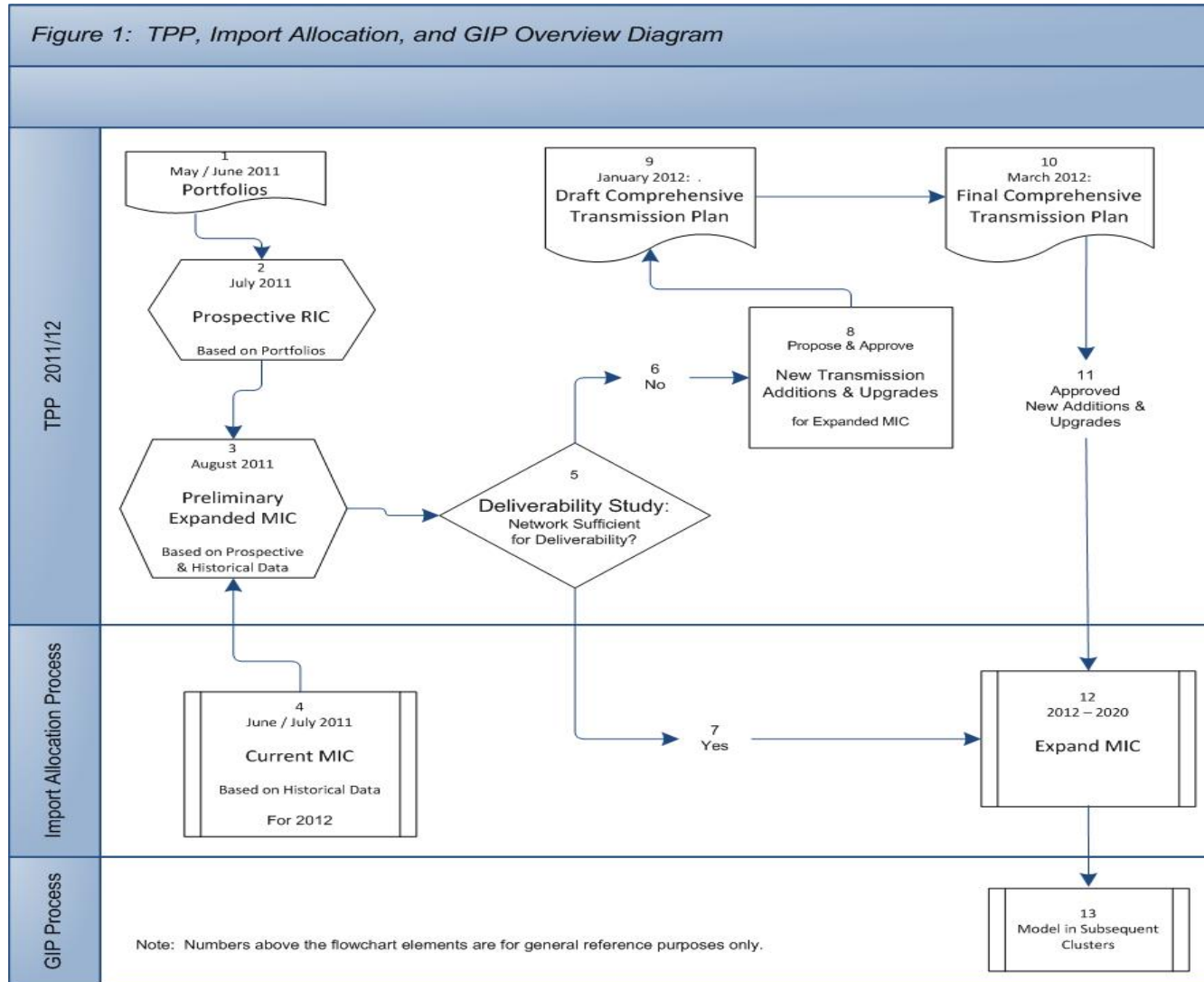
Terminology (continued)

- 1. Current Maximum Import Capability** (MIC based on current methodology) = (Scheduled net energy imports from historical data) + (Unscheduled ETC and TOR import capacity)
- 2. Current Remaining Import Capability** (RIC based on current methodology) = Current MIC – (Total ETC and TOR import rights) – (Pre-RA import commitments)
- 3. Expanded RIC** = $\text{Max}\{(\text{Current RIC}), (\text{Prospective RIC based on TPP resource portfolio})\}$
- 4. Expanded MIC** = Expanded RIC + (Total ETC and TOR import rights) + (Pre-RA import commitments)

Illustrative Expanded MIC

Description	MW
Current MIC	309
Existing Transmission Contract (“ETC”)	0
Pre-RA Import Commitment	200
Current RIC	109
Prospective RIC (based on portfolios – same deliverability method)	1272
Expanded RIC = max (200, 800)	1272
Preliminary Expanded MIC	1472
Expanded RIC = max (200, 800)	1272
ETC	0
Pre-RA Import Commitment	200
Run deliverability studies If needed propose and approve Network Upgrades	

Figure 1: TPP, Import Allocation, & GIP Overview



Transmission Options and Potential Corridor Designations in Southern California in Response to Closure of San Onofre Nuclear Generating Station (SONGS)

Addendum to Environmental Feasibility Analysis

Presented by Susan Lee and Brewster Birdsall
Aspen Environmental Group

at the

**California Independent System Operator's
Imperial County Transmission Consultation Workshop
October 8, 2014**

Purpose of Transmission Options Report

Energy Commission staff requested that Aspen prepare environmental feasibility analysis to:

- Inform the Energy Commission staff and California ISO about environmental feasibility concerns related to potential electric transmission options in response to the closure of SONGS
- Provide an early-stage evaluation of the potential transmission corridors in the Southern California study area

Report published May 2014:

<http://www.energy.ca.gov/2014publications/CEC-700-2014-002/CEC-700-2014-002.pdf>

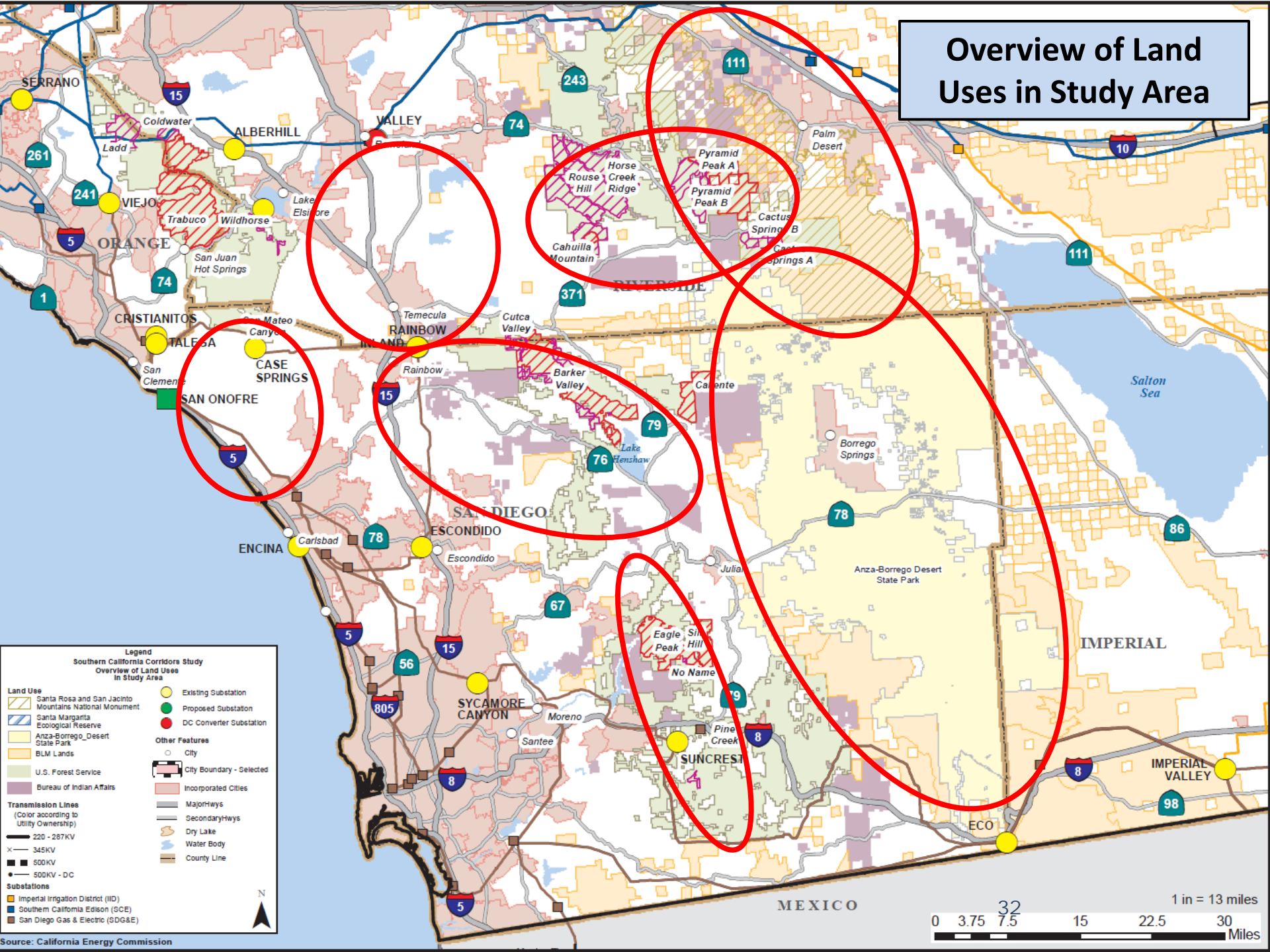
New Addendum to Report published September 2014:

<http://www.energy.ca.gov/2014publications/CEC-700-2014-002/CEC-700-2014-002-AD.pdf>

Land Uses as Siting Constraints

- Anza Borrego Desert State Park (ABDSP)
- Santa Rosa – San Jacinto National Monument
- National Forest (NF) Lands
- Tribal Lands
- Marine Corps Base (MCB) Camp Pendleton
- Agua Tibia Wilderness
- Developed areas
- Rural residential areas
- Regional parks
- Scenic highways and scenic areas

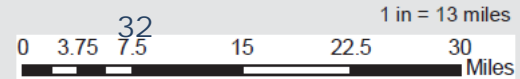
Overview of Land Uses in Study Area



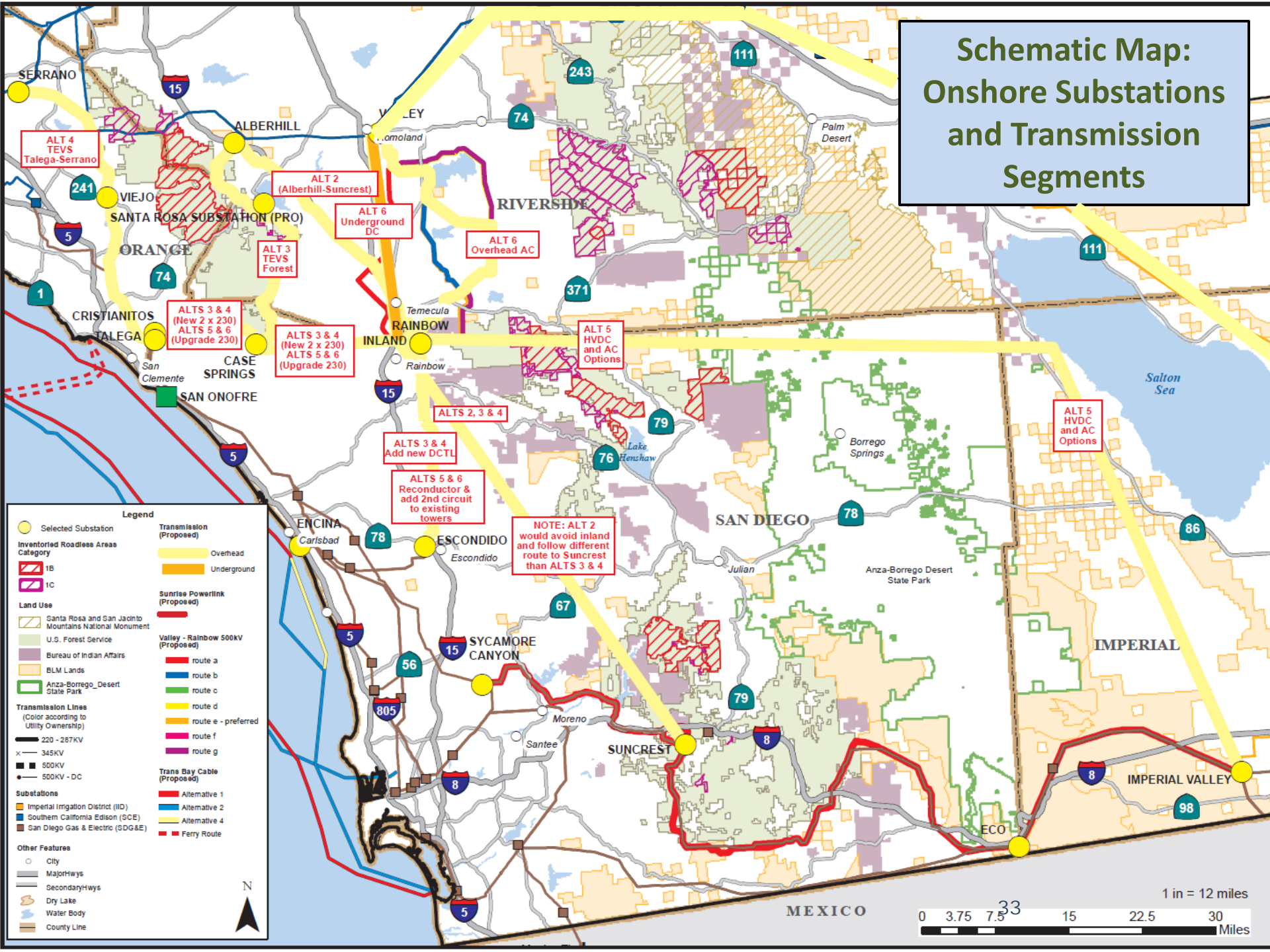
Legend
 Southern California Corridors Study
 Overview of Land Uses
 in Study Area

Land Use	Existing Substation
Santa Rosa and San Jacinto Mountains National Monument	Proposed Substation
Santa Margarita Ecological Reserve	DC Converter Substation
Anza-Borrego Desert State Park	Other Features
BLM Lands	City
U.S. Forest Service	City Boundary - Selected
Bureau of Indian Affairs	Incorporated Cities
Transmission Lines (Color according to Utility Ownership)	Major Highways
220 - 287KV	Secondary Highways
345KV	Dry Lake
500KV	Water Body
500KV - DC	County Line
Substations	
Imperial Irrigation District (IID)	
Southern California Edison (SCE)	
San Diego Gas & Electric (SDG&E)	

Source: California Energy Commission



Schematic Map: Onshore Substations and Transmission Segments



Routing Caveats

- Developing any of the transmission options would require viable project sponsors with experience and access to sufficient resources to develop and design an optimum route
- Full environmental and technical studies would be required before any agency could approve a project within any of the potential corridors

Alternatives Considered in May 2014 Report

- **Alternative 1: Submarine Cable HVDC**
- **Alternative 2: Alberhill to Suncrest**
- **Alternative 3: Enhanced TE/VS (Forest Route)**
- **Alternative 4: Enhanced TE/VS (Talega-Serrano)**
- **Alternative 5: Imperial Valley to Inland**
- **Alternative 6: Valley to Inland**
- **Alternative 7: Imperial Valley Flow Control**
- **Alternative 8: Mesa Substation Loop-In**

Alternatives in September 2014 Addendum¹

- **Alternative 9: Hooper to SONGS**
 - IID's Strategic Transmission Expansion Plan (STEP)
 - Other STEP upgrades to 500 kV and 230 kV facilities internal to the IID system for generators local to IID were determined to be beyond the scope of this feasibility study
- **Alternative 10: Midway to Devers**
 - SCE proposal to add 500 kV link between SCE's Devers and IID's Midway Substation

1. Addendum posted at [<http://www.energy.ca.gov/2014publications/CEC-700-2014-002/CEC-700-2014-002-AD.pdf>]

Likelihood of Successful Permitting

Key to Summary Table: Likelihood of Successful Permitting and Construction

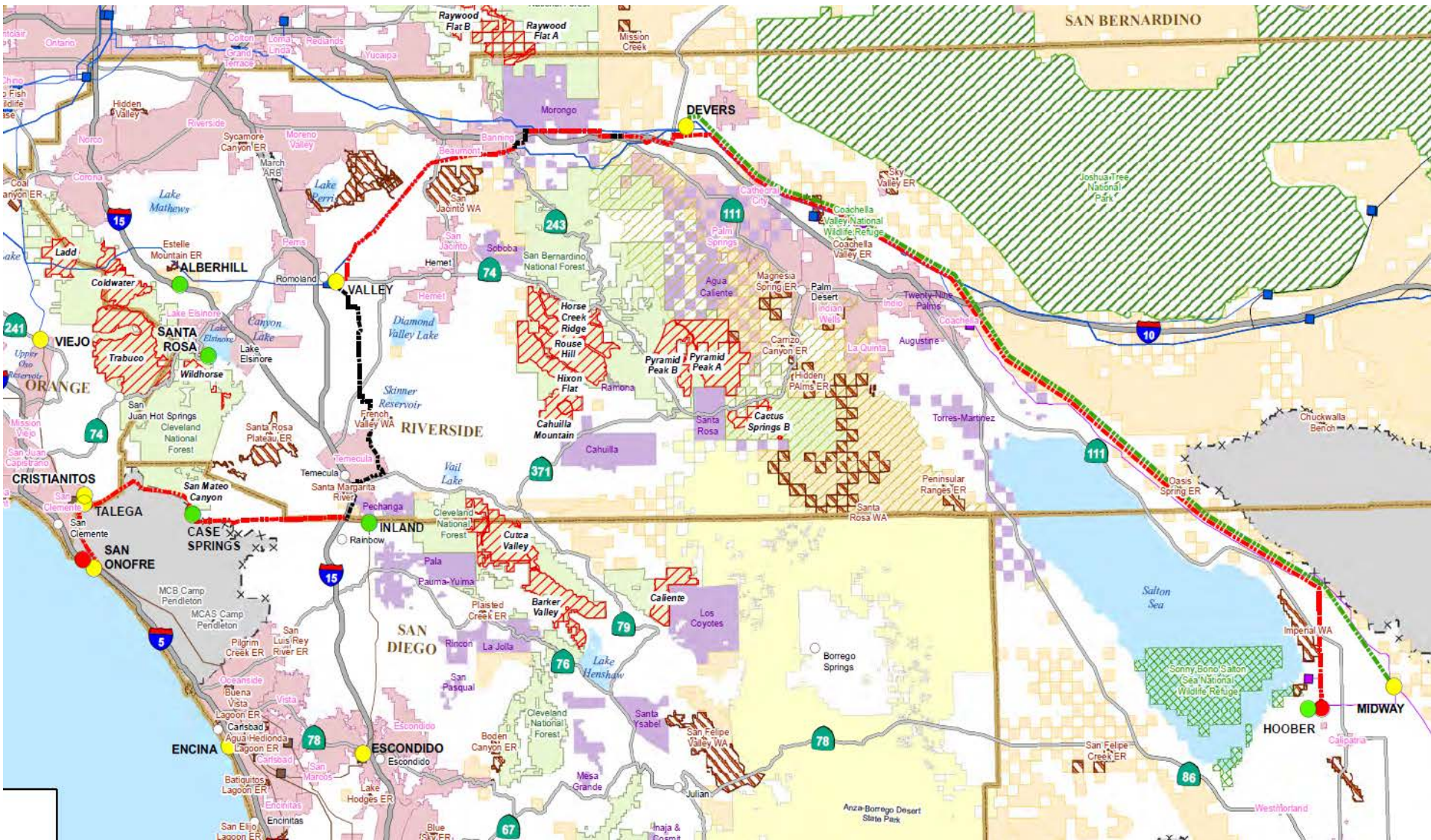
■ Green: Possible	No major obstacles to permitting or construction
■ Yellow: Possible but Challenging	Siting constraints but likely can be overcome
■ Orange: Challenging	Serious siting challenges that may not be resolvable
■ Red: Very Challenging	Very serious siting challenges that may make routes infeasible

Transmission Alternatives: Permitting Likelihood by Segment

Alternative	Description	Likelihood of Successful Permitting
IID Strategic Transmission Expansion Project	Hooper to Midway Jn.	Possible but Challenging
	Midway Jn. to Devers	Possible but Challenging
	Devers to Valley Sub.	Challenging
	Valley Sub to Inland	Possible but Challenging
	Inland to Talega/SONGS	Challenging
SCE Midway to Devers	Hooper to Midway Jn.	Possible but Challenging
	Midway Jn. to Devers	Possible but Challenging

IID Strategic Transmission Expansion Plan

Hoober Sub to SONGS



Alternative 9 – Hooper to SONGS: Major Constraints

1. North of Hooper Substation

- Need additional ROW on agricultural land

2. Between Hooper and Devers Substation

- Need additional ROW to avoid residences
- Crossing of Agua Caliente tribal lands

3. Between Devers and Valley Substations

- Crossing of Morongo Band tribal lands
- Proximity to residences (Whitewater, southern Banning, north of Valley Sub.)
- Crossing of Potrero Core Reserve for Stephens' kangaroo rat

Alternative 9 – Hooper to SONGS: Major Constraints

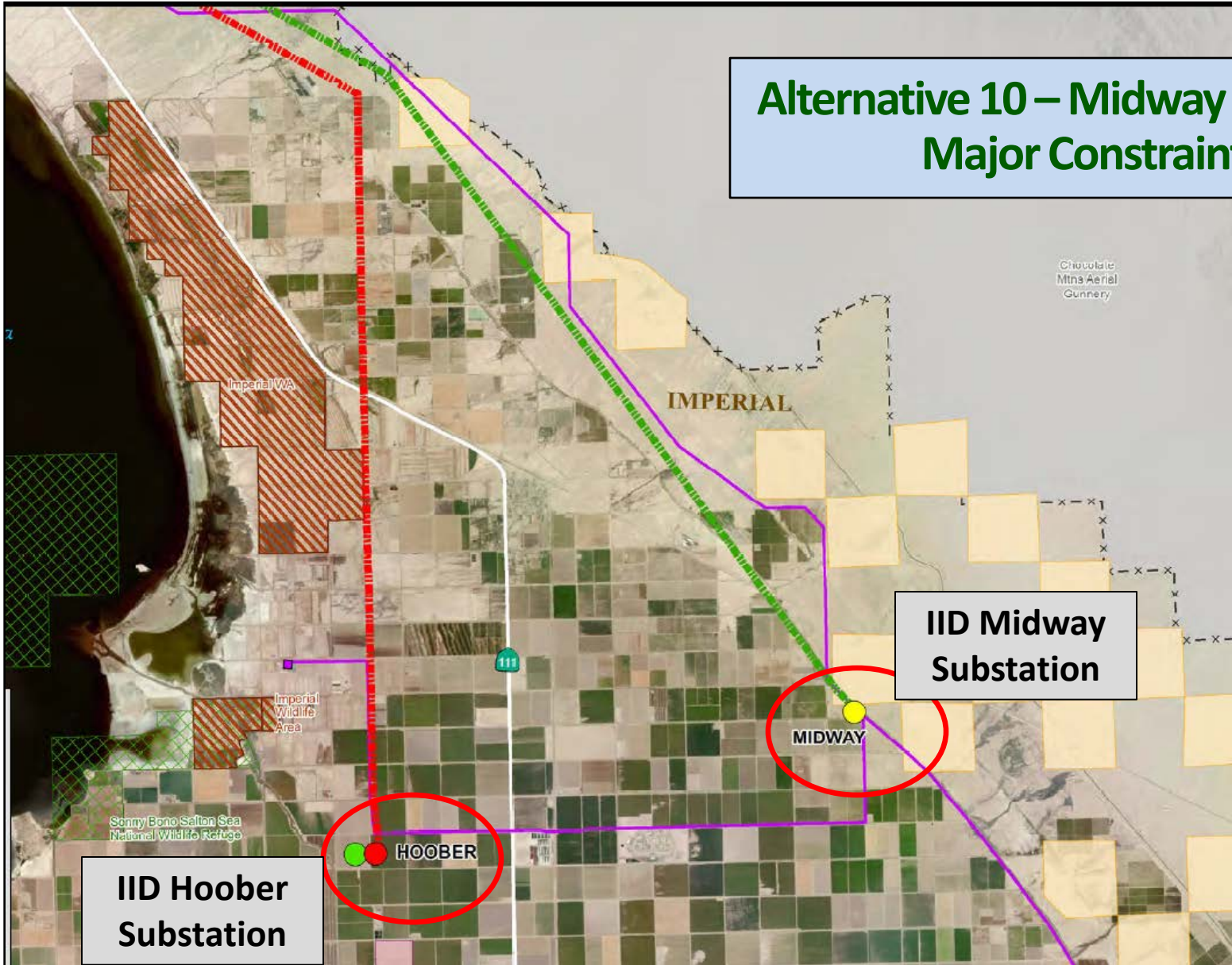
4. HVDC Underground segment between Valley and Inland:

- Existing utilities in road ROW
- Engineering considerations (turning radius, utility crossings)
- EMF concerns

5. Inland to SONGS

- Expanded ROW through Camp Pendleton, Santa Margarita Ecological Reserve, San Diego County residential areas

Alternative 10 – Midway to Devers: Major Constraints



Alternative 10 – Midway to Devers: Major Constraints

1. North of Midway Substation

- Need additional ROW on agricultural land

2. Between Midway and Devers Substation

- Need additional ROW to avoid residences
- Crossing of Agua Caliente tribal lands

Summary of Siting Challenges by Segment

Ranking	Alternative Name	Alternative Segment
Possible but Challenging	IID Strategic Transmission Expansion Project	Hooper to Midway Junction
		Valley to Inland (HVDC underground)
	Midway to Devers	Midway to Devers
Challenging	IID Strategic Transmission Expansion Project	Devers to Valley
		Inland to Talega and SONGS
Very Challenging	No segments of these alternatives fall into this category	

Next Steps

- **Analysis of additional alternatives in progress**
- **Identified by stakeholders in July 2014 comments**
 - **Duke American Transmission Company**
 - Baker Canyon to Santiago (HVDC or 2 x 230 kV)
 - **SDG&E**
 - Imperial Valley to Inland via Highway 74 (HVDC or 500 kV)
 - **The Nevada Hydro Company**
 - Talega-Escondido/Valley-Serrano (TE/VS) Interconnect Project (500 kV Alberhill to Case Springs with 500/230 kV at Case Springs)
- **Identify the most environmentally feasible set of transmission segments that could point to a potential solution to address the closure of SONGS, OTC and import deliverability from IID**

Contact Information

Please direct questions to:

- **Clare Laufenberg Gallardo**
 - Strategic Transmission Planning Office
 - California Energy Commission
 - Telephone: 916.654.4859
 - Email: Clare.Laufenberg@energy.ca.gov

Report Authors:

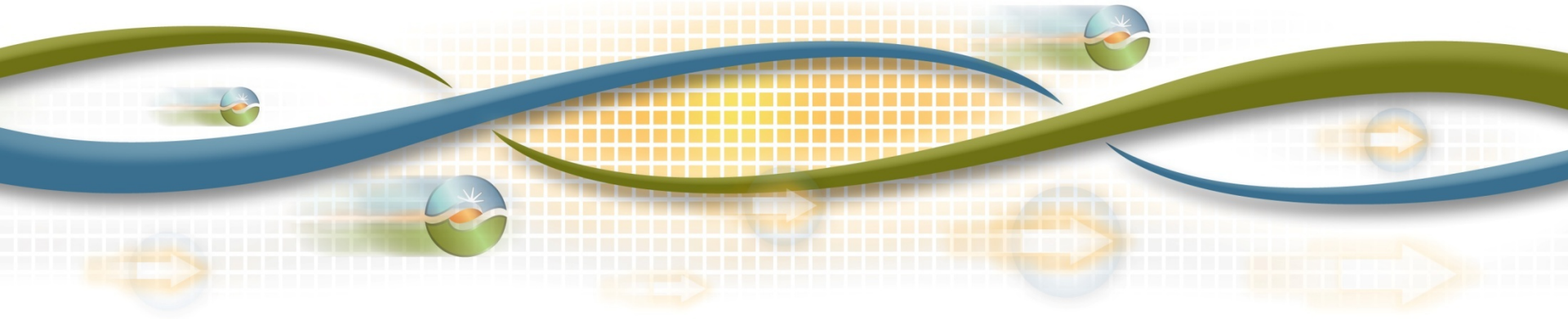
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Questions?

Conclusions and Discussion

Imperial County Transmission Consultation Stakeholder Meeting

Neil Millar
Executive Director, Infrastructure Development
October 8, 2014



The following is concluded from the stakeholder the information presented in the second discussion paper

- There is a robust interest in the consultation effort and the opportunity to inform the 2014-2015 CAISO's regional planning process
- A methodology to reallocate MIC is reasonable to explore as an alternative to building new, high cost transmission facilities
 - Extensive stakeholder discussion would be needed to address issues and concerns
 - Comparability across all CAISO import ties must be considered
- Preserving Existing Transmission Contracts (ETC), Transmission Ownership Rights (TOR), and old contracts (Pre-RA Import commitments) across all import ties are important legacy rights that should be retained
- Replacing the current historically-based methodology with a forward-looking study-based approach
 - CAISO believes a broader stakeholder effort would be needed
 - Considering the complexity of developing a new methodology, it has been included in the CAISO's stakeholder initiative catalogue to assess stakeholder interest in this initiative
- A limited scope focusing on reallocation has also been included in the stakeholder initiative catalogue
- The need to launch either a comprehensive review or a more limited scope will be determined through the transmission planning process – considering feedback in the stakeholder catalogue

Next steps in technical analysis:

- Update the Technical Addendum as noted on previous slide
- Validate deliverability in the CAISO 2014-2015 transmission plan technical analysis.
- Consider options in the 2014-2015 transmission plan to:
 - Alleviate any limitations on Imperial area generation already moving forward in the ISO grid or IID.
 - Explore options for meeting the “high Imperial area” RPS sensitivity portfolio provided by the CPUC
- Options to be considered will include the reallocation of MIC (by advancing the stakeholder initiatives outlined in the catalogue), transmission upgrades, and/or operational modifications