



RETI

Renewable Energy Transmission

May 20, 2010

Desert Managers Group
Death Valley National Park

Overarching Goals For Green Groups



- Accelerate the development of properly sited renewable energy and green transmission (GTx)
- Minimize impacts on sensitive wildlife and their habitats, vulnerable ecosystems and other unique and sensitive resources



RETI

Objectives



- Preserve ability for wildlife and plant species and habitats to adapt and maintain genetic diversity.
- Maintain and increase collaboration, cooperation and communication between conservation community, regulators and renewable energy advocates and industry.
- Reduce conflicts over, and costs of, renewable energy and GTx development.

RETI



Premises for Collaborative Transmission

Siting

- Focus on transmission improvements for renewables
- Involve stakeholders up front
- Maximize Grid Utilization
- Identify and seek solutions for problems
- Use interconnection planning to identify needed projects
- Allow for broad cost recovery to help finance them
- Siting and Transmission considered together



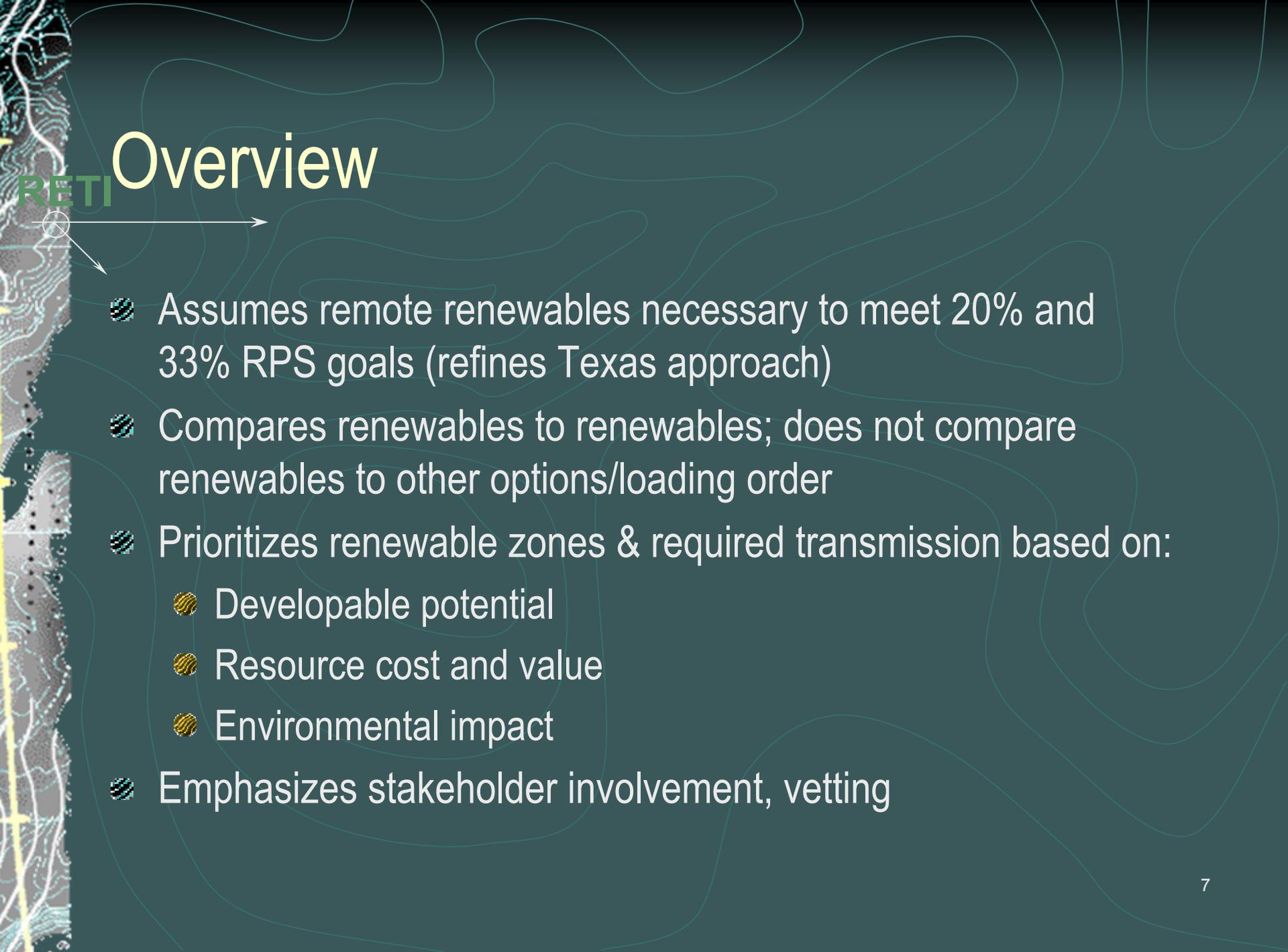
New Paradigm for Collaborative Transmission Siting

- Focus on transmission improvements for renewables
- Involve stakeholders up front
- Maximize Grid Utilization
- Identify and seek solutions for problems
- Use interconnection planning to identify needed projects
- Allow for broad cost recovery to help finance them
- Siting and Transmission considered together



RETI Overview

- Stakeholder-driven collaborative planning process to ID and rank
 - Competitive Renewable Energy Zones (CREZ) in CA and adjacent lands
- Inform renewable generation & transmission line permitting & planning (without usurping any authority)
 - CPUC, POU, & federal transmission permitting
 - CPUC oversight of IOUs' RPS procurement
 - CEC transmission corridor designation
 - CAISO transmission planning & queue reform
 - CEC, local & federal renewable generation permitting



Overview

- Assumes remote renewables necessary to meet 20% and 33% RPS goals (refines Texas approach)
- Compares renewables to renewables; does not compare renewables to other options/loading order
- Prioritizes renewable zones & required transmission based on:
 - Developable potential
 - Resource cost and value
 - Environmental impact
- Emphasizes stakeholder involvement, vetting



Organizational Structure

- Coordinating Committee
- Stakeholder Steering Committee
- Plenary Stakeholder Group (Public)

RETI

Coordinating Committee

Role: Provides policy guidance, keeps process on track, coordinates with other initiatives and processes

- , CPUC
- CEC
- CAISO
- Southern California Public Power Authority
- Northern California Power Agency
- Sacramento Municipal Utility District



Stakeholder Steering Committee

Role: Primary working group – directs consultant, vets inputs and assumptions, etc.

- Key Stakeholder Representatives

- 29 Members:

- Transmission owners and generators
- Investor-owned and public utilities
- Environmental and public interest groups
- Federal, State, and local permitting agencies
- Military, Native American representatives



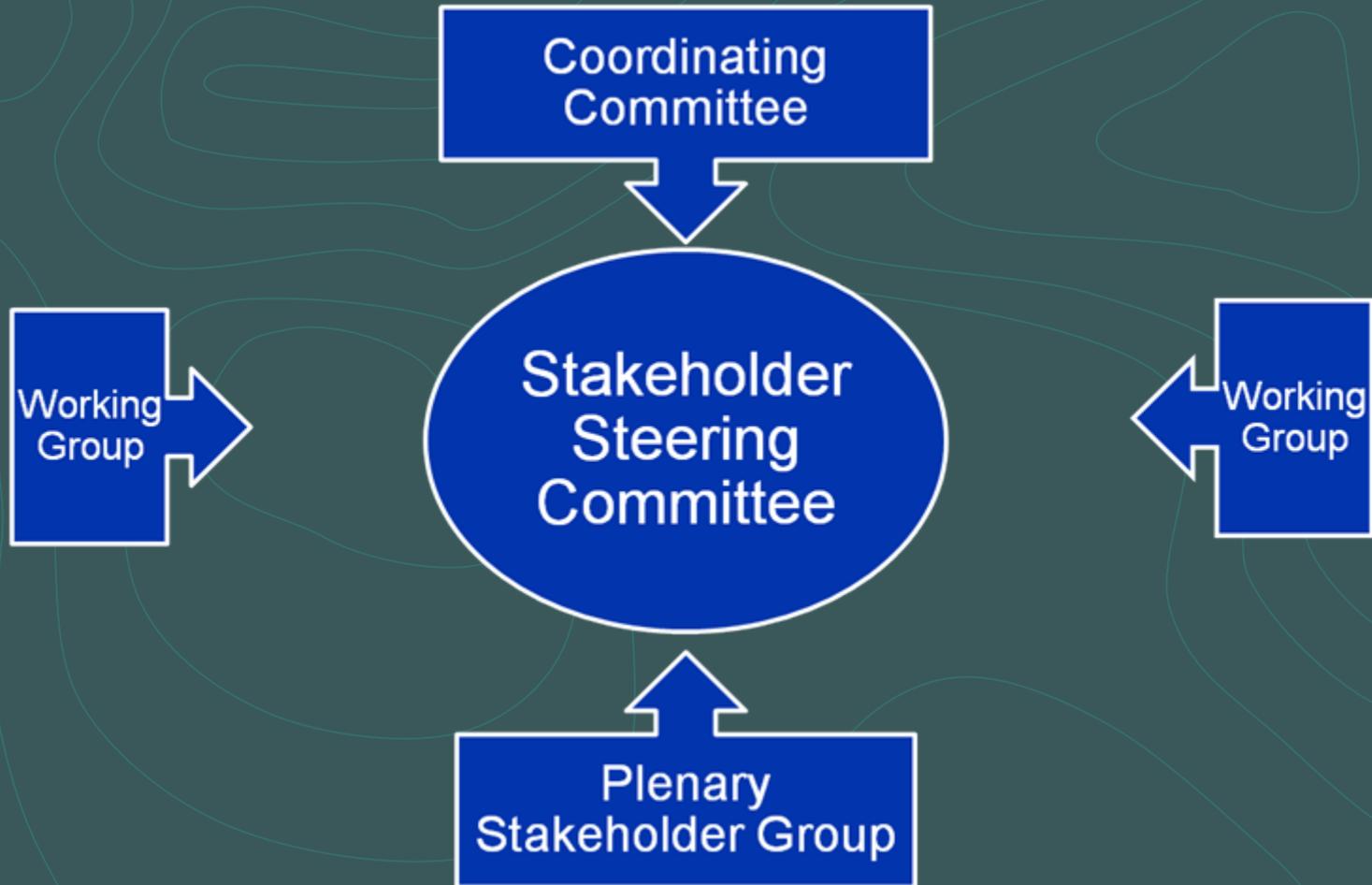
Plenary Stakeholder Group

Role: Reviews work of Steering Committee, provides input and feedback, “ground-truthing”

- All stakeholders and the public

Structure

RETI





SSC Working Groups

- Environmental WG (EWG)
- Phase 2 WG
- Assumptions and Methodology/Phase 1B WG
- Phase 3 -- CTPG work group
- Transmission work Group
- Scenarios Work Group



Scope and Timing

- Phase 1 (10/08 completion target)
 - Identification and Ranking of CREZs
 - Phase 1A: Criteria, Assumptions & Methodology
 - Phase 1B: CREZ Identification and Ranking
- Phase 2 (12/08 - 3/09 completion target)
 - Development of conceptual transmission plans
- Phase 3 (2010 completion target)
 - Detailed transmission plans of service

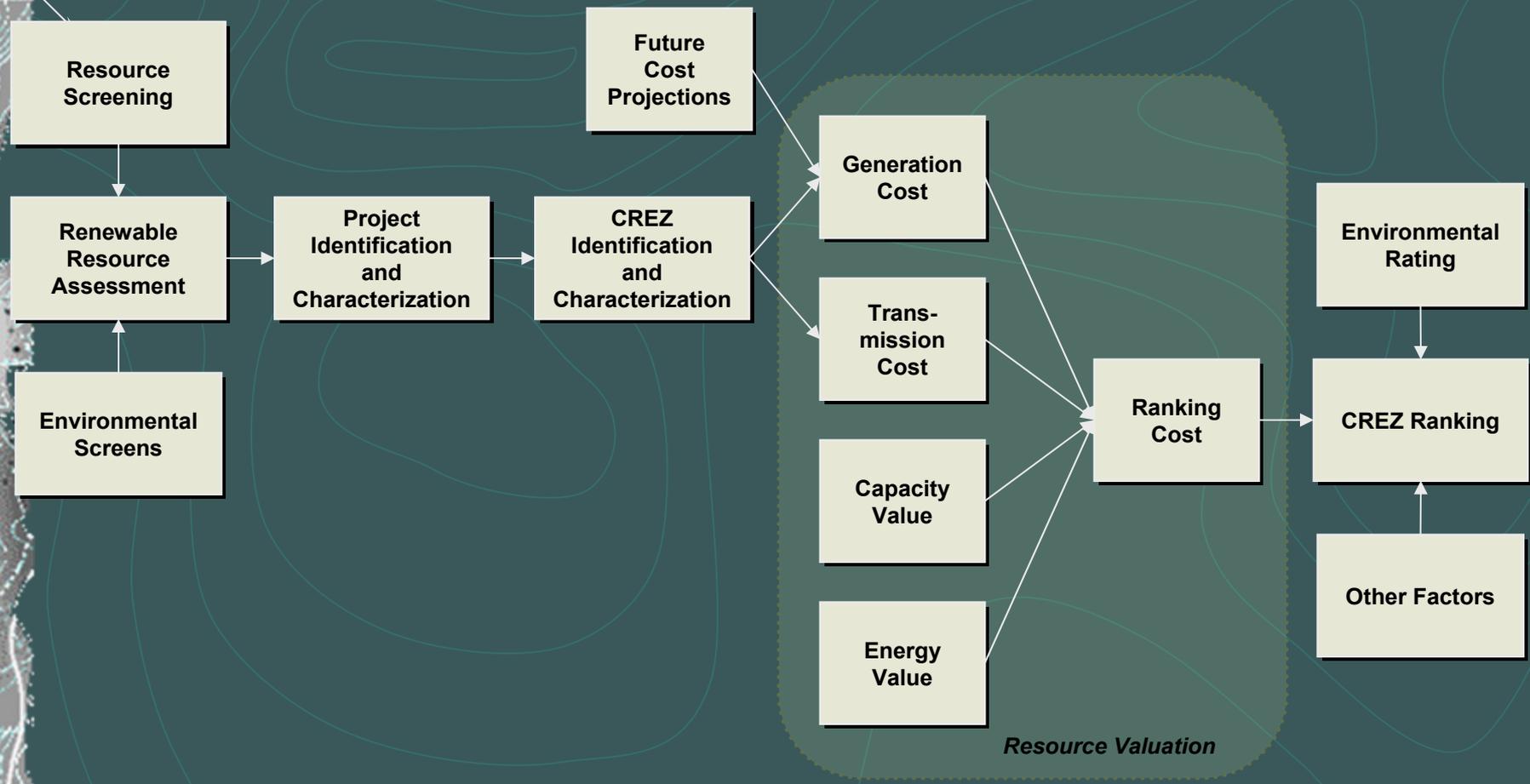


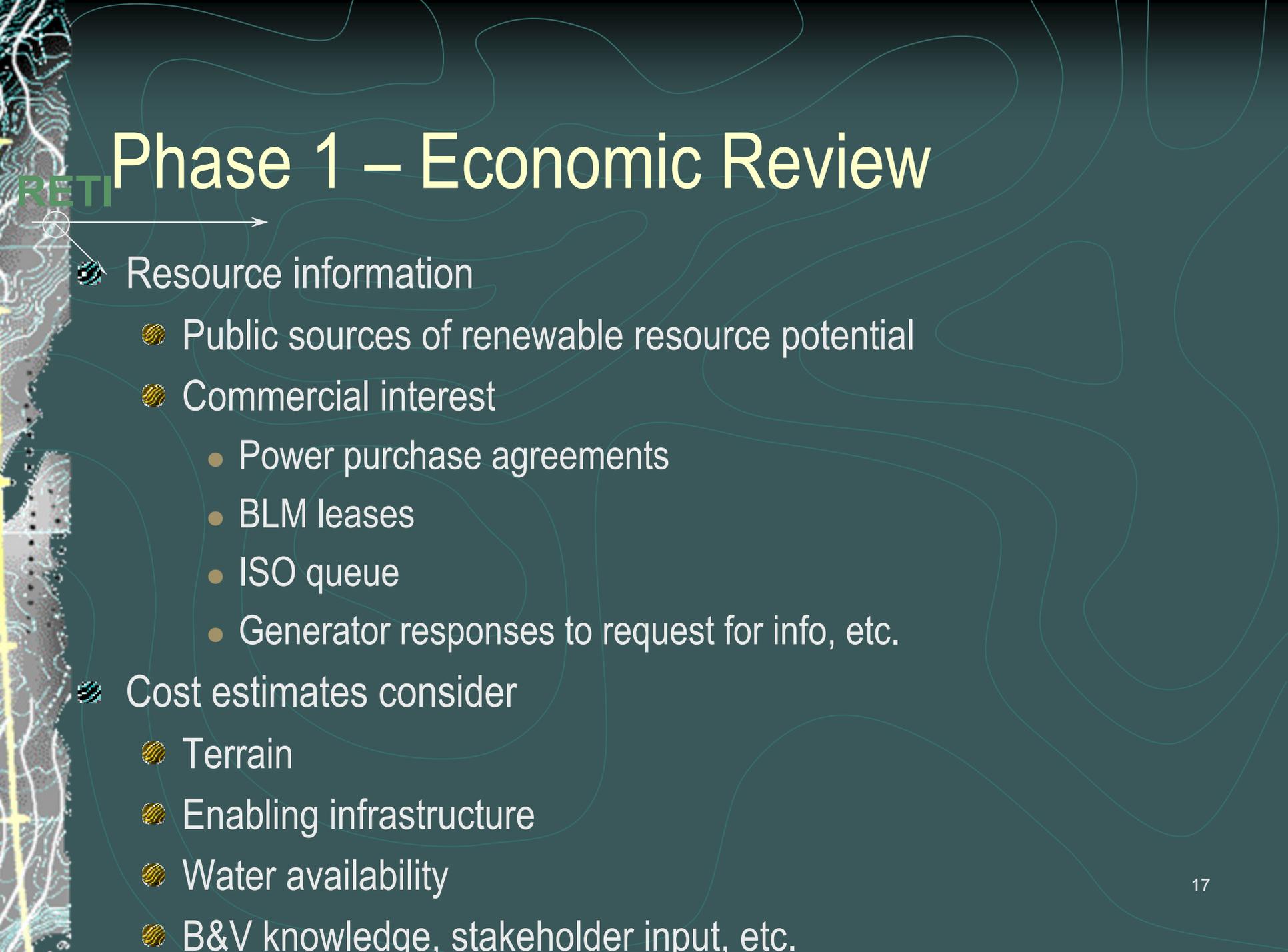
Phase 1 Scope of Work

Goal: Identify and rank Competitive Renewable Energy Zones

- Develop study assumptions/methodology
- Assess developable renewable resources
- Identify sensitive environmental areas and environmental “rating factors”
- Identify CREZs based on geographic proximity, shared transmission constraints, additive economics
 - Identify economically superior CREZ
 - Identify environmentally superior CREZs
- Create short-list of top-priority CREZs

Phase 1 Methodology



The slide features a dark teal background with light blue contour lines representing a topographic map. On the left side, there is a vertical strip showing a more detailed map with yellow and white lines. The acronym 'RETI' is written in green, bold, sans-serif font in the upper left corner. A white arrow points from the 'RETI' text towards the right, passing through the first main bullet point.

Phase 1 – Economic Review

- Resource information

- Public sources of renewable resource potential
- Commercial interest
 - Power purchase agreements
 - BLM leases
 - ISO queue
 - Generator responses to request for info, etc.

- Cost estimates consider

- Terrain
- Enabling infrastructure
- Water availability
- B&V knowledge, stakeholder input, etc.



Phase 1B Resource Report Results

- Five renewable resource technologies
 - Biomass, geothermal, solar PV, solar thermal, wind
- 500,000 MW potential generating capacity in study area
 - 3,600 potentially developable projects
 - 58 CREZ (47 in California)



Phase 1B Resource Report Results

- Results were too large to be feasible for environmental review or conceptual transmission build-out
- B&V has cut the results from 500K MW to ~100,000 MW
 - Still two times the ISO control area's record peak load
 - Mostly out-of-state and solar thermal projects cut
 - "Pre-identified" projects, i.e. those with some showing of commercial interest, were preferred over "proxy" projects

Phase 1 – Environmental Review

RETI

- Environmental Working Group on point, chaired by Johanna Wald (NRDC) and Carl Zichella (Sierra Club)
- Environmental screens to inform B&V's identification of generation projects and CREZs
- CREZ-level analysis of environmental concerns
 - No review of individual generation projects
 - Estimate relative environmental concerns
 - No monetization of environmental "costs"
 - "Reward" development on previously disturbed lands
- Integrate environmental rating with economic ranking



Phase 1 – Environmental Review

Description of Excluded and Restricted Areas

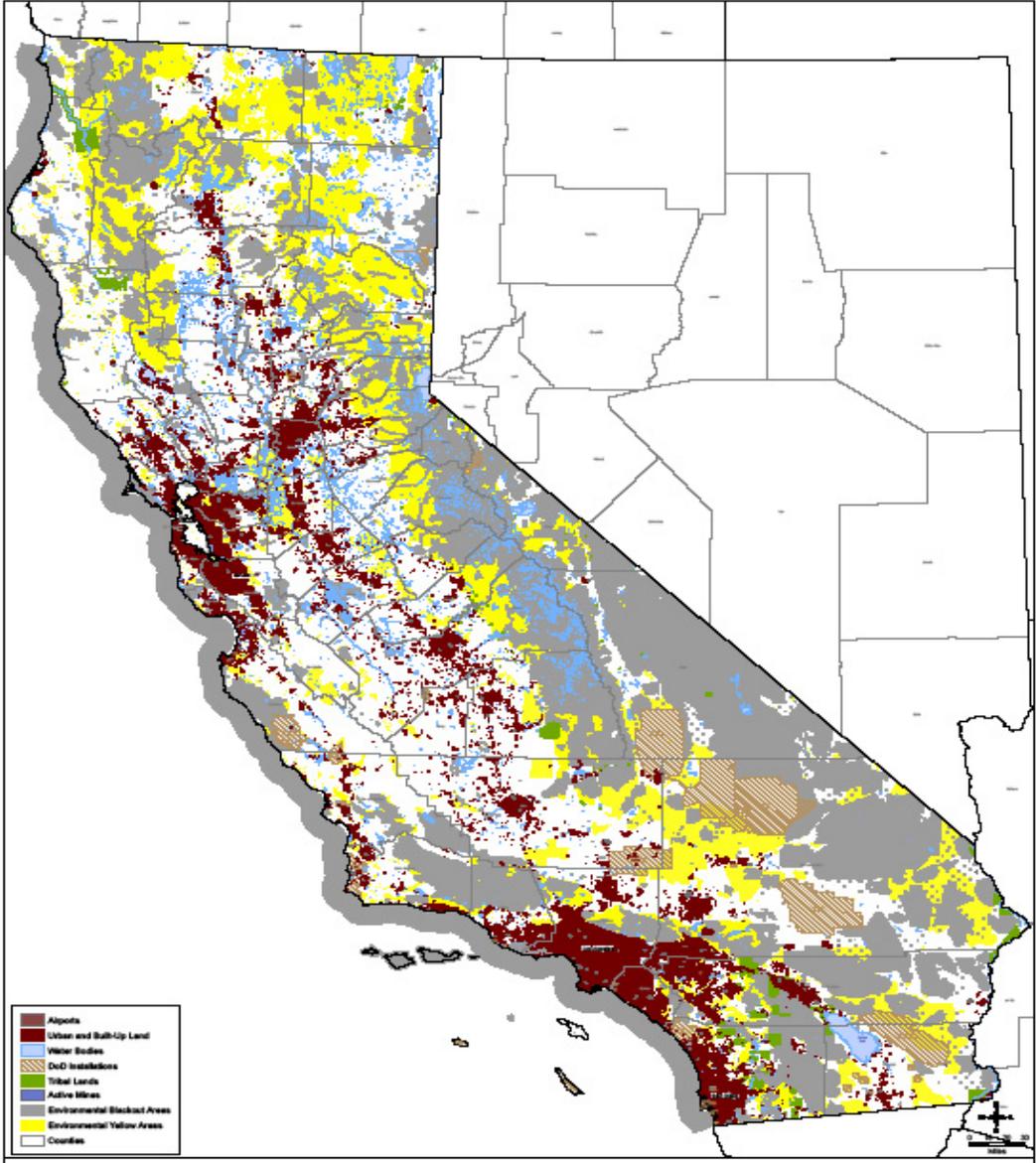
Category 1: Areas where law or policy currently prohibits development, for example:

- Designated federal Wilderness areas
- Units of National Park System
- USFS Roadless Areas
- National Wildlife Refuges
- Etc.

Category 2: Areas where existing restrictions are expected to limit development, for example:

- BLM Areas of Critical Environmental Concern
- Designated Critical Habitats for Federally listed Endangered/Threatened Species
- Proposed and Potential Conservation Reserves in HCPs & NCPPs

RETI



RETI General Exclusions



RETI - Phase 1 - August 19, 2008 - Confidential

Phase 1 – Environmental Review

RETI

● CREZ Rating Formulas for 6 Criteria

- T-line Infrastructure, Development Footprint, Sensitive Areas, Outside Boundaries Issues, Species Richness, Significant Species

● CREZ Ranking Scores

- Uniform system- score between 1 and 5
- Total score- individual scores added
- Best Score- 6, Worst Score- 30

Phase 1 – Environmental Review

RETI

Environmental Supply Curve

- Scores combined with annual energy output
- Lowest scores sufficient re: 33% pass
 - Plus uncertainty allowance
- Coordinated with BV re: 33% energy cut-off
 - Will have significant buffer beyond 33%

Phase 1 – Final CREZ Short-list

- 
- Environmental and economic “supply curves” must be considered in final CREZ decision
 - Apples and oranges problem
 - Identify CREZ that simultaneously minimize:
 - Economic costs to consumers
 - Environmental impacts
 - CREZ that pass both screens...
 - Low economic cost and
 - Low environmental impact
 - ...will move on to Phase 2 for conceptual transmission planning
 - CREZ that pass one screen, but not both, will undergo further review

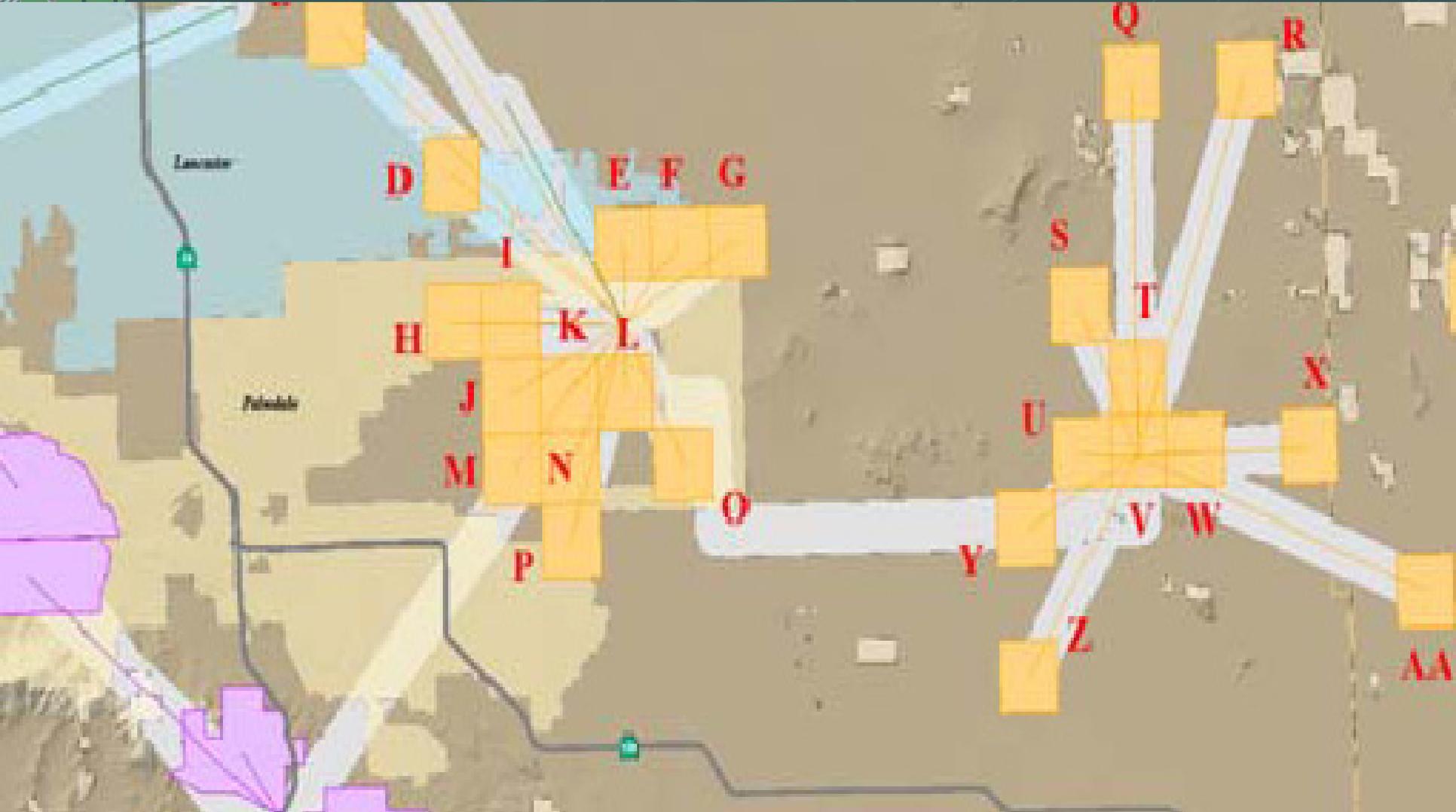


Phase 2 Scope of Work

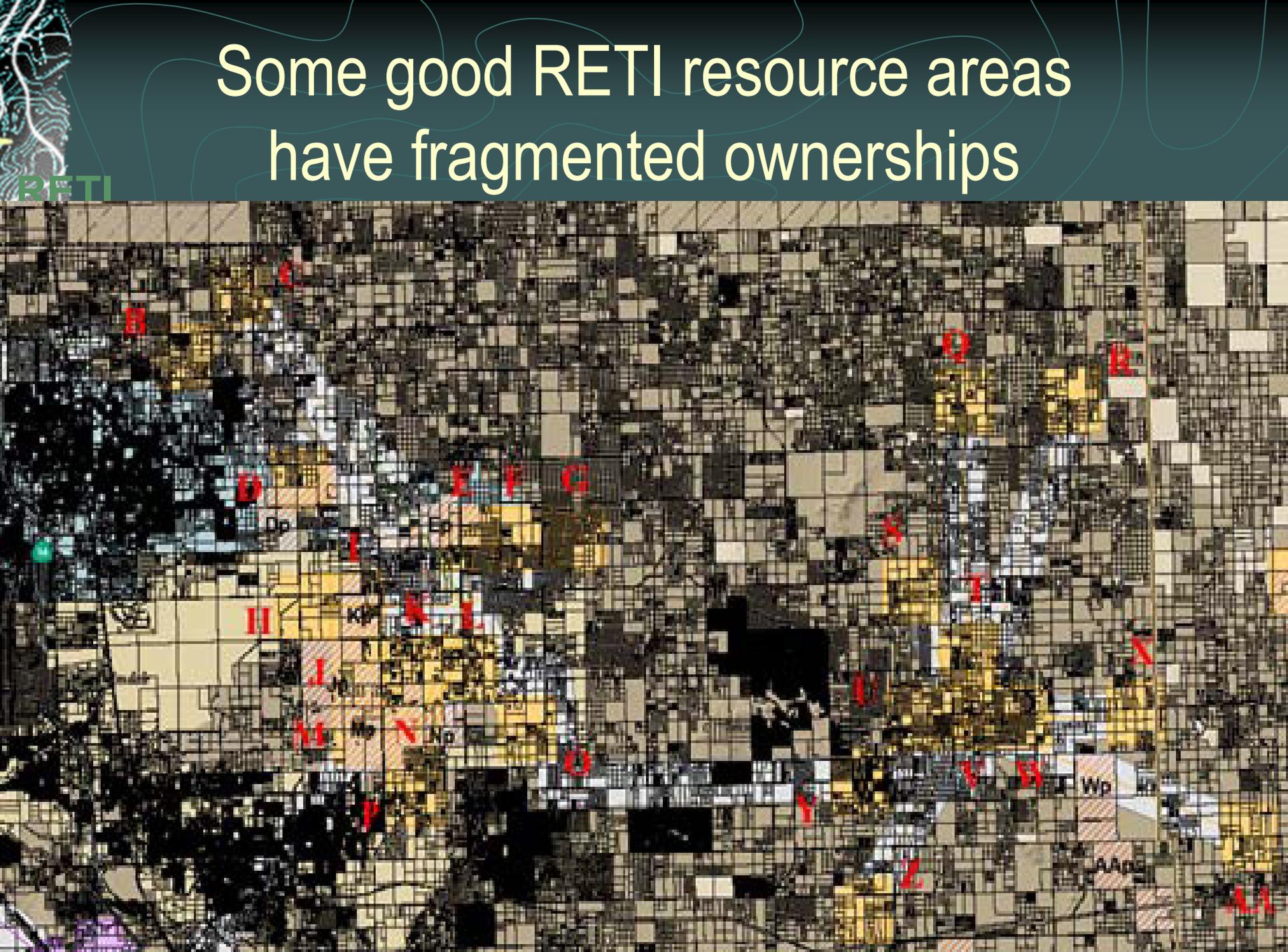
Goal: Develop conceptual transmission plans

- CAISO and POU's on point
- Renewable resource mix scenarios will be based on Phase 1 results
- Joint transmission projects envisioned
 - Environmental Working Group
 - Other stakeholders
 - CEC T-line corridor designation

Ownership Fragmentation



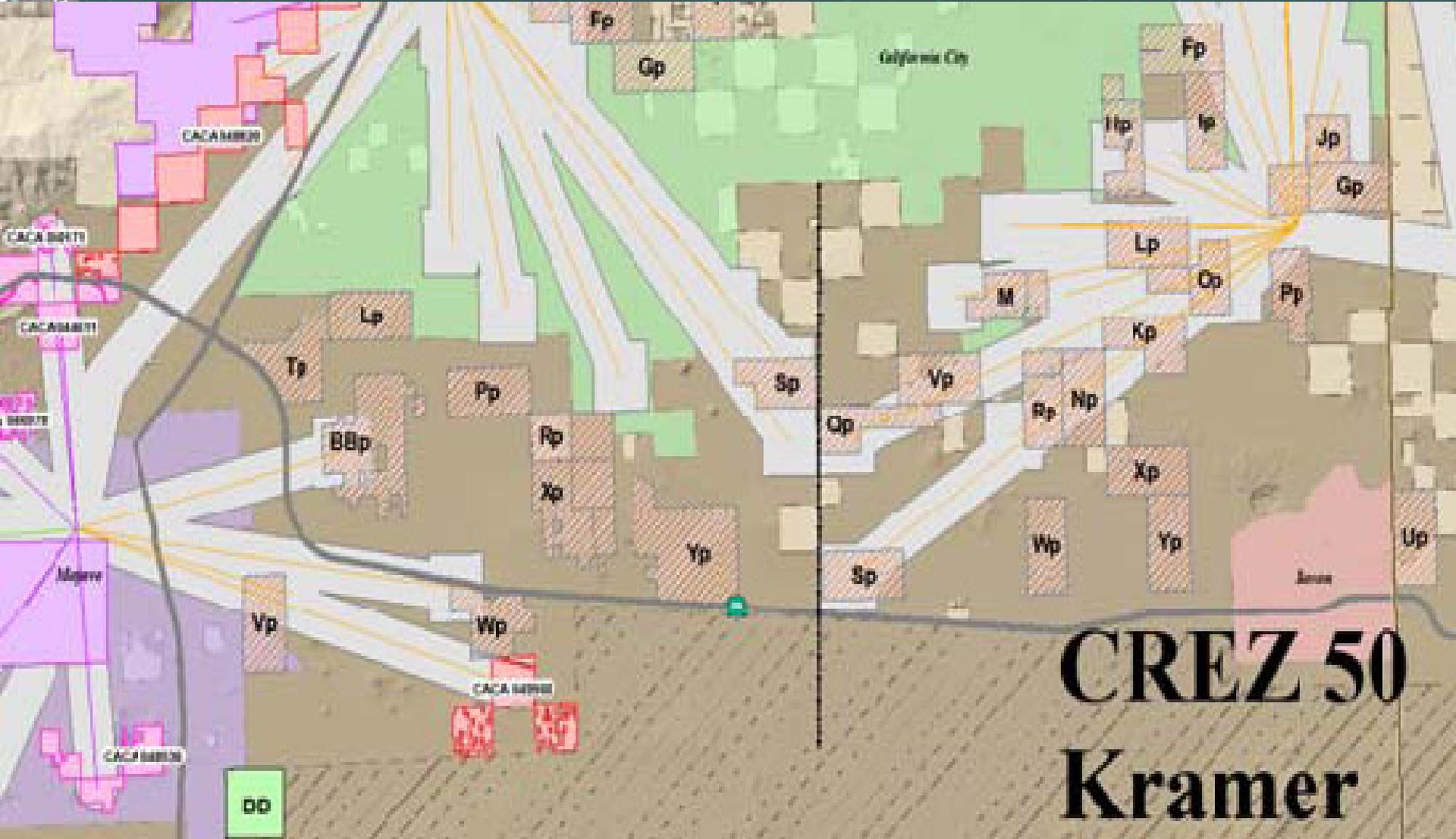
Some good RETI resource areas have fragmented ownerships



RETI

CREZ had to be moved

RETI



Permitting RETI-identified transmission lines

● Need determination

- RETI will provide objective, vetted data on renewable resource quality, transmission costs, and alternative options

● Environmental review

- RETI will not (and cannot) pre-judge CEQA, but it may direct developers and utilities to less environmentally-sensitive areas, so that “better projects” are presented for CEQA review

● Stakeholder buy-in, public support

- Some NIMBY-ism is inevitable, but RETI’s broad stakeholder process has ensured consideration of wind variety of views and built good-will; key will be carrying this through the permitting process



Phase 3 Scope of Work

Goal: Real transmission projects ready for permitting

- Detailed transmission plans of service
- Interface with California Transmission Planning Group
- CAISO, POU, IOU, Independent transmission developers
- Public stakeholders included
- Shift factor analysis
- No regrets transmission promoted
- Emphasis on existing ROWs and infrastructure



CTPG

RETI

- Three phases of study work (now on phase III)
- Joint POU and IOU planning
- Scenario driven plans
- Direct RETI participation
- RETI environmental review for all transmission segments not already screened by RETI
- Results inform CAISO and CPUC
- ISO and CPUC will also do studies

Short vs. Long Term Planning

RETI

- ARRA projects and transmission
- PEIS and BLM Solar Energy Zones (one more year?)
- DRECP (two years)
- West-wide planning (WECC, BLM, USFS, States) (two years to ongoing)
 - Including land conservation, wildlife and water
- Collaboratives (NWCC, Pew, Energy Future Coalition, Rockefeller Brothers, Stanford, UC Davis...)

Legislative Vehicles

RETI

- Reid Bill (S539): Interconnection planning, stakeholder participation, RE focus, RE access preferences, Land use exclusions, FERC backstop, Cost allocation.
- Bingaman (S1462): Similar in many respects but broader grid upgrade focus, backstop only after state siting fails.
- Waxman Markey (HR 2454): more general, East treated differently, RE focus, FERC coordinates planning, FERC backstop authority if states fail to act in one year (W).