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Renewable Energy Transmission Initiative Phase 1A Work Plan Discussion

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Phase 1A Work Group

January 29, 2008

Agenda

- Overview and Organization of Workgroup
- Expectations of Workgroup
- Schedule
- Overview of issues to be considered by workgroup
- Scope of Work: Phase 1A and 1B
- Assumptions Review

Phase 1A Work Group Overview and Organization

- Overview:
 - Review and advise on the methodologies and assumptions used by B&V in RETI analysis
 - Provide input to B&V on methodology and assumptions
- Organization
 - Currently 6 Members
 - Spokesperson for Work Group?

Phase 1A Work Group – Expectations

- Participate in meetings and review B&V work product
- Communicate with Stakeholder Steering Committee members on issues
- Build consensus with Stakeholder Steering Committee on Phase 1B approach
- Articulate and explain RETI:
 - Assumptions
 - Methodology
 - Resource Assessment

Working Group Schedule

- Workgroup to convene through Phase 1A
- Weekly 90-minute meetings to review B&V assumptions and methodology
- Discussion topics will be scheduled a week ahead of meeting
- Review materials will be provided prior to meeting

Jan 29	Overview & Organization
Wk. of 2/4	Assumption and Methodology Review
Wk. of 2/11	Assumption and Methodology Review
Wk. of 2/18	Assumption and Methodology Review
Wk. of 2/25	Assumption and Methodology Review
Feb 27	Stakeholder Steering Committee – report out work group progress to SSC
Wk. of 3/3	Assumption and Methodology Review
Wk. of 3/10	Assumption and Methodology Review
Mar. 14	Phase 1A Report Completed
Mar. 19	Stakeholder Steering Committee – Discussion of Phase 1A report

Action Item: Determine meeting schedule

Issues Overview: Assumptions

- Financial assumptions for use in modeling
- Renewable energy incentives
- Renewable energy demand
- Transmission
- Economic assumptions to support resource valuation
- Renewable technology-specific assumptions

**We will expect general stakeholder buy-in
on all assumptions in Phase 1A**

Issues Overview: Methodological

-  Resource assessment
-  Project identification, characterization and screening
-  CREZ identification, characterization and economic ranking
-  Treatment of existing contracts, short-listed contracts and transmission queue
-  Technology development
-  Resource valuation
-  Supply curve creation



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Overview of RETI Principles

Introduction – What is RETI?

RETI is designed to:

- Provide information to CPUC, CEC, CAISO, generators and utilities on promising renewable locations, including cost
- Identify high priority resource zones that will to be targeted for renewable resource development
- Estimate the cost and impact of renewable resource investment
- Assist California in achieving its RPS goals

Introduction – RETI Is Not

- Does not pick “winners” and “losers”
 - *but it does provide information on competitiveness of different renewable zones*
- Is not an environmental or siting review for specific projects
- Is not a pre-approval for transmission investment, transmission corridor siting, or interconnection costs

Introduction – Approach

- Utilize market data and publicly available data to the greatest extent possible
- Reflect relevant regulatory decisions where applicable
- Applied consistently when evaluating multiple CREZs/transmission projects
- Adjustments to model inputs, assumptions, and methodologies must be transparent and documented
- Pursuant to statute and CPUC rules, any models used must be publicly available, user friendly, and well documented



Where Are We Headed?

Disclaimers

- Please don't read anything into any of the examples
 - To demonstrate form only
 - Completely hypothetical and not realistic
- We've signed a contract to carry out the Phase 1A scope
 - Phase 1B scope is not clearly defined – that's the point of Phase 1A

RETI Phase 1 Scope

- Objective: Identify a list of promising Competitive Renewable Energy Zones (CREZ)
- Part A:
 - Establish basic assumptions, methodology, and regional resource screening
 - January - March
- Part B:
 - Project and CREZ identification and characterization
 - April - August

RETI Phase 1A – Scope of Work

 Literature review

 Development of base study assumptions

 Development of approach to resource valuation, transmission cost assessment, and other concepts

 High-level technology/resource assessment and screening by geographic region

 Stakeholder engagement and outreach

 Project management and coordination

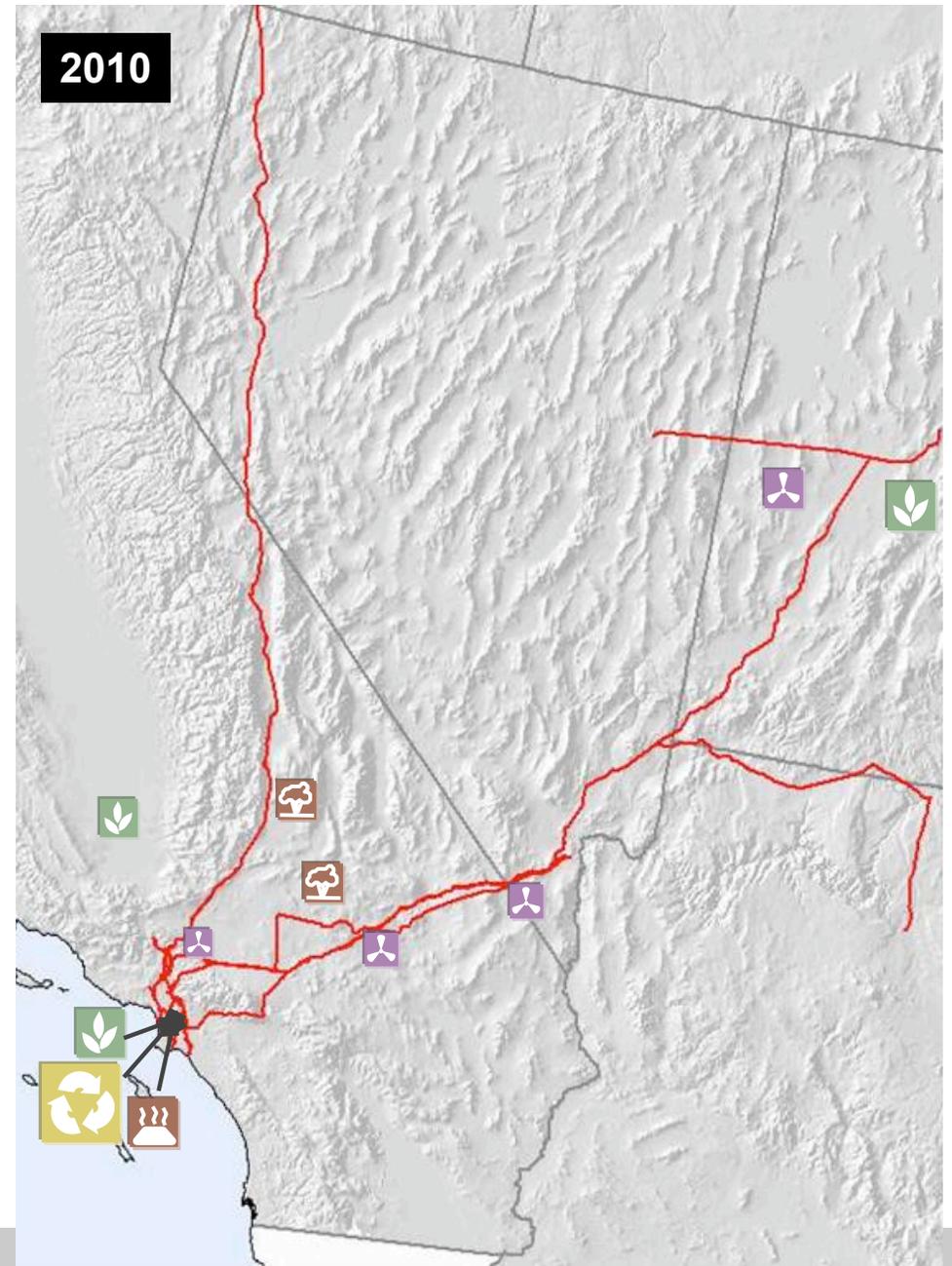
Phase 1B Expected Scope

- Project identification and characterization
- Assessment of project and transmission costs
- Development of supply curves
- Integration modeling
- CREZ identification

Identification of High Priority CREZs *Draft*

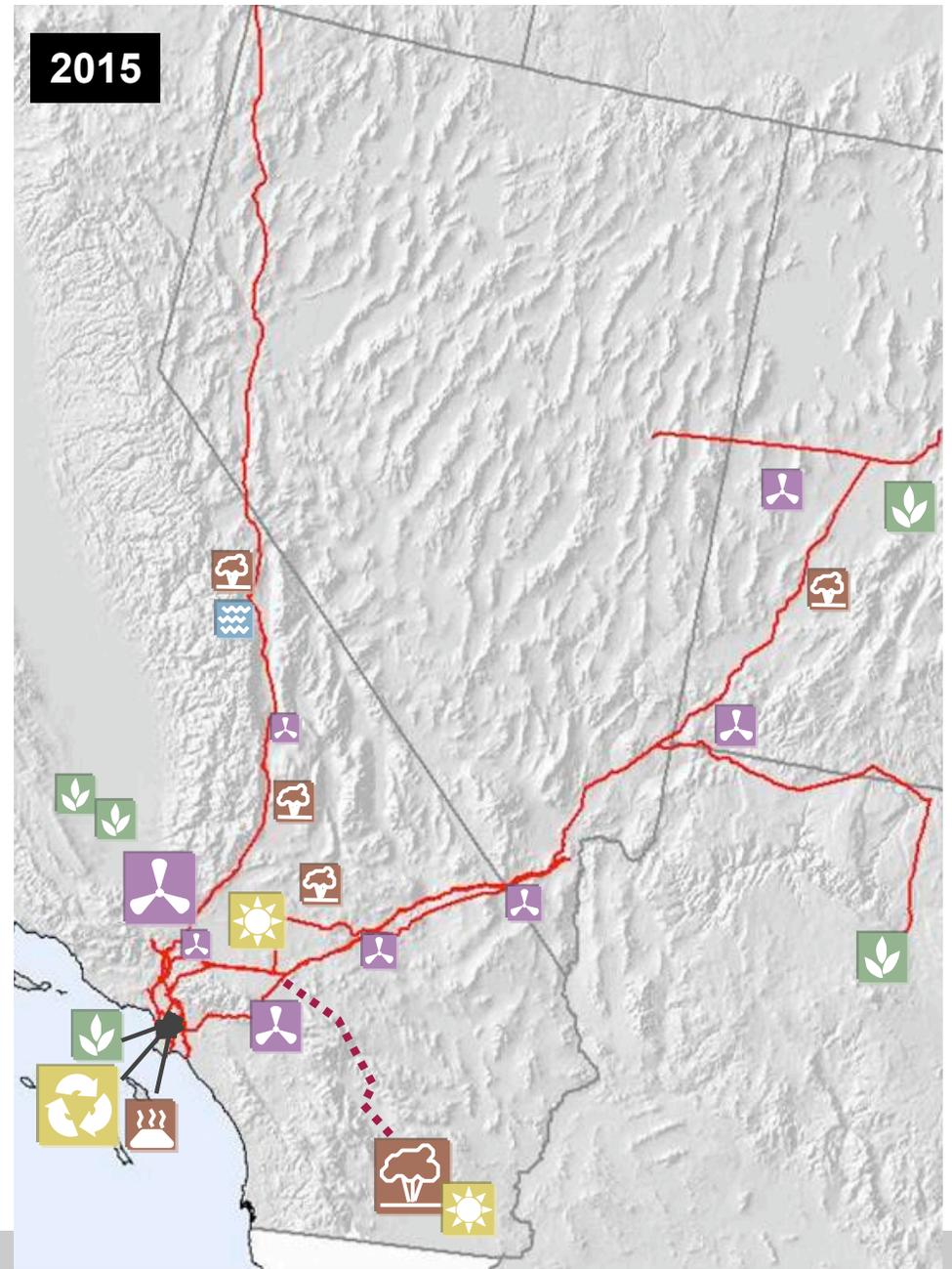
- The least-cost projects are “built” each year, considering:
 - Minimum project development timelines
 - Improvements in technology
 - Commercial availability of new renewable technologies
 - Timing of transmission development
 - Availability of tax credits and other incentives
- Use supply curves to identify hypothetical optimum portfolio

Example Project Build Scenario



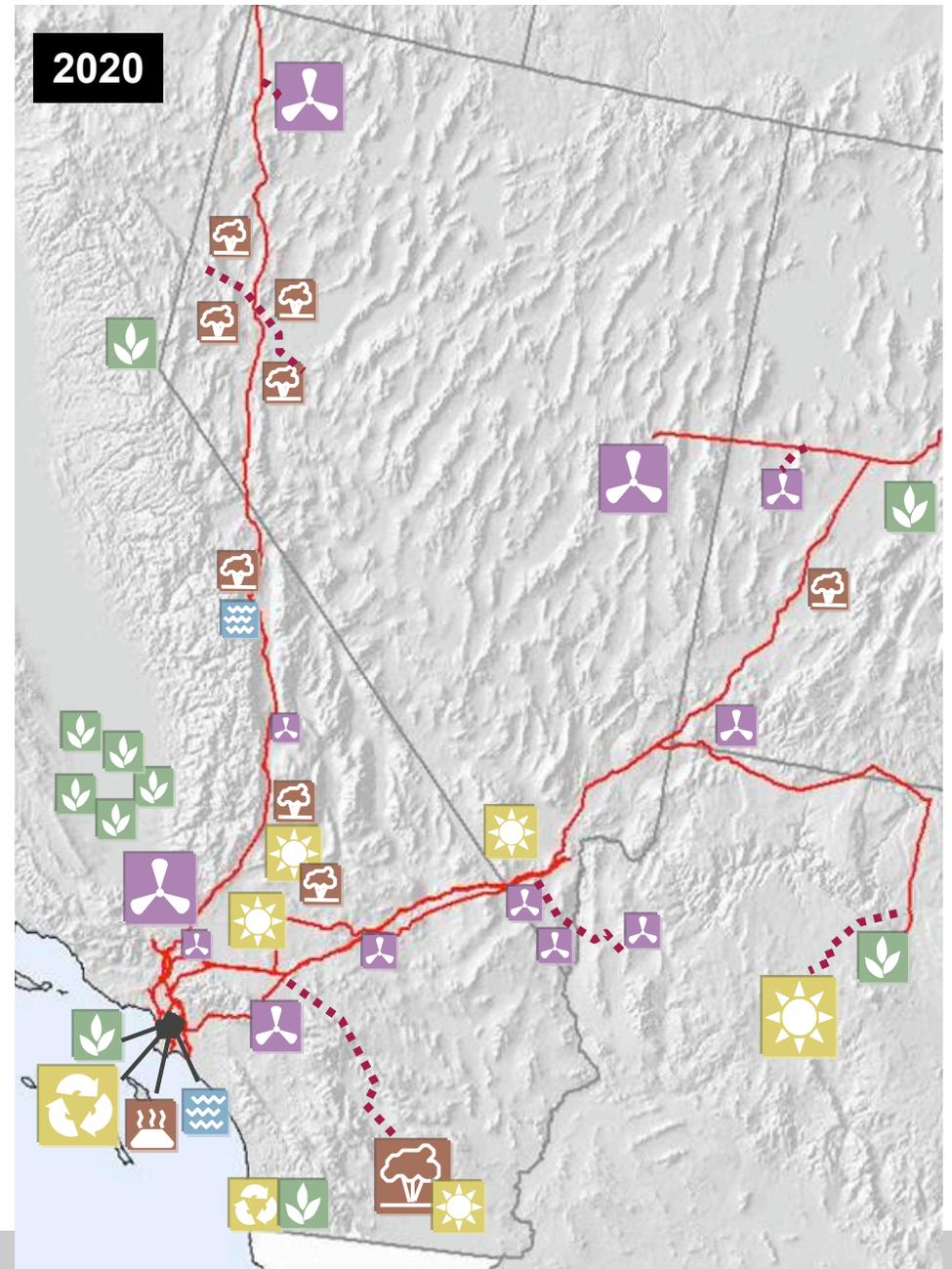
CONCEPTUAL – FOR EXAMPLE ONLY

Example Project Build Scenario



CONCEPTUAL – FOR EXAMPLE ONLY

Example Project Build Scenario



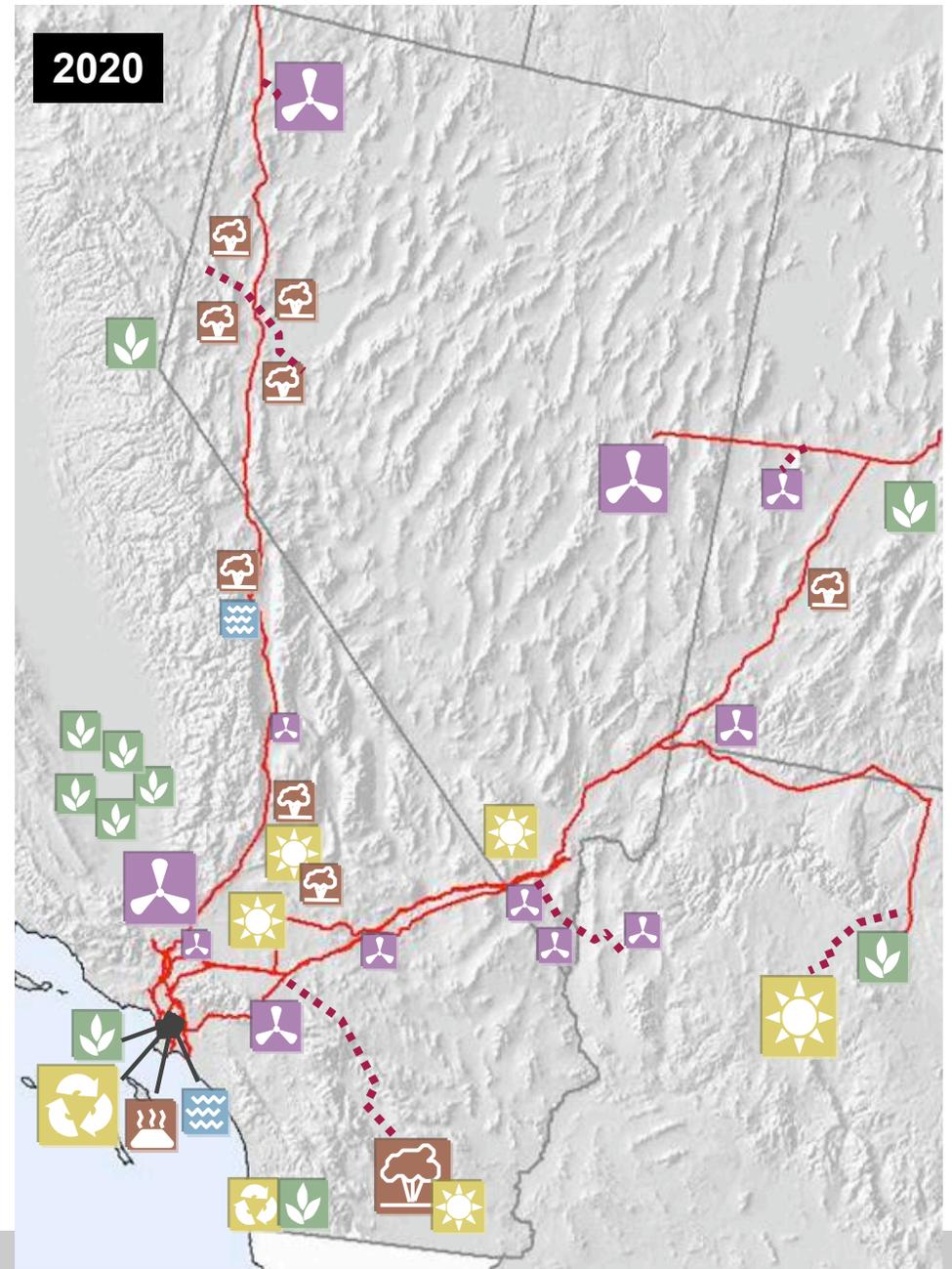
CONCEPTUAL – FOR EXAMPLE ONLY

CREZ Identification Principles

Draft

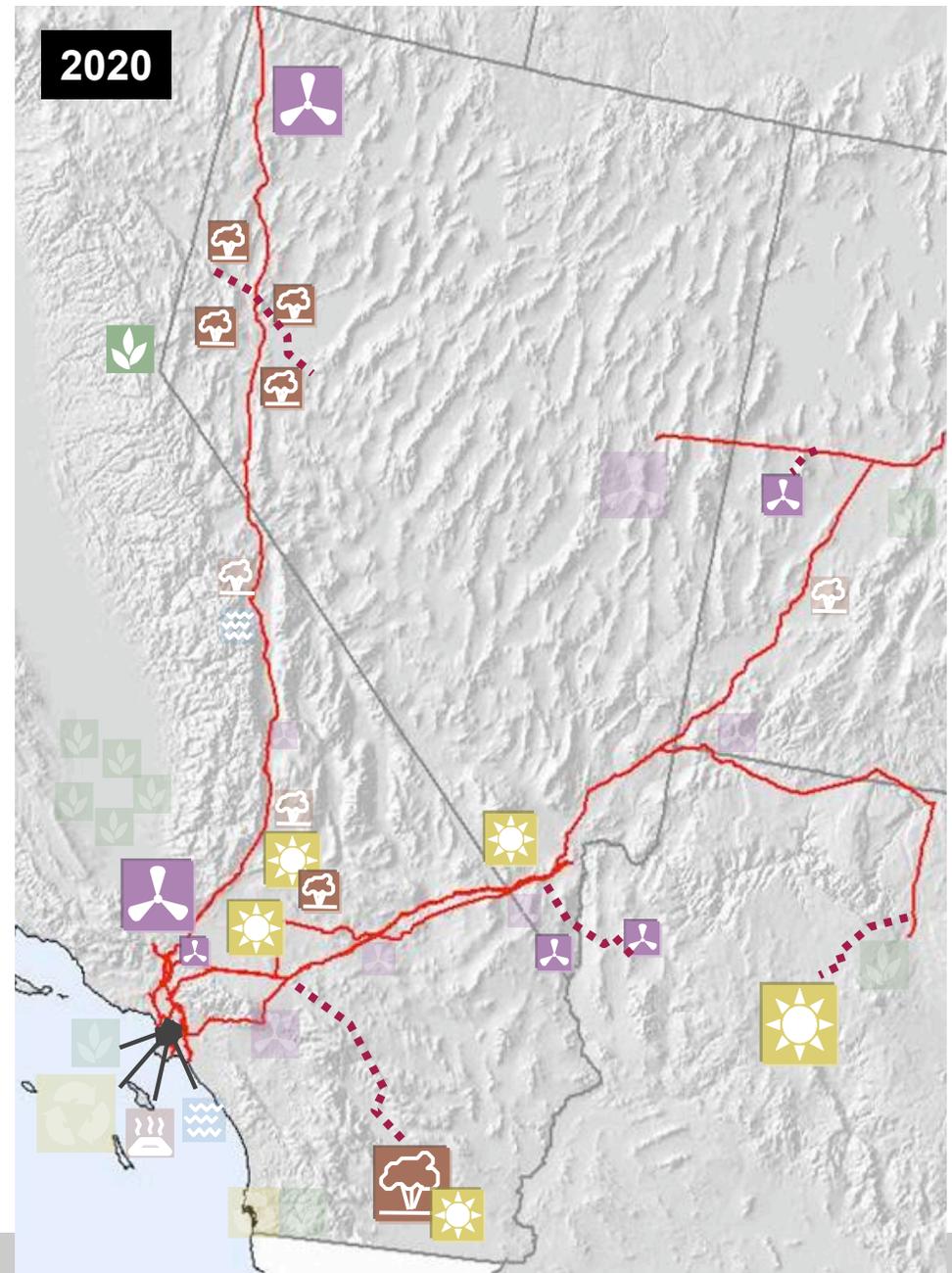
- Need for transmission system upgrades
- Geographical proximity
- Shared transmission constraints
- Additive economics
- Projects have complementary output profiles
- Similar development timeframes

Example CREZ Identification



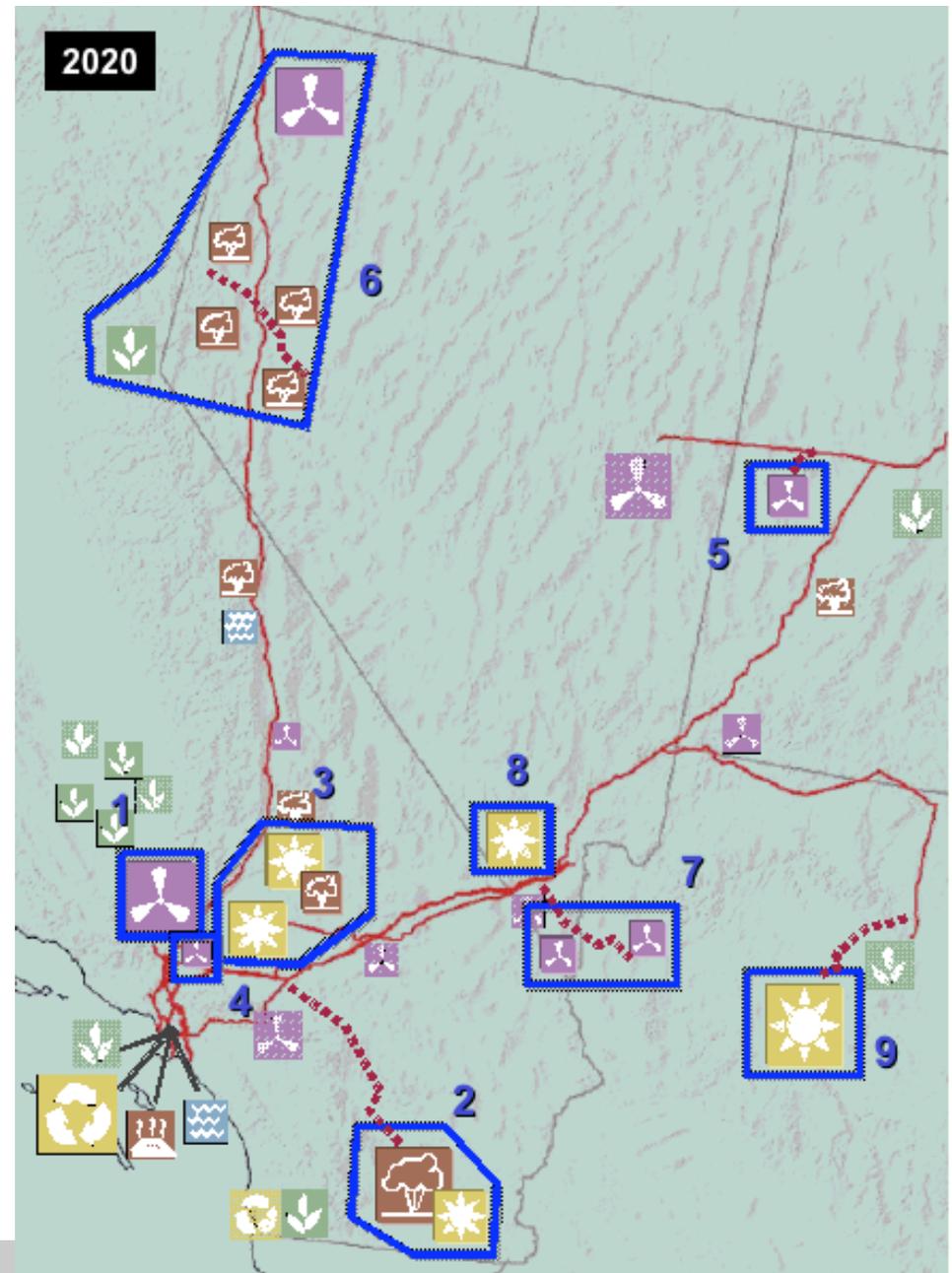
CONCEPTUAL – FOR EXAMPLE ONLY

Example CREZ Identification



CONCEPTUAL – FOR EXAMPLE ONLY

Example CREZ Identification



CONCEPTUAL – FOR EXAMPLE ONLY

Example CREZ Characteristics Table

	First Year Available	Annual Generation (GWh)				Location		Resource Valuation (2008\$/MWh)					Ranking Cost
		Wind	Geo	Solar	Hydro	State	County	Gen	Trans.	Energy	Capacity	Integr.	
CREZ 1	2012		300			CA	Imperial	75	5	75	14	0	-9
CREZ 2	2011	255				CA	Humboldt	75	0	73	7	1	-4
CREZ 3	2013		500			CA	Imperial	78	10	75	14	0	-1
CREZ 4	2013		150			CA	Imperial	84	12	75	14	0	7
CREZ 5	2018	1,350	1,100			NV	Washoe	75	20	70	10	2	17
CREZ 6	2012				135	CA	Merced	88	2	65	7	0	18
CREZ 7	2011	2,250				CA	Kern	85	12	70	7	2	22
CREZ 8	2013	3,300				CA	Kern	88	15	70	7	3	29
CREZ 9	2014	2,400				CA	Kern	91	17	70	7	4	35
CREZ 10	2015	900		1,350		CA	Kern	113	22	85	17	4	37
CREZ 11	2015	600		1,800		CA	Kern	130	20	90	24	3	39
CREZ 12	2018	2,280				NV	Washoe	107	5	70	7	5	40
CREZ 13	2013			750		CA	S. Bern.	150	10	95	27	2	40
CREZ 14	2013			750		CA	S. Bern.	152	15	95	27	3	48
CREZ 15	2014			1,200		CA	S. Bern.	152	15	95	27	3	48
CREZ 16	2014			1,350		CA	S. Bern.	153	15	95	27	4	50

CONCEPTUAL – FOR EXAMPLE ONLY

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Thank You!

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