DOCKETED	
Docket Number:	21-SIT-01
Project Title:	21-SIT-01, SB100 Implementation Planning for SB100 Resource Build
TN #:	239298
Document Title:	Presentation - August 12, 2021 - Joint Agency Workshop Resource Mapping
Description:	August 12, 2021 - Joint Agency Workshop Resource Mapping - Presentation
Filer:	Mary Dyas
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	8/12/2021 9:57:56 AM
Docketed Date:	8/12/2021

Joint Agency Workshop:
Next Steps to Plan for Senate Bill 100 Resource Build Resource Mapping

August 19, 2021

Agenda - Resource Mapping

1. Building a Resource Map with Environmental and Land Use Data to Examine SB100 Scenarios
   - Scott Flint, CEC
2. CAISO Comments and 20-Year Outlook Observations on SB100 Portfolios Transmission Plan
   - Jeff Billinton, CAISO
3. CPUC Staff Comments and IRP-related Observations
   - Karolina Maslanka, Nathan Barcic, Jason Ferguson
4. Questions and Answers on the Resource Build Maps and 20-year Transmission Plan

Public Comment Instructions

Rules
- 3 minutes per person
- 1 person per organization

Zoom
- Click "raise hand"

Telephone
- Press *9 to raise hand
- Press *6 to (un)mute

When called upon
- Unmute, spell name, state affiliation, if any

Written Comments:
- Due: Friday, 8/20/21 by 5:00 p.m.
- Docket: 21-SIT-01
- Submit at: https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=21-SIT-01

3-MINUTE TIMER

Agency Leadership Opening Remarks

- **Karen Douglas**, CEC Commissioner
- **Siva Gunda**, CEC Commissioner
- **Darcie Houck**, CPUC Commissioner

California Energy Commission
Scott Flint

California Energy Commission

Title: Next Steps to Plan for Senate Bill 100 Resource Build: Resource Mapping

Presenter: Scott Flint, Office Manager - Energy Infrastructure Planning and Policy

Date: August 12, 2021

SB 100 Implementation – Next Steps

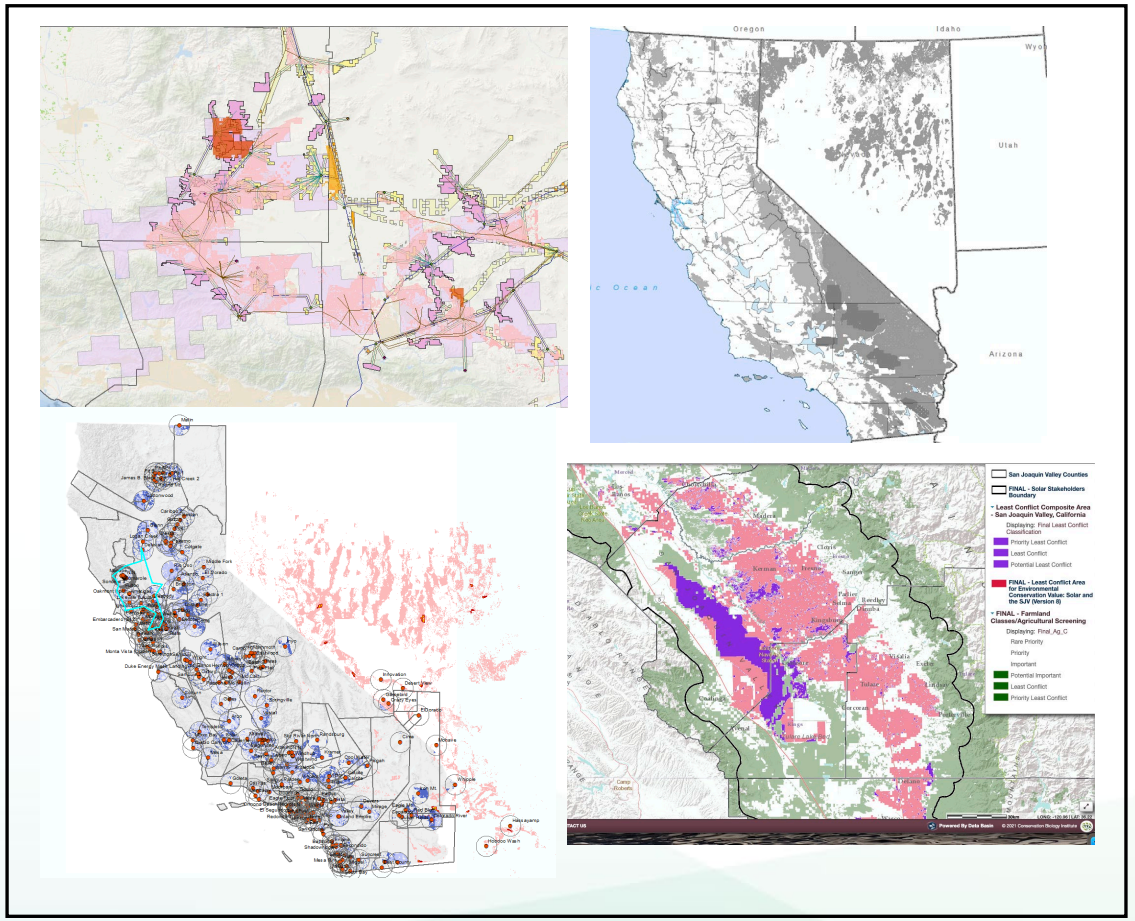
- Agency Staff are examining the potential renewable energy builds needed to achieve SB 100 Energy Goals
- Assembling/updating statewide environmental and land use datasets for high level screen potential resource footprints
  - ✓ Exclusion areas
  - ✓ Biodiversity
  - ✓ Essential landscape blocks and connectivity
  - ✓ Terrestrial Intactness
  - ✓ Agricultural Value
- Reviewing Landscape Planning results
  - ✓ RETI
  - ✓ DRECP – Development Focus Areas
  - ✓ San Joaquin Least Conflict Solar
  - ✓ IRP

SB 100 Implementation – Next Steps

- Agency Staff are examining the potential renewable energy builds needed to achieve SB 100 Energy Goals
- Assembling/updating statewide environmental and land use datasets for high level screen potential resource footprints
- Reviewing Landscape Planning results
- Creating a “Starting Point” Resource Map to:
  - inform CAISO 20 Year Transmission Look
  - iterate in ongoing SB 100 implementation work

Planning Activities

- ✓ RETI
- ✓ DRECP – Development Focus Areas
- ✓ San Joaquin Least Conflict Solar
- ✓ SB 100 Modeling
- ✓ IRP
- ✓ Offshore Wind



Planning Activities

✓ DRECP – Development Focus Areas

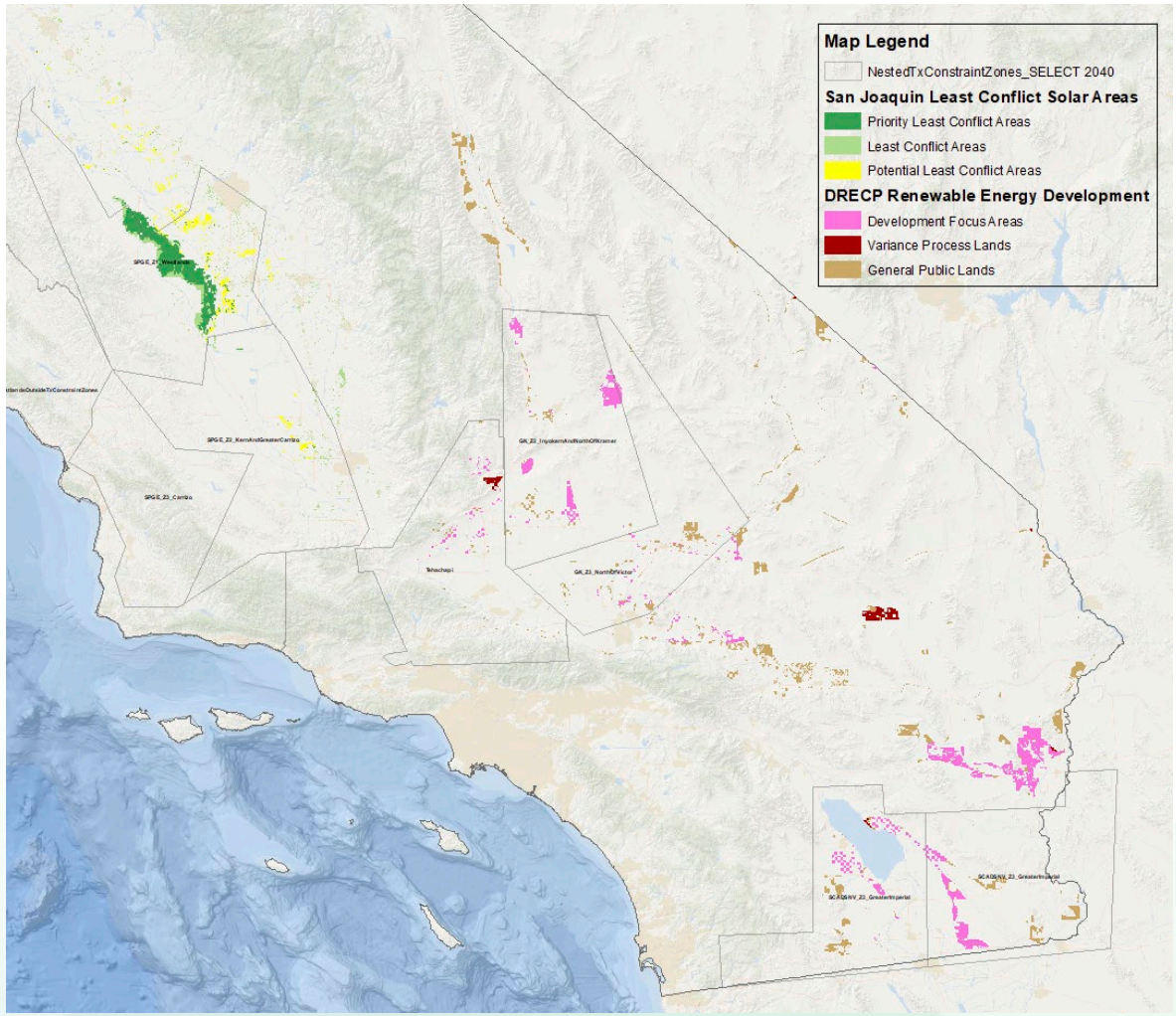
[Desert Renewable Energy Conservation Plan | Bureau of Land Management (blm.gov)]

[DRECP Gateway (databasin.org)]

✓ San Joaquin Valley Least Conflict Solar

[Mapping Lands to Avoid Conflict for Solar PV in the San Joaquin Valley | Berkeley Law]

[SJV Gateway (databasin.org)]



Data Sets

- ✓ Energy Resource GIS Files
- ✓ Exclusion Areas
- ✓ Biodiversity
- ✓ Essential landscape blocks and connectivity
- ✓ Terrestrial Intactness
- ✓ Agricultural Value
- ✓ Other Land Use Data

Data Sources

Biodiversity –

Areas of Conservation Emphasis (ACE III), California Department of Fish and Game Areas of Conservation Emphasis (ACE) (ca.gov)

Habitat Connectivity –

CA Essential Landscape Connectivity, CDFW and CALTRANS
California Essential Habitat Connectivity Project

Terrestrial Landscape Intactness – Conservation Biology Institute
Landscape Intactness (1 km), California | Data Basin

Land Use – Conservation Biology Institute
California Agricultural Value (2018) | Data Basin

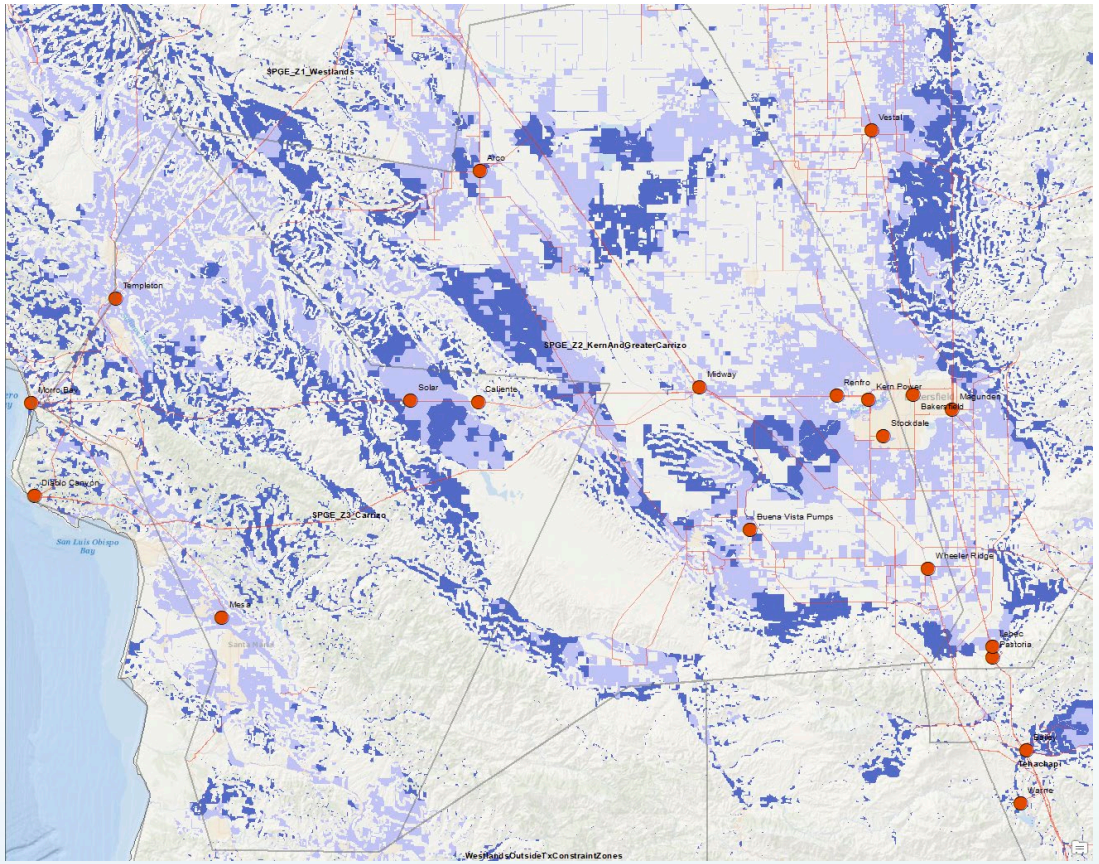
Methods

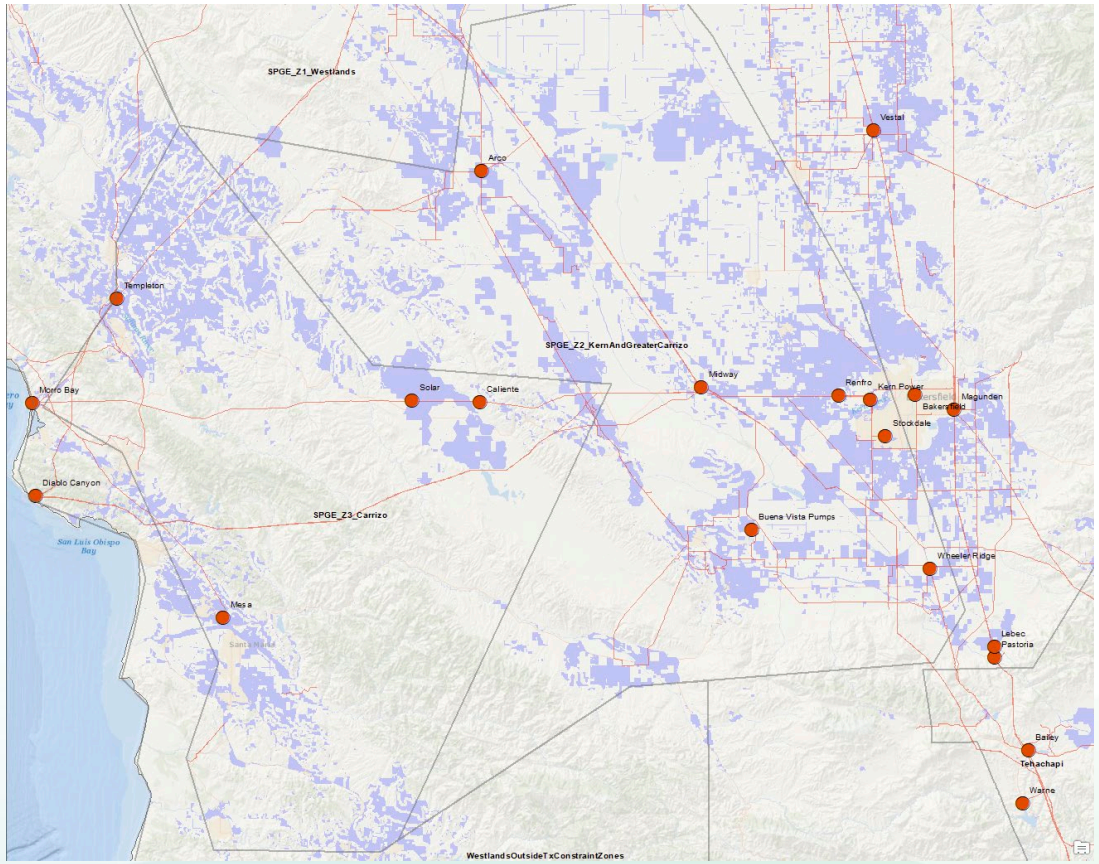
- Identify Energy Resources from Existing Energy Resource Data Sets
- Ensure land use data sets are included as exclusion or areas identified for renewable energy
- Overlay and join environmental datasets in GIS to make calcujlations and summarize data
- Use the Agricultural Value layer and other pertinent layers as overlays to evaluate additional specific implications (eg. important bird areas)
- Clip to identified energy resource areas; calculate acres and numeric values for environmental implications
- Summarize energy resources by transmission zone

Methods

- Estimate potential renewable energy development footprint by technology
- Identify coarse geographic locations of resources within transmission zones used in the RESOLVE modeling
- Screen with identified energy datasets and environmental and land use datasets
- Calculate available acreage of potential renewable energy resource by transmission zone and percent build
- Review all elements of the SB 100 Scenarios

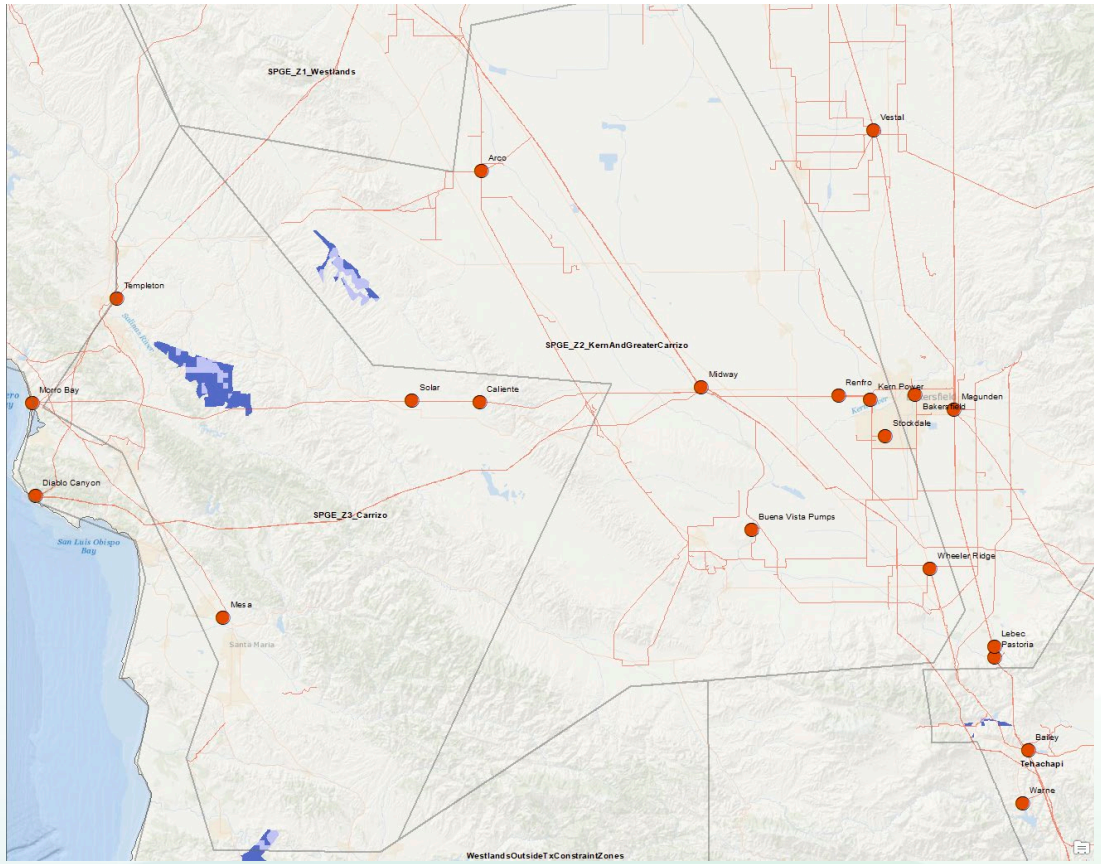
Most Suitable for Solar





Wind Resources

- Wind resources areas are small and localized
- Some areas have multiple environmental implications
- We can use the existing data to drill down and identify environmental implication “drivers”



SB 100 No Combustion Scenario

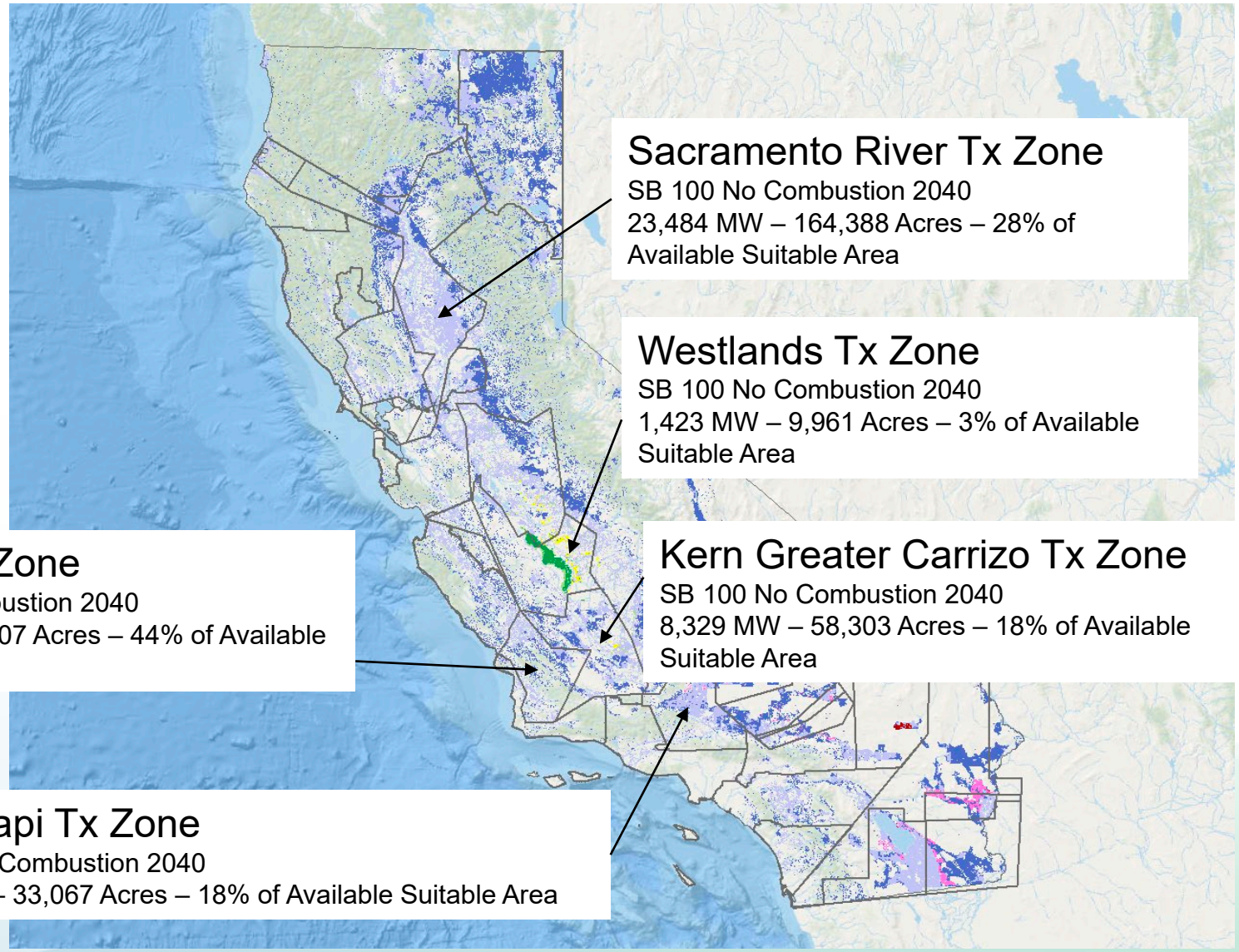
SB 100 No Combustion Scenario								
Load Coverage	Study							
Demand Scenario	High Electrification							
Resource Options	All Combustion Retired by 2045 and No Combustion Candidate Resources							
Selected Resource Summary	Unit	2027		2030		2040		2045
Gas	MW	-		-		-		-
Hydrogen Fuel Cell	MW	-		-		5,821		25,095
Geothermal	MW	-		-		2,300		2,332
Biomass	MW	-		-		-		-
Wind	MW	2,709		3,866		4,779		5,096
New OOS Wind	MW	-		5,451		11,215		12,000
Offshore Wind	MW	-		-		10,000		10,000
Utility-Scale Solar	MW	4,050		14,717		49,316		85,401
Customer Solar	MW	-		-		-		-
Battery Storage	MW	6,819		9,203		37,520		60,125
Long Duration Storage	MW	526		1,397		4,000		4,000
Shed DR	MW	441		441		1,111		1,111
Gas Capacity Not Retained	MW	-		(0)		(15,391)		(32,959)
In-State Renewables	MW	6,759		18,583		66,395		102,830
Out-Of-State Renewables	MW	-		5,451		11,215		12,000

SB 100 No Combustion Scenario

SB 100 No Combustion Scenario

Renewable Buildout: In-State Footprint		2027 MW	2027 ACRES	2030 MW	2030 ACRES	2040 MW	2040 ACRES	2045 MW	2045 ACRES
Geothermal			-	-	-	2,300	11,501	2,332	11,661
Wind			-	3,866	154,640	4,779	191,157	5,096	203,850
Utility-Scale Solar			-	14,714	102,998	49,316	345,214	85,401	597,808
TOTAL									813,319

Modeled SB 100 Potential Solar Buildout – Regional Look



Sacramento River Tx Zone
SB 100 No Combustion 2040
23,484 MW – 164,388 Acres – 28% of Available Suitable Area

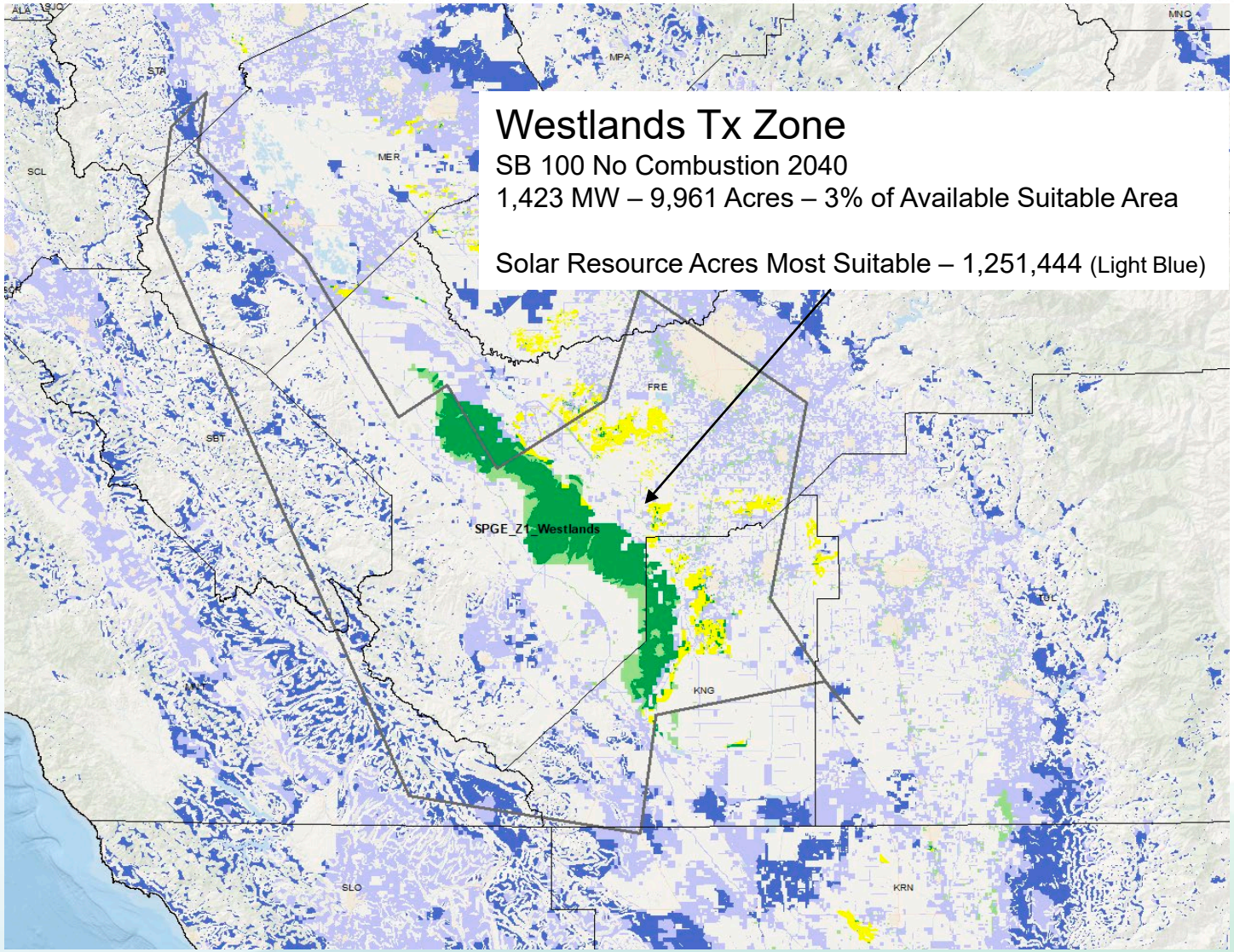
Westlands Tx Zone
SB 100 No Combustion 2040
1,423 MW – 9,961 Acres – 3% of Available Suitable Area

Kern Greater Carrizo Tx Zone
SB 100 No Combustion 2040
8,329 MW – 58,303 Acres – 18% of Available Suitable Area

Carrizo Tx Zone
SB 100 No Combustion 2040
9,601 MW – 67,207 Acres – 44% of Available Suitable Area

Tehachapi Tx Zone
SB 100 No Combustion 2040
4,081 MW – 33,067 Acres – 18% of Available Suitable Area

Modeled SB 100 Potential Solar Buildout – Regional Look



SB 100 Implementation – Next Steps

- Assembling/updating statewide environmental and land use datasets for high level screen potential resource footprints
- Discussing additional elements of the SB 100 scenario outputs and considering possible adjustments for CAISO 20 year transmission look
- Examining a variety of other scenarios and potential builds to facilitate continued the environmental and land use discussion
- Review and incorporate comments from this staff workshop
- Deliver inputs and resource map to CAISO at the end of August

Thank You!

California Independent System Operator
Jeff Billinton

California Public Utilities Commission
Karolina Maslanka

Questions and Answers:
Resource Build Maps and 20-year Transmission Plan

Public Comment

Rules
- 3 minutes per person
- 1 person per organization

Zoom
- Click "raise hand"

Telephone
- Press *9 to raise hand
- Press *6 to (un)mute

When called upon
- Unmute, spell name, state affiliation, if any

Written Comments:
- Due: Friday, 8/20/21 by 5:00 p.m.
- Docket: 21-SIT-01
- Submit at: https://efiling.energy.ca.gov/EComment/Ecomment.aspx?docketnumber=21-SIT-01

3-MINUTE TIMER

Thank You!