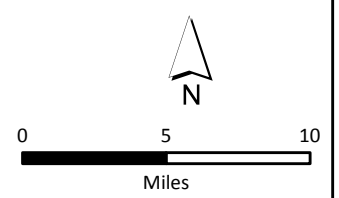
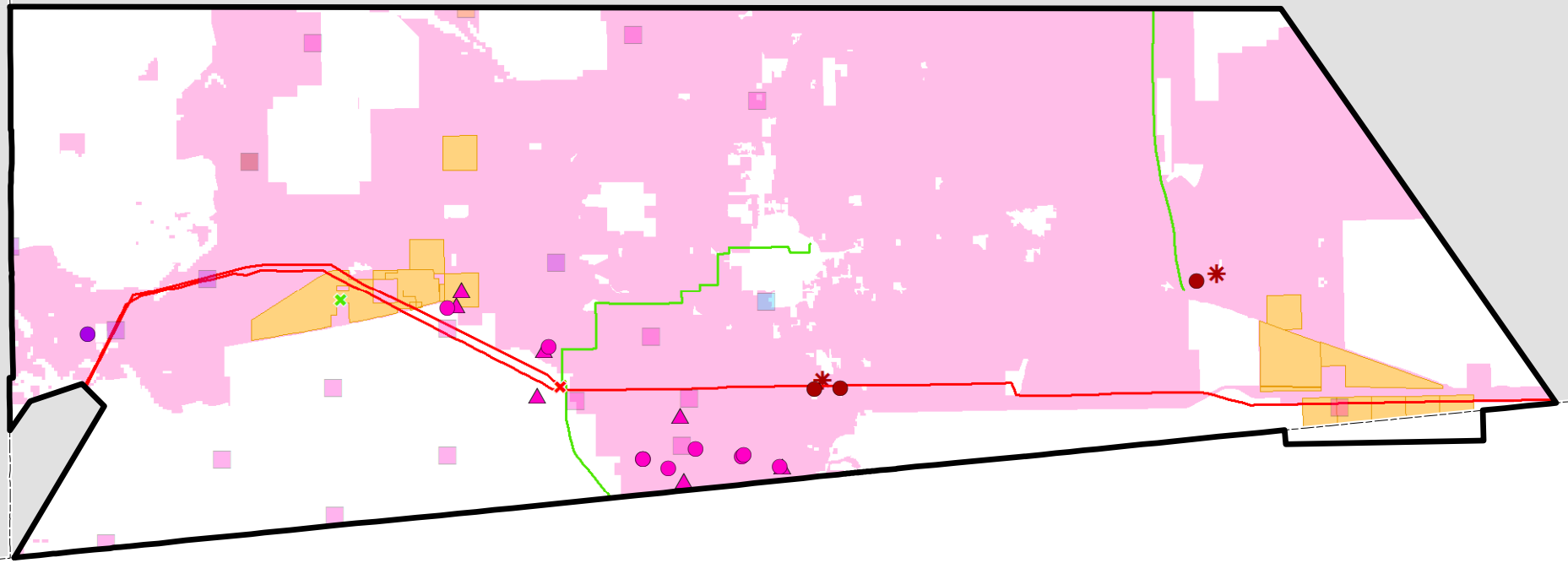


## DOCKETED

<b>Docket Number:</b>	15-RETI-02
<b>Project Title:</b>	Renewable Energy Transmission Initiative 2.0
<b>TN #:</b>	210727
<b>Document Title:</b>	Black & Veatch CREZ Maps
<b>Description:</b>	N/A
<b>Filer:</b>	clare Laufenberg
<b>Organization:</b>	Black and Veatch
<b>Submitter Role:</b>	Public
<b>Submission Date:</b>	3/15/2016 1:33:51 PM
<b>Docketed Date:</b>	3/15/2016

Imperial  
County



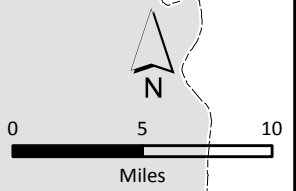
RPS Calculator 6.1 PPA	CEC Projects In Development 2016	CAISO 2014 (locations appx)	Proxy Projects	Existing Substations
<span style="color: green;">●</span> Bioenergy	<span style="color: green;">▲</span> Biomass/Landfill Gas	<span style="color: lightgreen;">■</span> Biomass	<span style="color: green;">✱</span> Biomass	<span style="color: green;">✕</span> 230 kV
<span style="color: red;">●</span> Geothermal	<span style="color: red;">▲</span> Geothermal	<span style="color: brown;">■</span> Geothermal	<span style="color: red;">✱</span> Geothermal	<span style="color: blue;">✕</span> 345 kV
<span style="color: cyan;">●</span> Hydro	<span style="color: cyan;">▲</span> Small hydro	<span style="color: pink;">■</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: red;">✕</span> 500+ kV
<span style="color: magenta;">●</span> Solar PV	<span style="color: magenta;">▲</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<b>Existing Transmission</b>
<span style="color: yellow;">●</span> Solar Thermal	<span style="color: yellow;">▲</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<span style="color: pink;">■</span> Solar PV	<span style="color: green;">—</span> 230 - 344 kV
<span style="color: purple;">●</span> Wind	<span style="color: purple;">▲</span> Wind	<span style="color: cyan;">■</span> Water		<span style="color: blue;">—</span> 345 - 499 kV
<span style="color: grey;">●</span> Various		<span style="color: grey;">■</span> Other		<span style="color: red;">—</span> 500+ kV

## Imperial South SuperCREZ

San Bernardino County

Riverside County

Imperial County



RPS Calculator 6.1 PPA

- Bioenergy
- Geothermal
- Hydro
- Solar PV
- Solar Thermal
- Wind
- Various

CEC Projects In Development 2016

- ▲ Biomass/Landfill Gas
- ▲ Geothermal
- ▲ Small hydro
- ▲ Solar PV
- ▲ Solar Thermal
- ▲ Wind

CAISO 2014 (locations appx)

- Biomass
- Geothermal
- Solar PV
- Solar Thermal
- Wind
- Water
- Other

Proxy Projects

- ✱ Biomass
- ✱ Geothermal
- Solar Thermal
- Wind
- Solar PV

Existing Substations

- ✕ 230 kV
- ✕ 345 kV
- ✕ 500+ kV

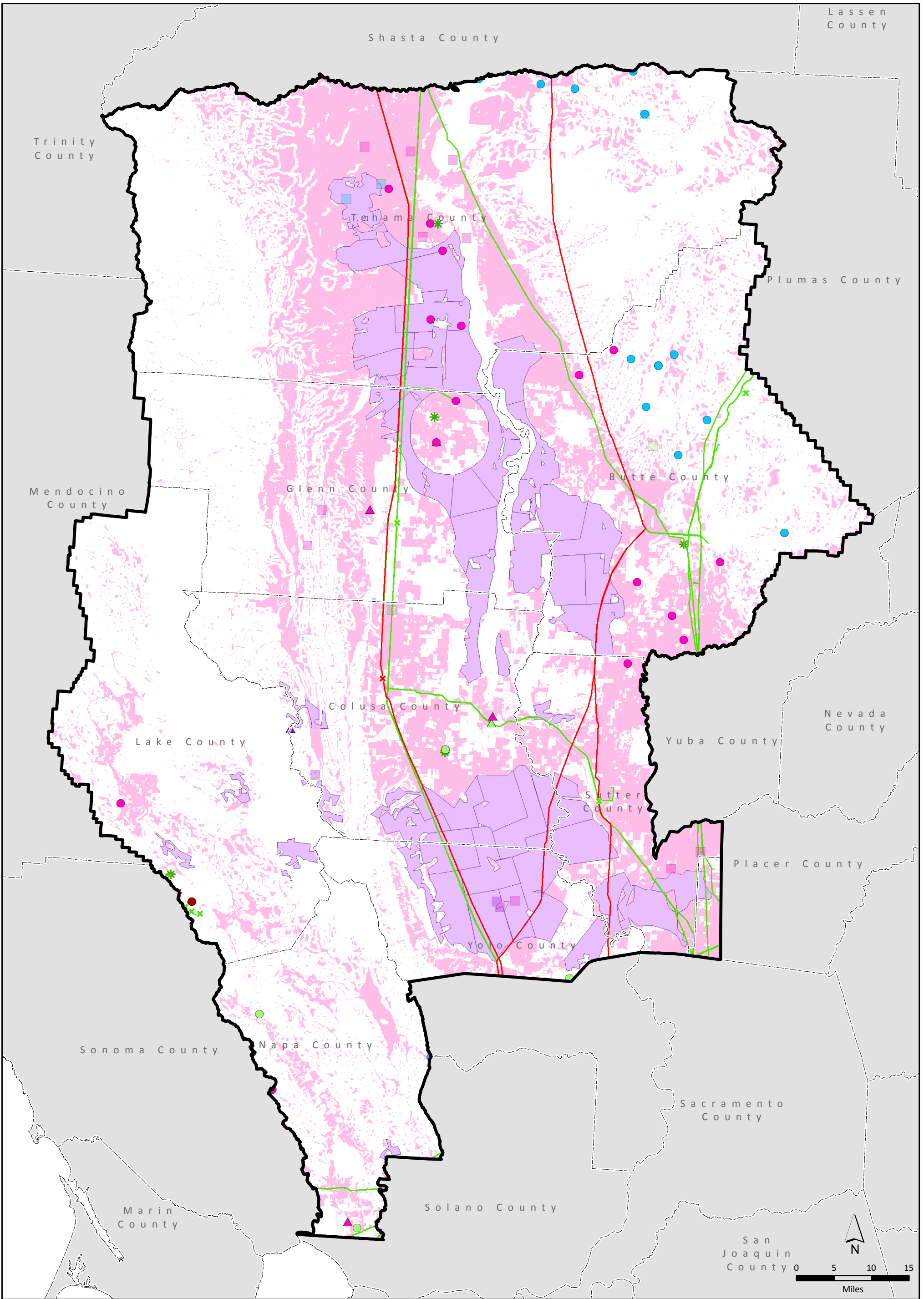
Existing Transmission

- 230 - 344 kV
- 345 - 499 kV
- 500+ kV



Riverside East SuperCREZ



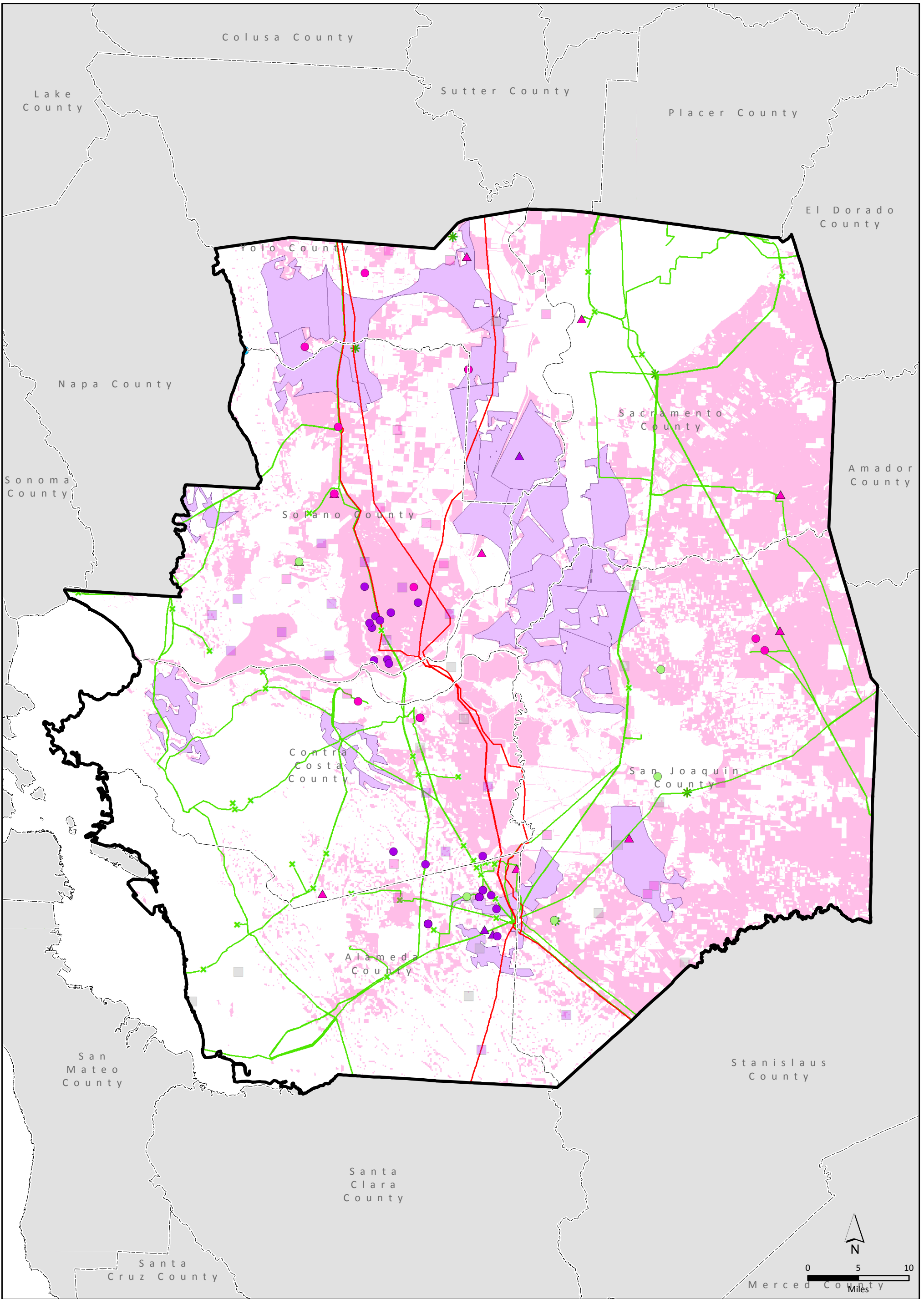


RPS Calculator 6.1 PPA	CEC Projects In Development 2016	CAISO 2014 (locations appx)	Proxy Projects	Existing Substations
<span style="color: green;">●</span> Bioenergy	<span style="color: green;">▲</span> Biomass/Landfill Gas	<span style="color: lightgreen;">■</span> Biomass	<span style="color: green;">✱</span> Biomass	<span style="color: green;">✕</span> 230 kV
<span style="color: red;">●</span> Geothermal	<span style="color: red;">▲</span> Geothermal	<span style="color: brown;">■</span> Geothermal	<span style="color: red;">✱</span> Geothermal	<span style="color: blue;">✕</span> 345 kV
<span style="color: cyan;">●</span> Hydro	<span style="color: cyan;">▲</span> Small hydro	<span style="color: pink;">■</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: red;">✕</span> 500+ kV
<span style="color: magenta;">●</span> Solar PV	<span style="color: magenta;">▲</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<b>Existing Transmission</b>
<span style="color: yellow;">●</span> Solar Thermal	<span style="color: yellow;">▲</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<span style="color: pink;">■</span> Solar PV	<span style="color: green;">—</span> 230 - 344 kV
<span style="color: purple;">●</span> Wind	<span style="color: purple;">▲</span> Wind	<span style="color: lightblue;">■</span> Water		<span style="color: blue;">—</span> 345 - 499 kV
<span style="color: grey;">●</span> Various		<span style="color: grey;">■</span> Other		<span style="color: red;">—</span> 500+ kV


San Joaquin County 0 5 10 15 Miles

## Sacramento River Valley SuperCREZ


**BLACK & VEATCH**  
Building a world of difference.®



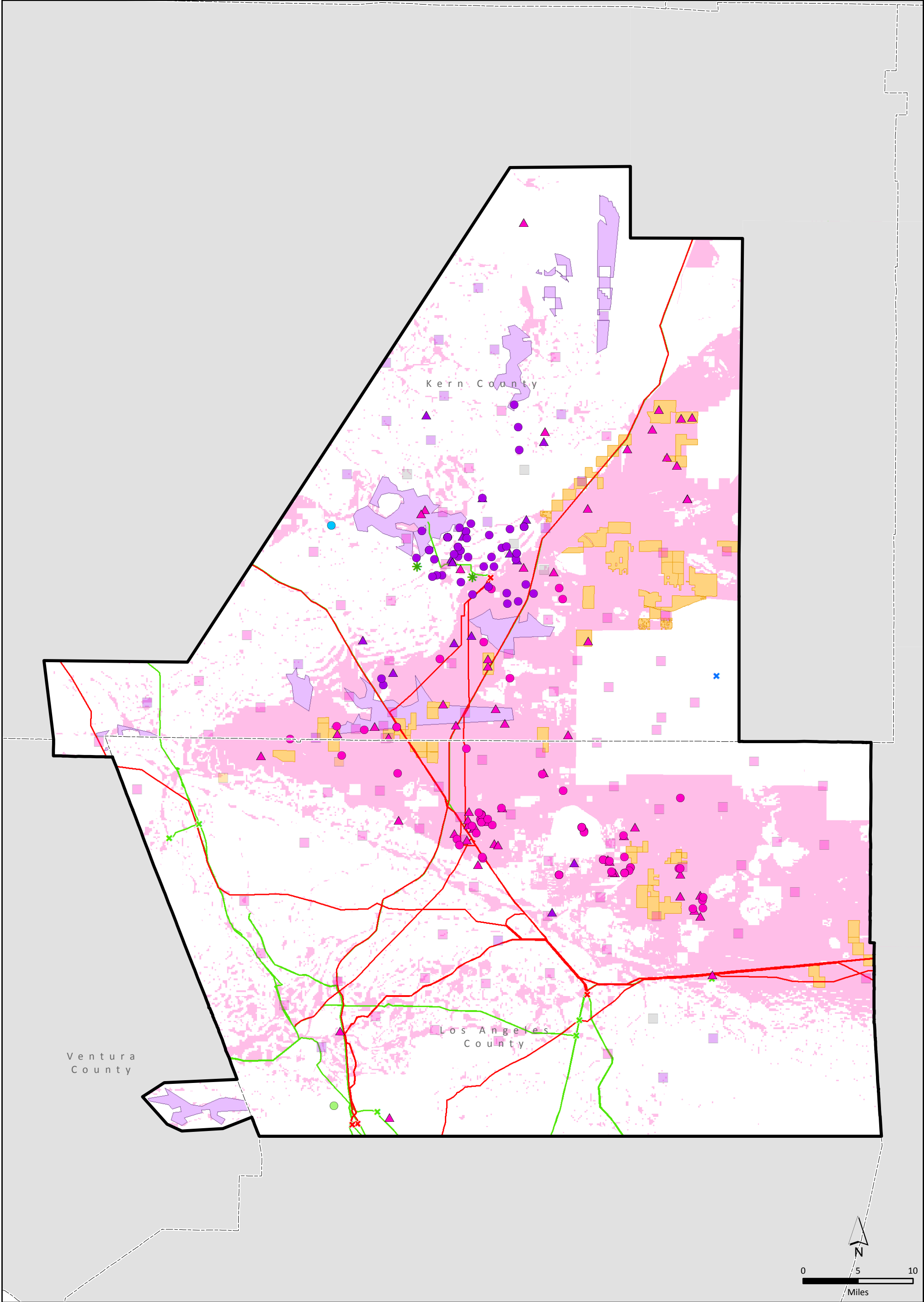
RPS Calculator 6.1 PPA	CEC Projects In Development 2016	CAISO 2014 (locations appx)	Proxy Projects	Existing Substations
<span style="color: green;">●</span> Bioenergy	<span style="color: green;">▲</span> Biomass/Landfill Gas	<span style="color: lightgreen;">■</span> Biomass	<span style="color: green;">✱</span> Biomass	<span style="color: green;">✕</span> 230 kV
<span style="color: red;">●</span> Geothermal	<span style="color: red;">▲</span> Geothermal	<span style="color: brown;">■</span> Geothermal	<span style="color: red;">✱</span> Geothermal	<span style="color: blue;">✕</span> 345 kV
<span style="color: cyan;">●</span> Hydro	<span style="color: cyan;">▲</span> Small hydro	<span style="color: pink;">■</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: red;">✕</span> 500+ kV
<span style="color: magenta;">●</span> Solar PV	<span style="color: magenta;">▲</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<b>Existing Transmission</b>
<span style="color: yellow;">●</span> Solar Thermal	<span style="color: yellow;">▲</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<span style="color: pink;">■</span> Solar PV	<span style="color: green;">—</span> 230 - 344 kV
<span style="color: purple;">●</span> Wind	<span style="color: purple;">▲</span> Wind	<span style="color: lightblue;">■</span> Water		<span style="color: blue;">—</span> 345 - 499 kV
<span style="color: grey;">●</span> Various		<span style="color: grey;">■</span> Other		<span style="color: red;">—</span> 500+ kV



## Solano SuperCREZ



**BLACK & VEATCH**  
Building a world of difference.®



**RPS Calculator 6.1 PPA**

- Bioenergy
- Geothermal
- Hydro
- Solar PV
- Solar Thermal
- Wind
- Various

**CEC Projects In Development 2016**

- ▲ Biomass/Landfill Gas
- ▲ Geothermal
- ▲ Small hydro
- ▲ Solar PV
- ▲ Solar Thermal
- ▲ Wind

**CAISO 2014 (locations appx)**

- Biomass
- Geothermal
- Solar PV
- Solar Thermal
- Wind
- Water
- Other

**Proxy Projects**

- ✱ Biomass
- ✱ Geothermal
- Solar Thermal
- Wind
- Solar PV

**Existing Substations**

- ✕ 230 kV
- ✕ 345 kV
- ✕ 500+ kV

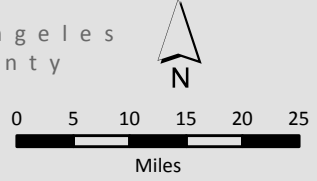
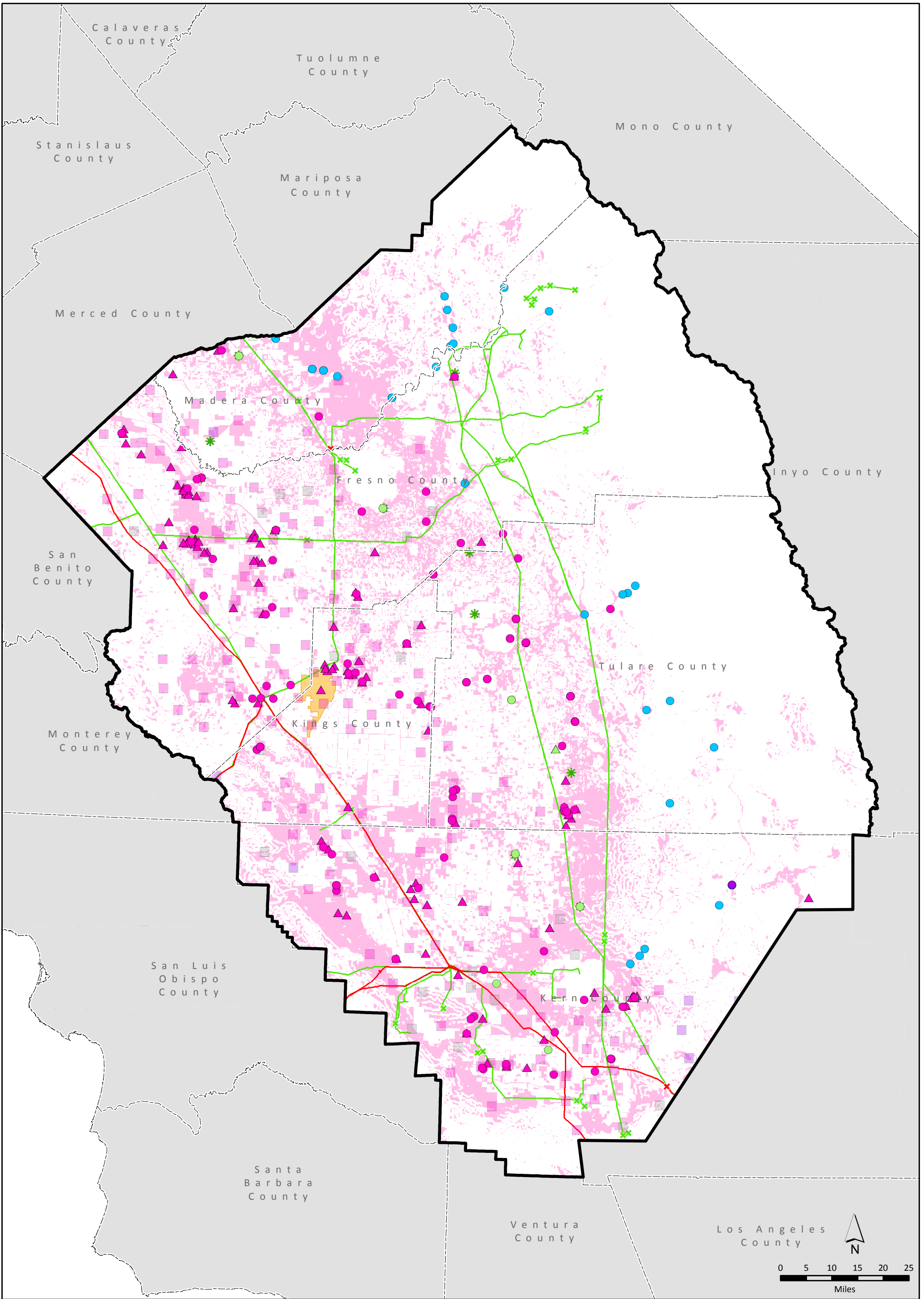
**Existing Transmission**

- 230 - 344 kV
- 345 - 499 kV
- 500+ kV



**Tehachapi SuperCREZ**

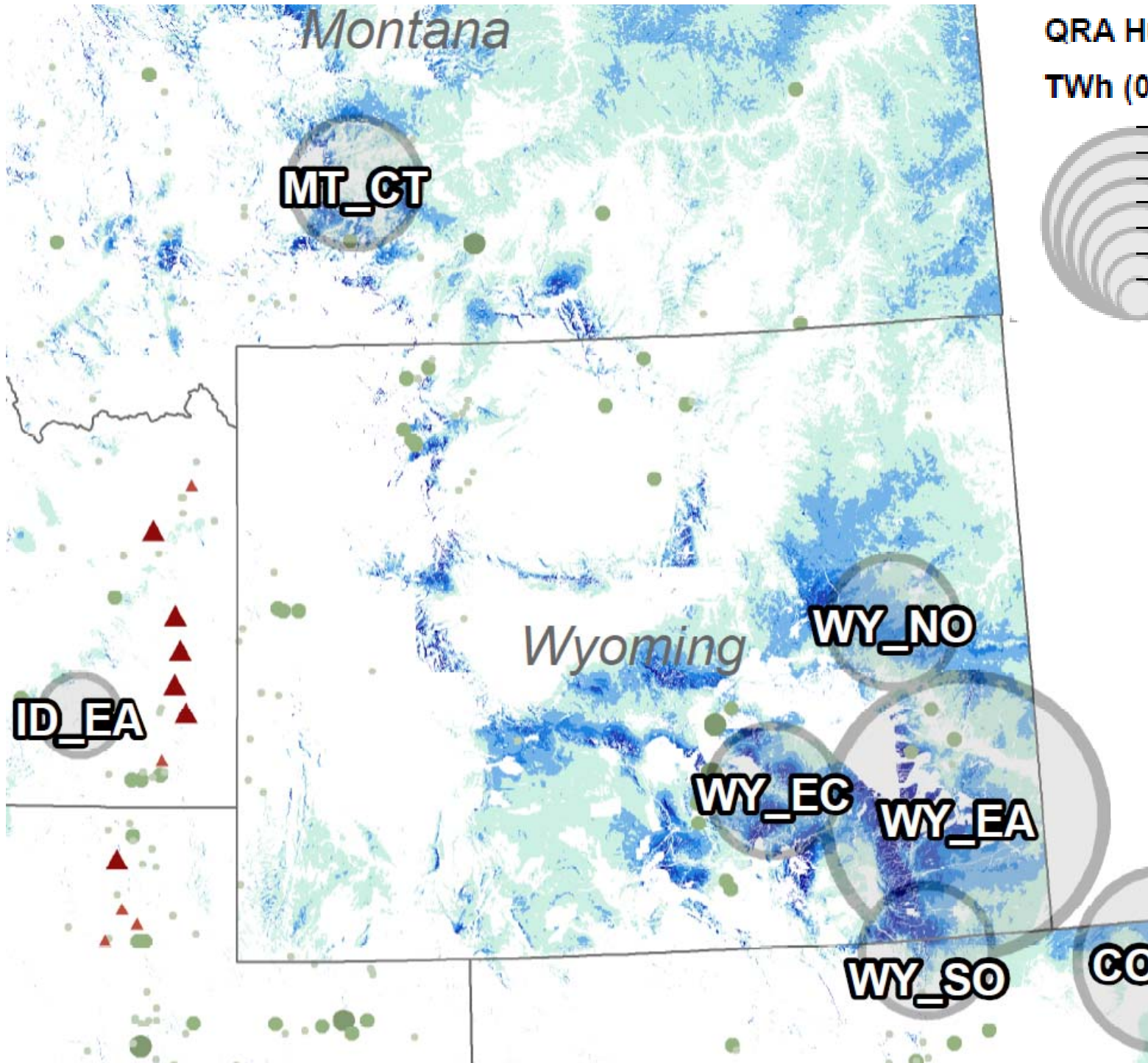




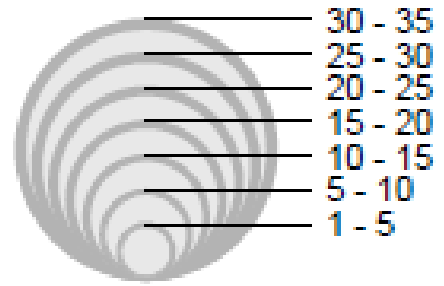
RPS Calculator 6.1 PPA	CEC Projects In Development 2016	CAISO 2014 (locations appx)	Proxy Projects	Existing Substations
<span style="color: green;">●</span> Bioenergy	<span style="color: green;">▲</span> Biomass/Landfill Gas	<span style="color: lightgreen;">■</span> Biomass	<span style="color: green;">✱</span> Biomass	<span style="color: green;">✕</span> 230 kV
<span style="color: red;">●</span> Geothermal	<span style="color: red;">▲</span> Geothermal	<span style="color: red;">■</span> Geothermal	<span style="color: red;">✱</span> Geothermal	<span style="color: blue;">✕</span> 345 kV
<span style="color: cyan;">●</span> Hydro	<span style="color: cyan;">▲</span> Small hydro	<span style="color: pink;">■</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: red;">✕</span> 500+ kV
<span style="color: magenta;">●</span> Solar PV	<span style="color: magenta;">▲</span> Solar PV	<span style="color: orange;">■</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<span style="color: green;">—</span> 230 - 344 kV
<span style="color: yellow;">●</span> Solar Thermal	<span style="color: yellow;">▲</span> Solar Thermal	<span style="color: purple;">■</span> Wind	<span style="color: pink;">■</span> Solar PV	<span style="color: blue;">—</span> 345 - 499 kV
<span style="color: purple;">●</span> Wind	<span style="color: purple;">▲</span> Wind	<span style="color: cyan;">■</span> Water		<span style="color: red;">—</span> 500+ kV
<span style="color: grey;">●</span> Various		<span style="color: grey;">■</span> Other		

## Westlands SuperCREZ

**BLACK & VEATCH**  
 Building a world of difference.®



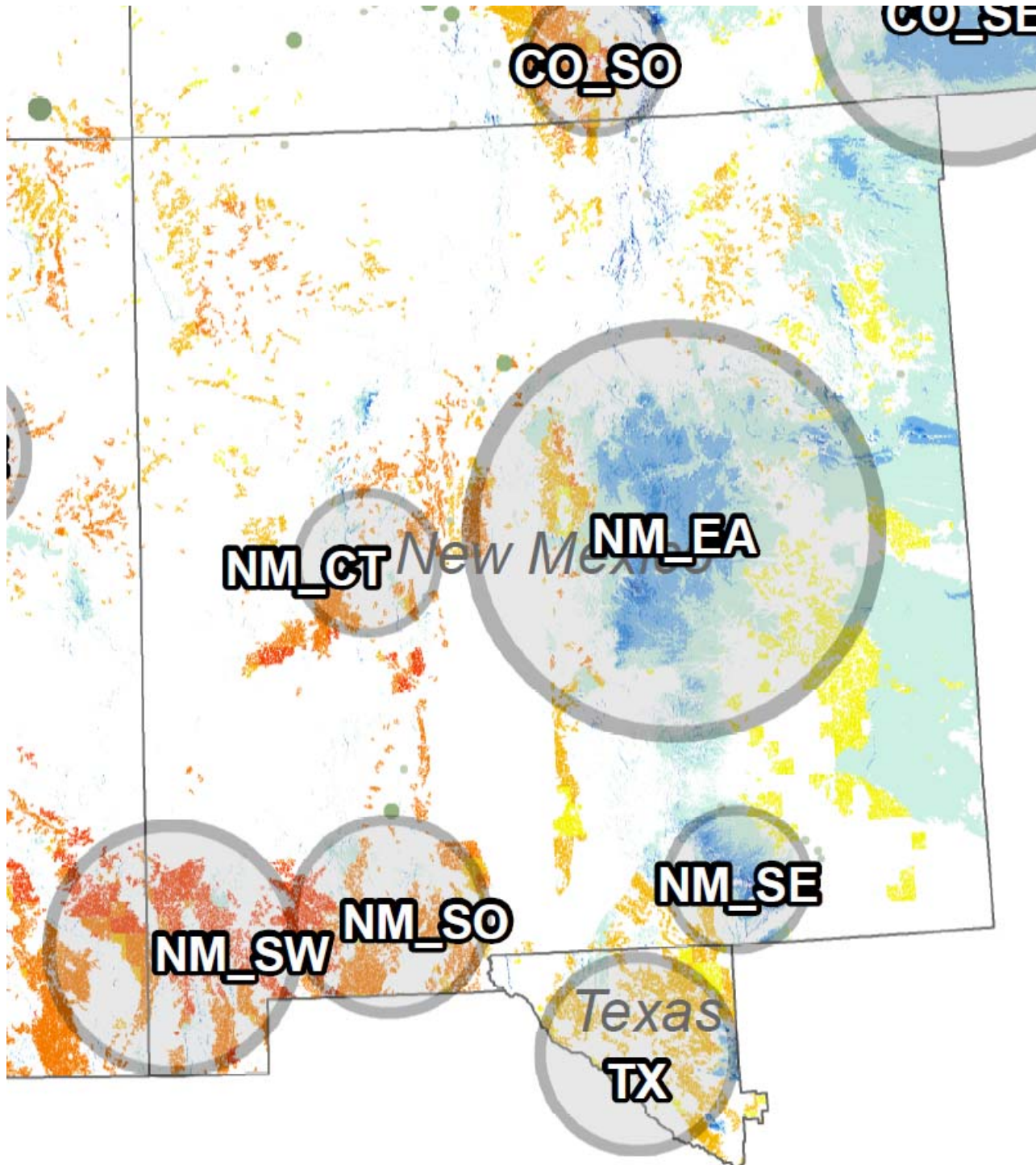
**QRA Hub Size Guide**  
**TWh (000s of GWh)/yr**



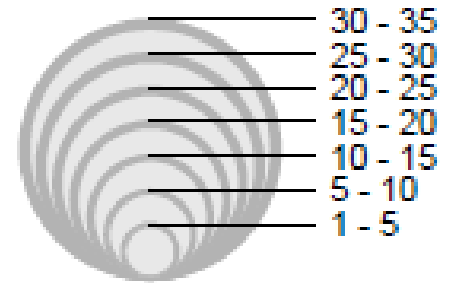
**Legend**

- Hydro projects (MW)**
  - 1 - 10
  - 10 - 100
  - 100 - 500
  - 500+
- Geothermal projects (MW)**
  - 8 - 10
  - ▲ 10 - 100
  - ▲ 100 - 500
  - ▲ 500+
- Canadian wind projects**
- Wind resource**  
**NREL wind power class (50m)**
  - 3
  - 4
  - 5
  - 6
  - 7
- Solar thermal resource**  
**DNI (kWh/sqmr/day)**
  - 6.5 - 6.75
  - 6.75 - 7
  - 7 - 7.25
  - 7.25 - 7.5
  - 7.5+





**QRA Hub Size Guide**  
TWh (000s of GWh)/yr



**Legend**

- Hydro projects (MW)**
  - 1 - 10
  - 10 - 100
  - 100 - 500
  - 500+
- Geothermal projects (MW)**
  - 8 - 10
  - ▲ 10 - 100
  - ▲ 100 - 500
  - ▲ 500+
- Canadian wind projects**
- Wind resource**
- NREL wind power class (50m)**
  - 3
  - 4
  - 5
  - 6
  - 7
- Solar thermal resource**
- DNI (kWh/sqmtr/day)**
  - 6.5 - 6.75
  - 6.75 - 7
  - 7 - 7.25
  - 7.25 - 7.5
  - 7.5+