



CONTRA COSTA COUNTY RENEWABLE ENERGY RESOURCES STAKEHOLDER MEETING

Philip Kreyckik
May 24, 2018

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Agenda

- » Brief review of purposes and scope
- » Task 1 methodology
- » Task 2 methodology

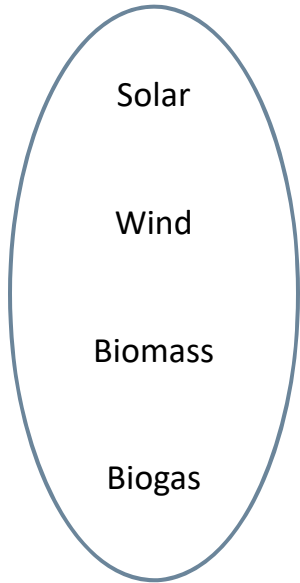
Purposes

- » Assessing the degree to which renewables in Contra Costa County can contribute to **state**, **County**, and **city** sustainability goals
- » Assessing priority locations/regions for renewable development
- » Assessing tradeoffs and long-term planning considerations
- » Uncovering options for participation in MCE's feed in tariff

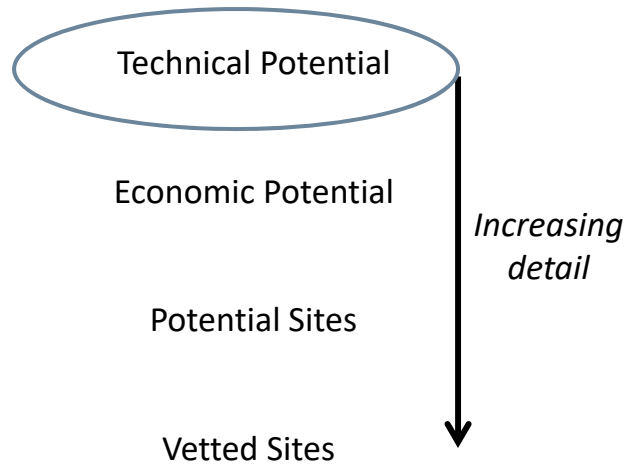
Underlying question: What barriers preclude enable scaling up resource development (e.g. zoning, transmission and distribution limitations)?

Scope

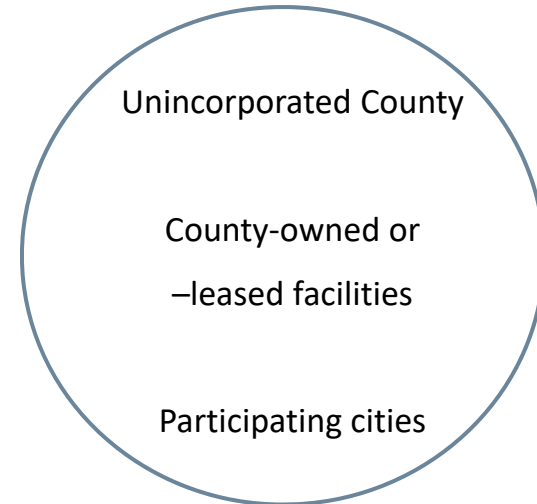
Technologies:



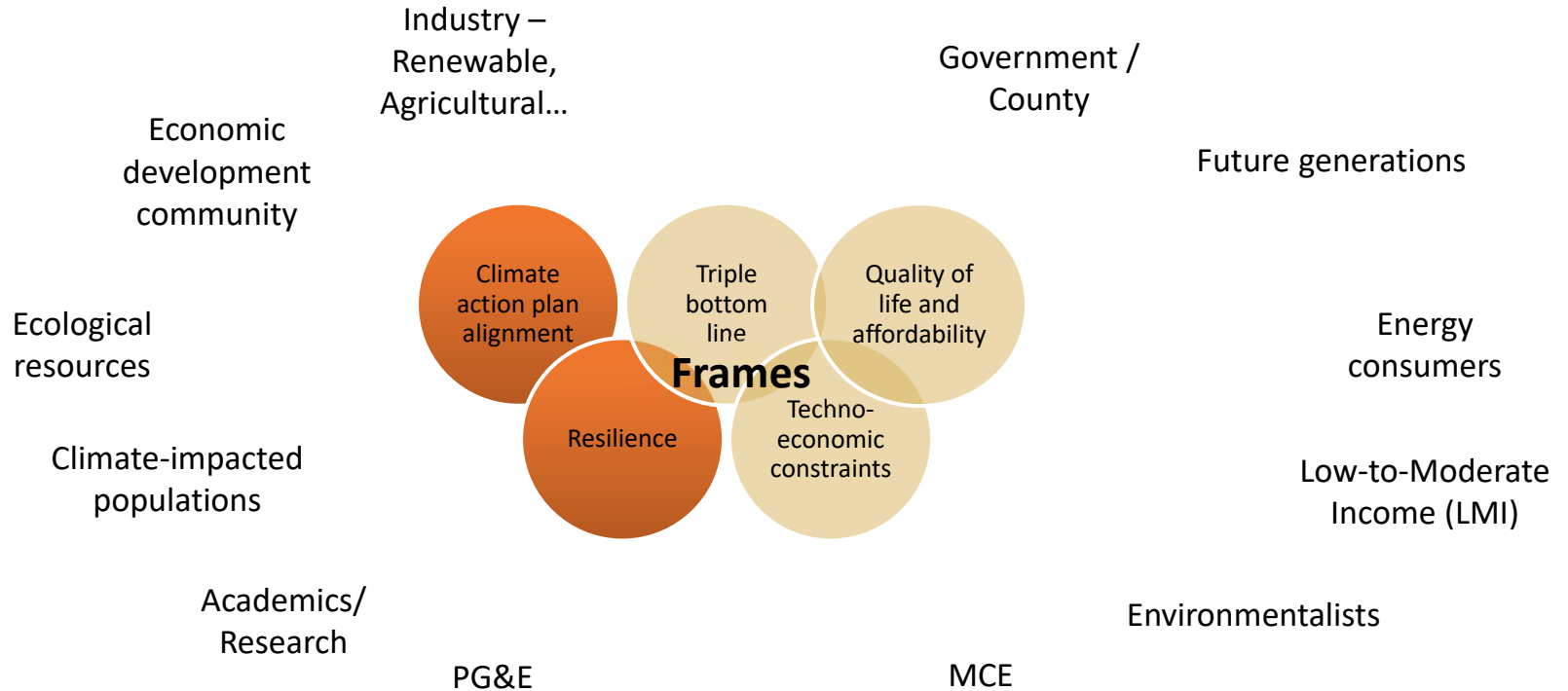
Level of Detail:



Geographies:



Stakeholders and frames



Timeline

	Week ends:	3/29/2018	4/5/2018	4/12/2018	4/19/2018	4/26/2018	5/3/2018	5/10/2018	5/17/2018	5/24/2018	5/31/2018	6/7/2018	6/14/2018	6/21/2018	6/28/2018	7/5/2018	7/12/2018	7/19/2018	7/26/2018	8/2/2018	8/9/2018	8/16/2018	8/23/2018	8/30/2018	9/6/2018	9/13/2018	9/20/2018	9/27/2018
Task 1: Resource potential assessment																												
1.1	Coordinate with County staff to collect GIS data necessary for solar, wind, biomass, and biogas analyses.																											
	Data inventory and procuring data																											
	Data cleaning/formatting																											
	Joining datasets																											
1.2	Technical resource assessment																											
	Excel database and summary statistics by location, technology, size, NWED, etc																											
	Maps of resource potential																											
	High-level economic assessment																											
	Technical report																											
Task 2: County Zoning Ordinances Assessment																												
2.1	Zoning recommendations																											
	Review Task 1, Task 2.1, and best practices from across California. Develop recommendations.																											
	Findings memo																											
Task 3: Support at Public Input Sessions																												
3.1	Expert support for public input sessions																											
	Develop presentation on methodology																											
	Present at meetings																											
Task 4: Report																												
4.1	Draft report																											
	Final report																											
4.2	Content for factsheets																											



TASK 1: GENERAL METHODOLOGY

Presentation by the
MCG Project Team

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Methodological Challenges and Solutions

Challenge	Planned solution
Lack of key data (e.g. parking lot locations and sizes, transmission and distribution system data)	Collaboration with student group and County staff to create data resources; Simplifying assumptions on interconnection
Large amount of parcels, across many jurisdictions	Focus on parcels of particular interest; utilize existing analyses where possible

Filter for parcels that meet certain requirements

- » Only in unincorporated County, County-owned or leased facilities, or participating cities
- » No public safety issues
- » No major land use tradeoffs
- » No major environmental concerns
- » No major aesthetic limitations



SOLAR METHODOLOGY

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Rooftop Solar

- » Studies have already assessed the total amount of rooftop solar available in Contra Costa County with significant granularity
 - › Google Sunroof accounts for roof geometry, shading, and size to identify only suitable roofs. It identifies existing solar and eliminates it from its estimate
- » We will help the County determine how much of the total solar potential is available in each census tract
- » Method
 - › Proportional allocation based on impervious surface and/or population
 - › Spot checks

Google Sunroof Methodology



Sunlight

Every included panel receives at least 75% of the maximum annual sun in the county. For Walnut Creek, the threshold is 1,233 kWh/kW.



Installation size

Every included roof has a total potential installation size of at least 2kW.

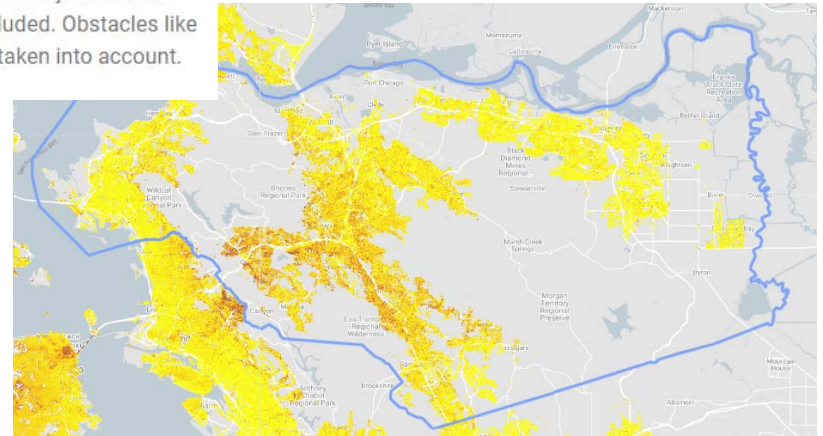


Space & obstacles

Only areas of the roof with enough space to install 4 adjacent solar panels are included. Obstacles like chimneys are taken into account.

Project Sunroof's model makes the following assumptions:

- Each panel is assumed to be 250W with an efficiency of 15.3%, a DC to AC derate factor of 85%, and industry-standard assumptions about other factors.
- Panels are assumed to be mounted flush with the roof, including on flat surfaces.
- Arrays are between 2kW and 1000 kW.
- Only arrays on buildings are considered, not other spaces such as parking lots or fields.
- In cases where a building is not in a county, the maximum sun is determined by the max sun received in the city.



Source: www.google.com/get/sunroof

Ground-mounted Solar

» Parking lot

- › Data generally unavailable
- › County GIS staff identified districts with the largest amount of parking
- › Ranked parcel by size and type to find the biggest parking lots (e.g. shopping centers, employment centers, schools)

» Brownfield

- › Data generally unavailable
- › Some data for Northern Waterfront area is available
- › Methodology TBD

Outside scope: small ground-mounted solar, greenfield ground-mounted solar

Data to be associated with each solar resource

- » Solar insolation (National Solar Radiation Database)
- » Estimated kW accounting for shading
- » Transmission and distribution cost considerations
- » Average land slope



WIND METHODOLOGY

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Wind

- » All parcels described earlier will be excluded
- » Additional filters include
 - › Large enough area for 100 MW
 - › Proxies for potential nuisances (e.g. proximity to residential neighborhoods, airports, etc.)
- » Are there specific small wind technologies that stakeholders want us to look at?

Data to be associated with each wind resource

- » Wind speed (CA wind map from NREL, Altamont Pass data)
- » Estimated MW
- » Distance to substation
- » Substation congestion
- » Average land slope



BIOMASS METHODOLOGY

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Biomass

- » Accounting for biomass from the **feedstock perspective**, not the facility siting perspective
 - › Biomass generators exist near the County and are under-utilized/closing
- » Focus will be to quantify the amount of feedstock that could be sent to these facilities
- » Data to be used
 - › Pesticide usage to determine agricultural acreage and feedstocks
 - › Chipping and urban wood waste
 - › Interviews with chipping facilities, landfills, and composting facilities



BIOGAS METHODOLOGY

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Biogas

- » Studying biogas at specific sites – landfills, wastewater treatment, and composting sites
- » Interviews to...
 - › Determine where gas is already collected or flared
 - › Find out about any gas collection feasibility studies
 - › Assess likely volume of gas available
 - › Discover any fatal flaws for specific sites

Note: Landfills will also be considered for solar potential.

Data to be associated with each biogas site

- » Methane volume
- » Estimated MW
- » Distance to substation
- » Substation congestion



TASK 1: PARTICIPATING CITIES

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Ensuring our analysis is useful to participating Cities

How cities can help: Providing data

...on parking lots (area and location)

...on brownfields considered suitable for solar (area and location)

...on any biomass feedstocks

...on facilities that produce biogas

What cities can expect to get

Quantification of rooftop, brownfield, and parking lot solar

Quantification of biomass resource

Quantification of biogas resource



TASK 2: METHODOLOGY

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Zoning: What modifications would be required to enable development of these resources?

- » Opportunities and constraints
 - › How much resource can be developed at reasonable cost with minimal land use tradeoffs?
 - › E.g. Co-located with other economic uses; brownfields; buffer lands
 - › Will more renewables be needed than can be developed with minimal tradeoffs?

- » What rubrics should be used to determine desirability of each site and each resource?

- » What impacts can be expected for existing and planned land uses?

Zoning recommendations

- » Focus on counties with similar contexts and outlooks to Contra Costa County
 - › Development pressure, many competing uses
 - › Motivated to develop renewable resources
 - › Cautious of unanticipated effects on the County's significant habitat, farmland, and open space resources

- » Initial list of similar counties:
 - › Alameda
 - › Marin
 - › San Joaquin
 - › Solano
 - › Sonoma



DISCUSSION

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Questions

- » Are there additional data sources we should be considering?
- » What has been your experience with trying to site renewables in the County thusfar? E.g. PG&E receptiveness, cost considerations, other challenges
- » Are there ecological resources that we should be considering beyond the ones we referenced?
- » Other factors for determining what parcels are included or not in the technical potential study?