



Data Mining for USDA REAP Distributed Wind Sales Leads

David Dunaway, eFormative Options

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Introduction



David Dunaway (he/him)
Technical Associate, eFormative Options
Member of the Ponca Tribe of Nebraska

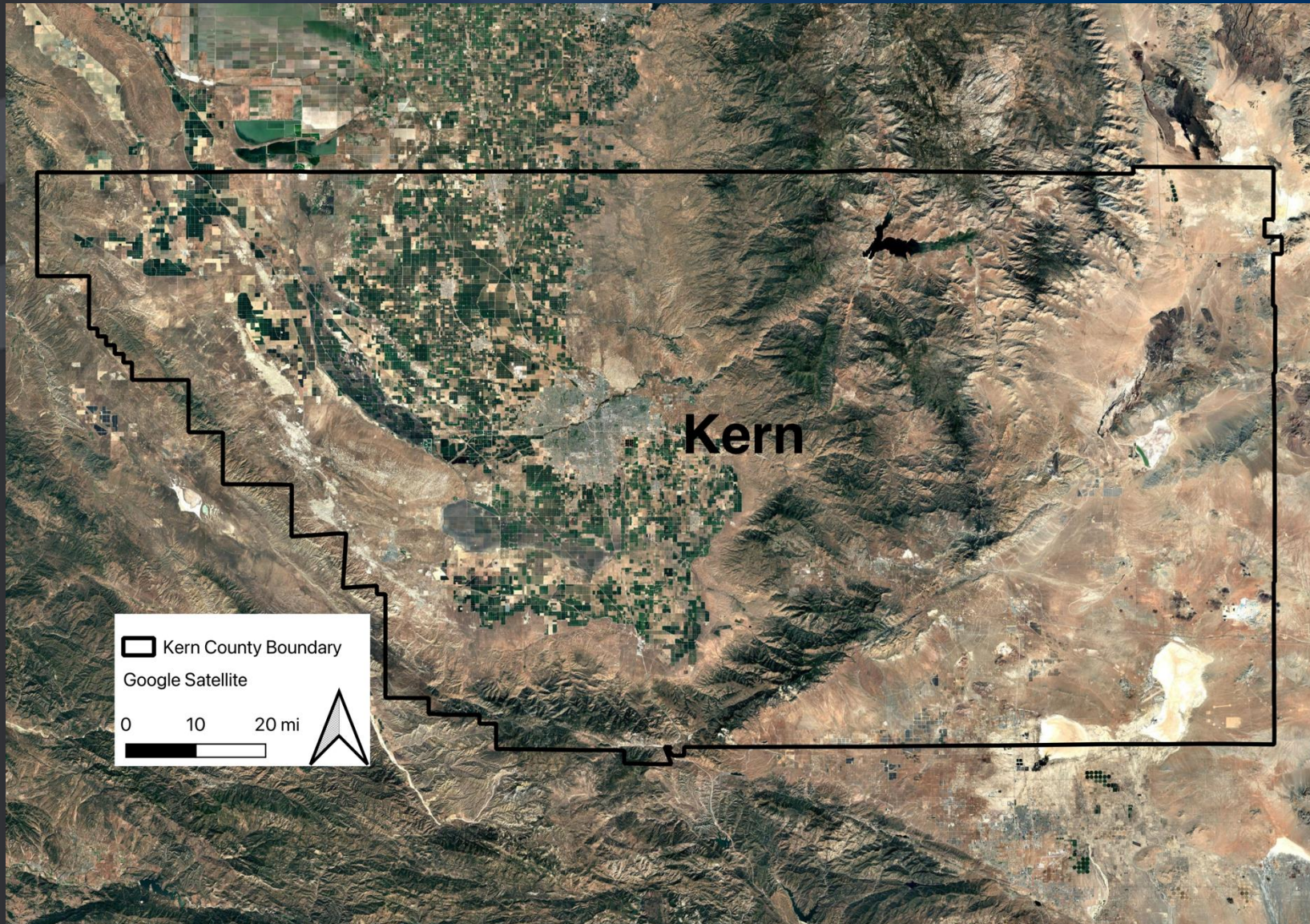
GIS proficiency in ArcGIS/QGIS
Video Production/Editing

AgWind, Project Coordinator
GIS technical assistance for:

- Bergey Windpower
- Pecos Wind Power
- XFlow Energy

eFormative specializes in developing sustainable energy solutions, creating funding and resource plans, and strengthening relationships with stakeholders.

Looking for Wind



Defining REAP Eligibility

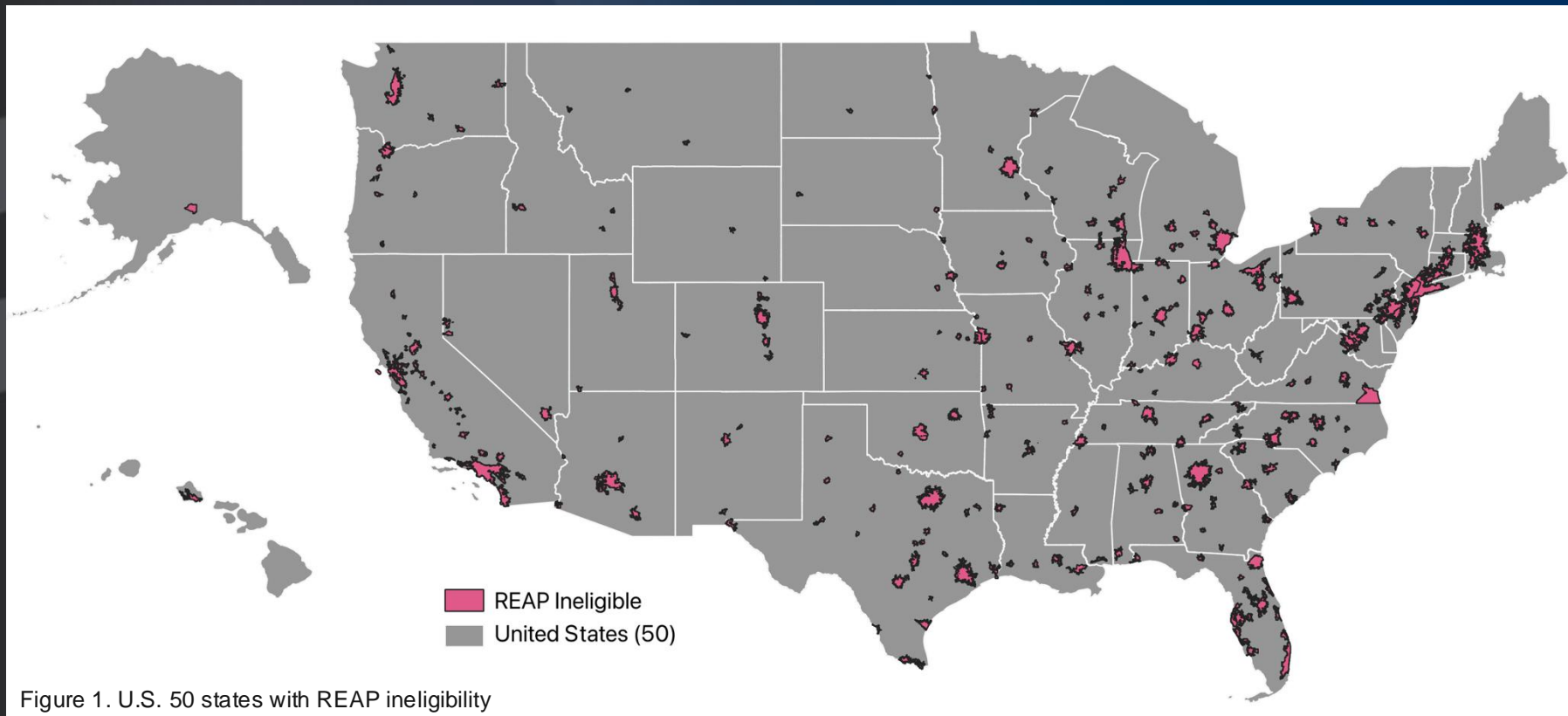


Figure 1. U.S. 50 states with REAP ineligibility

Who can apply?

- Agricultural producers (50% of gross income from agricultural operations)
- Small Businesses

What is an eligible area?

- Businesses in areas with populations of 50,000 or fewer
- Ag producers can be rural or non-rural*

*if the project is associated with an on-site production operation

Defining REAP Eligibility (cont.)

Defining a Small Business

SMALL BUSINESS SIZE STANDARDS BY NAICS INDUSTRY			
NAICS codes	NAICS U.S. industry title	Size standards in millions of dollars	Size standards in number of employees
SECTOR 11—AGRICULTURE, FORESTRY, FISHING AND HUNTING			
SUBSECTOR 111—CROP PRODUCTION			
111110	Soybean Farming	\$2.25	
111120	Oilseed (except Soybean) Farming	\$2.25	
111130	Dry Pea and Bean Farming	\$2.75	
111140	Wheat Farming	\$2.25	
111150	Corn Farming	\$2.5	
111160	Rice Farming	\$2.5	

Figure 2. SBA Size Standards²

“The concern's tangible net worth is **not in excess of \$15 million** and average net income (excluding carry-over losses) for the preceding two completed fiscal years is not in excess of \$5.0 million; or”

“The size of the concern does not exceed the Small Business Administration (SBA) size standard thresholds designated for the industry in which it is primarily engaged”³

2. <https://www.ecfr.gov/current/title-13/chapter-I/part-121/subpart-A/subject-group-ECFRf12a11421b08a31/section-121.201>

3. <https://www.ecfr.gov/current/title-7/subtitle-B/chapter-XLII/part-4280#subpart-B>

Thoughtful Filtering

Filter down the amount of relevant leads

Determine Project Metrics:

- Geography of project area (if known)
- Specific industries (dairy, water, pork, refrigeration)
- BTM or FOM? Utility Interconnection?
- Minimum parcel size
- Minimum viable wind speed
 - (may need to analyze LCOE, AEP, payback period to find best geography)
- Use public tools and layers to help narrow viable search areas
 - [AgWind Feasibility Assessment](#) – Great for single site analysis with the ability to input loan information and determine wind turbine suitability and payback
 - [Wind Watts](#) – Great for single site analysis
 - [Distributed Wind Explorer](#) – Finding BTM or FOM sweet spots
 - [State and Local Planning for Energy](#) (SLOPE)
 - [Siting Lab](#)
 - [Interactive Wind Supply curve map](#)
 - [Interactive Wind Ordinances Map](#)
 - Many more

A Targeted Approach

Finding Ag Businesses (be creative!)

Farming:

- Pesticide reports
- Crop insurance records

Ranching:

- Vaccination Reports
- Livestock brand registration
- Auction house & livestock sales records

General Agricultural:

- Water rights registration
- USDA organic certified ([USDA Integrity database](#))
- County or state parcel records
- Land tax and agricultural tax exemptions
- State agricultural licensing databases
- Previous EQIP and REAP grant recipients ([USASpending.gov](#))
- Farm Service Agency [farm payment files](#)

Info to look for

- Business name/Address
- NAICS or business codes
- # of employees
- Income

Consider two lists

- Ag producers
- Small businesses

A General Approach

General Filtering with Data Axle

- NAICS codes
- Location? (State, county, zip?)
- Sales Volume (note: REAP is looking at net income & net worth)
- # of Employees

Major Industry Group

☒ Agriculture, Forestry, & Fishing (01-09) 321 selected

☒ Mining (10-14) 121 selected

☒ Construction (15-17) 631 selected

☒ Manufacturing (20-39) 2978 selected

☐ Transportation (40-49) 0 selected

☐ Wholesale / Distributors (50-51) 0 selected

☐ Retail Trade (52-59) 0 selected

☐ Finance, Insurance, & Real Estate (60-67) 0 selected

☐ Services (70-89) 52 selected

☒ 70-HOTELS ROOMING HOUSES & CAMPS 52 selected

☐ 72-PERSONAL SERVICES 0 selected

☐ 73-BUSINESS SERVICES 0 selected

☐ 75-AUTO REPAIR SERVICES & PARKING 0 selected

☐ 76-MISCELLANEOUS REPAIR SERVICES 0 selected

☐ 78-MOTION PICTURES 0 selected

☐ 79-AMUSEMENT & RECREATION SERVICES 0 selected

☐ 80-HEALTH SERVICES 0 selected

☐ 81-LEGAL SERVICES 0 selected

☐ 82-EDUCATIONAL SERVICES 0 selected

☐ 83-SOCIAL SERVICES 0 selected

☐ 84-MUSEUMS ART GALLERIES & GARDENS 0 selected

☐ 86-MEMBERSHIP ORGANIZATIONS 0 selected

☐ 87-ENGINEERING & ACCOUNTING & MGMT SVCS 0 selected

☐ 89-MISCELLANEOUS SERVICES NEC 0 selected

☐ Public Administration (91-98) 0 selected

☐ Nonclassified Establishments (99) 0 selected

☐ Search Primary SICs Only

Business Type

☐ Keyword/SIC/NAICS

☐ Major Industry Group

Geography

☐ Map Based Search

☐ City / State

☐ Metro Area

☐ ZIP Codes

☐ Radius

☐ County

☐ Street Address

☐ Neighborhood

☐ Mailing Address

Sales Volume

Less Than \$500,000

\$500,000-1 Million

\$1-2.5 Million

\$2.5-5 Million

\$5-10 Million

\$10-20 Million

\$20-50 Million

\$50-100 Million

\$100-500 Million

\$500-1 Million

Number Of Employees

1-4

5-9

10-19

20-49

50-99

100-249

250-499

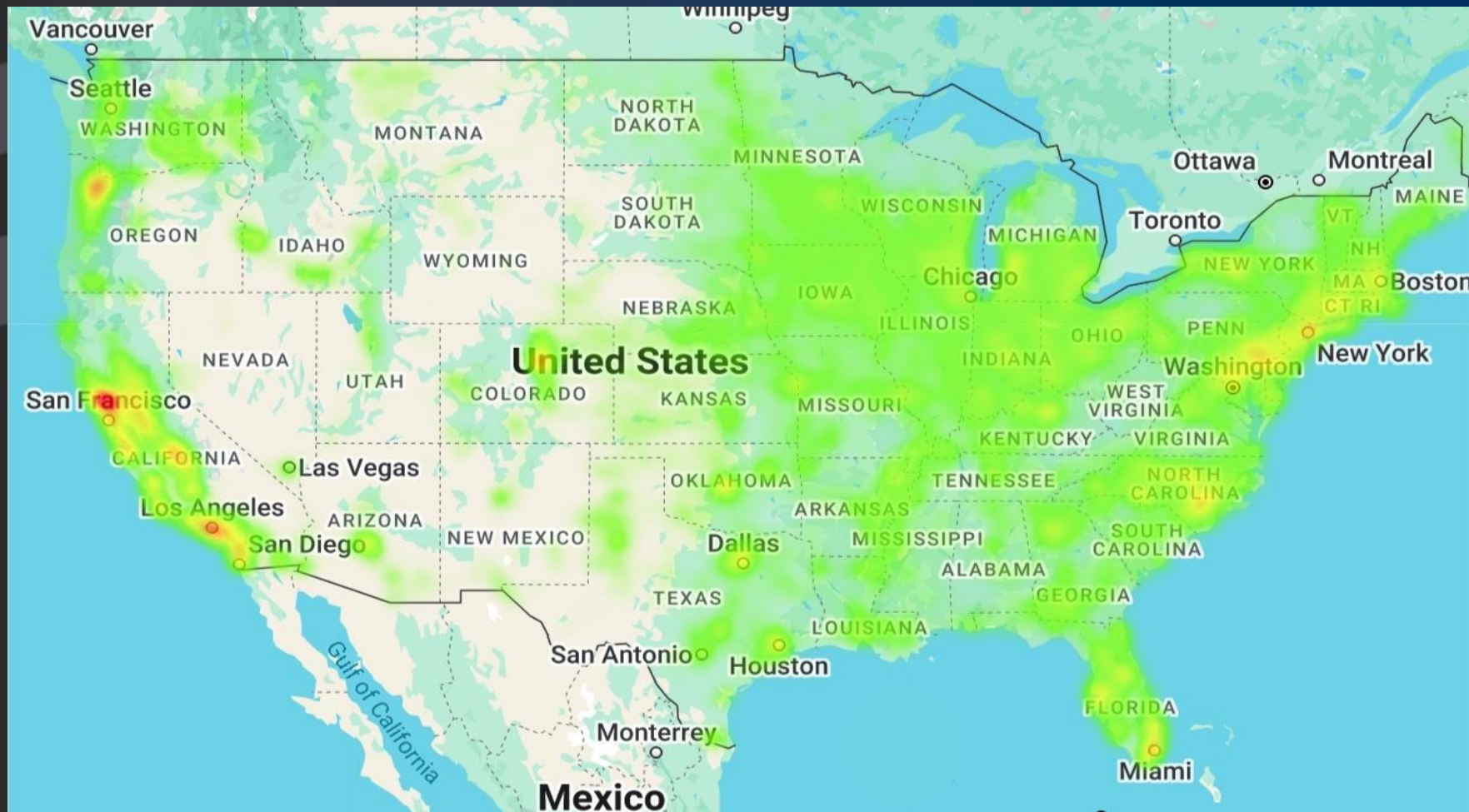
500-999

1,000-4,999

Currently searching *Both Corporate & Location*

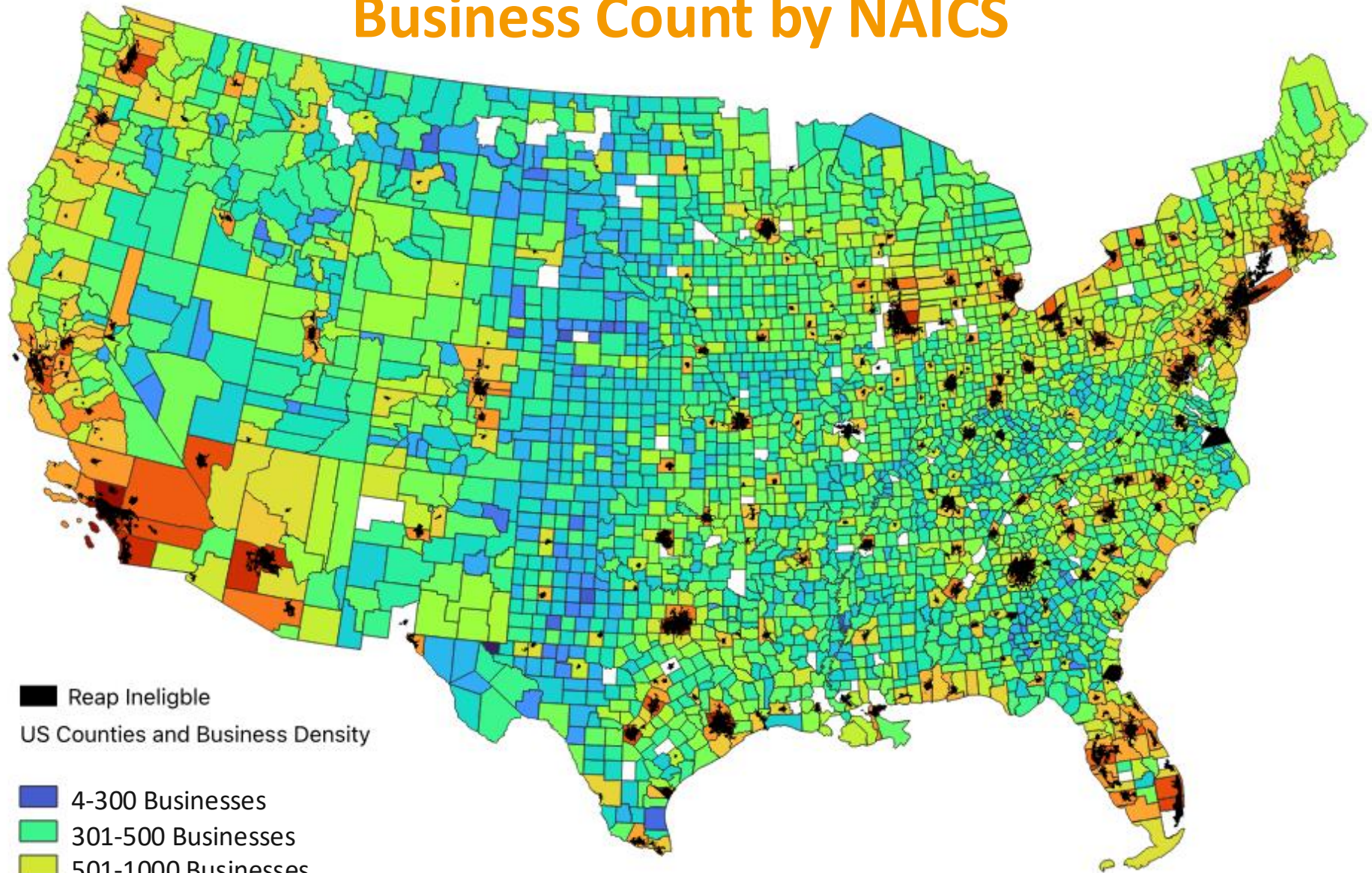
SHOW MORE OPTIONS

Known Obstacles and Solutions



Heat map of crop production businesses by NAICS, Source: Data Axle

Business Count by NAICS



Mapping Businesses

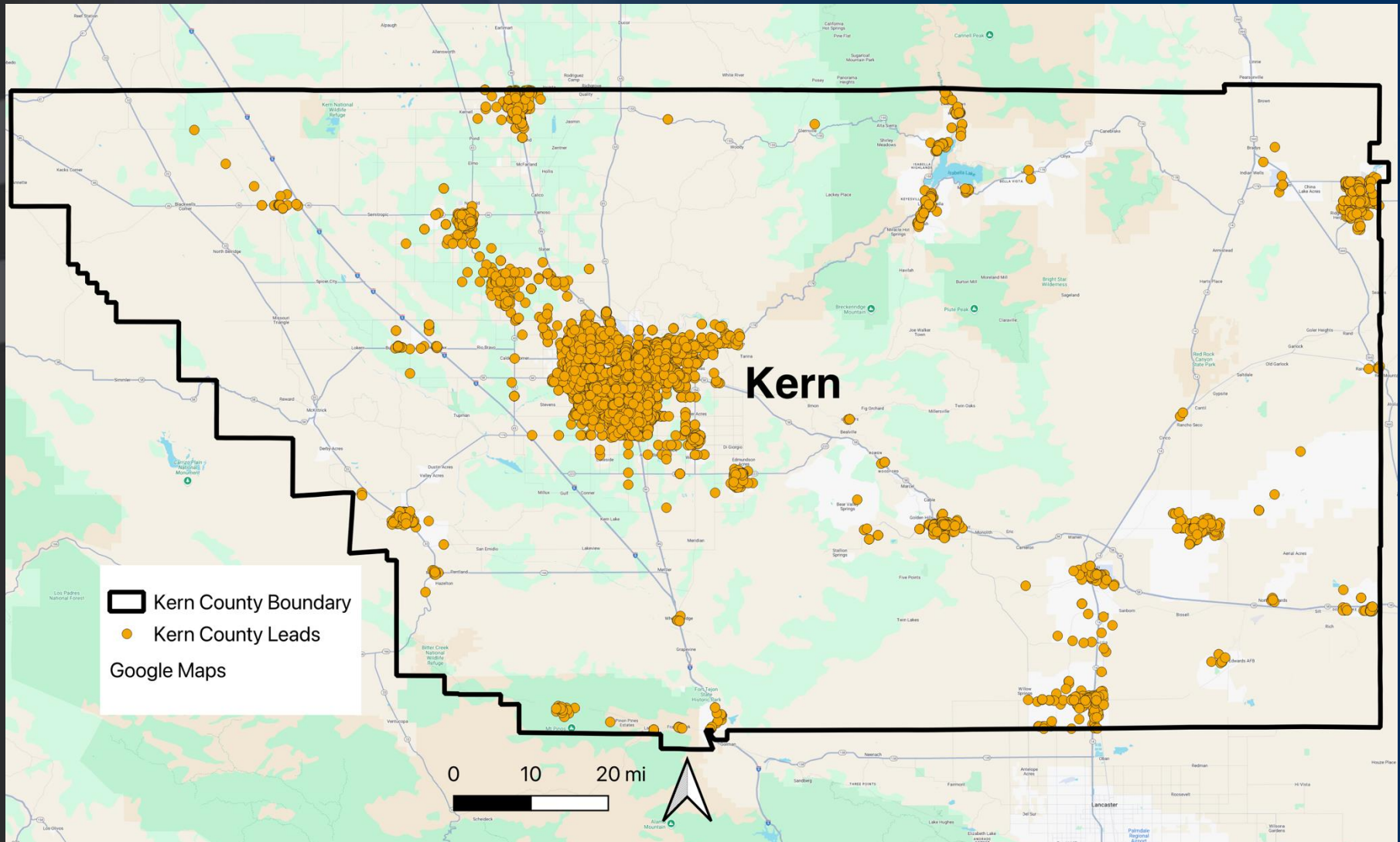
Minimum Parcel Data

- Parcel ID #
- Shape Area
- Shape Length

Business Data (pulled from USDA and Data Axle)

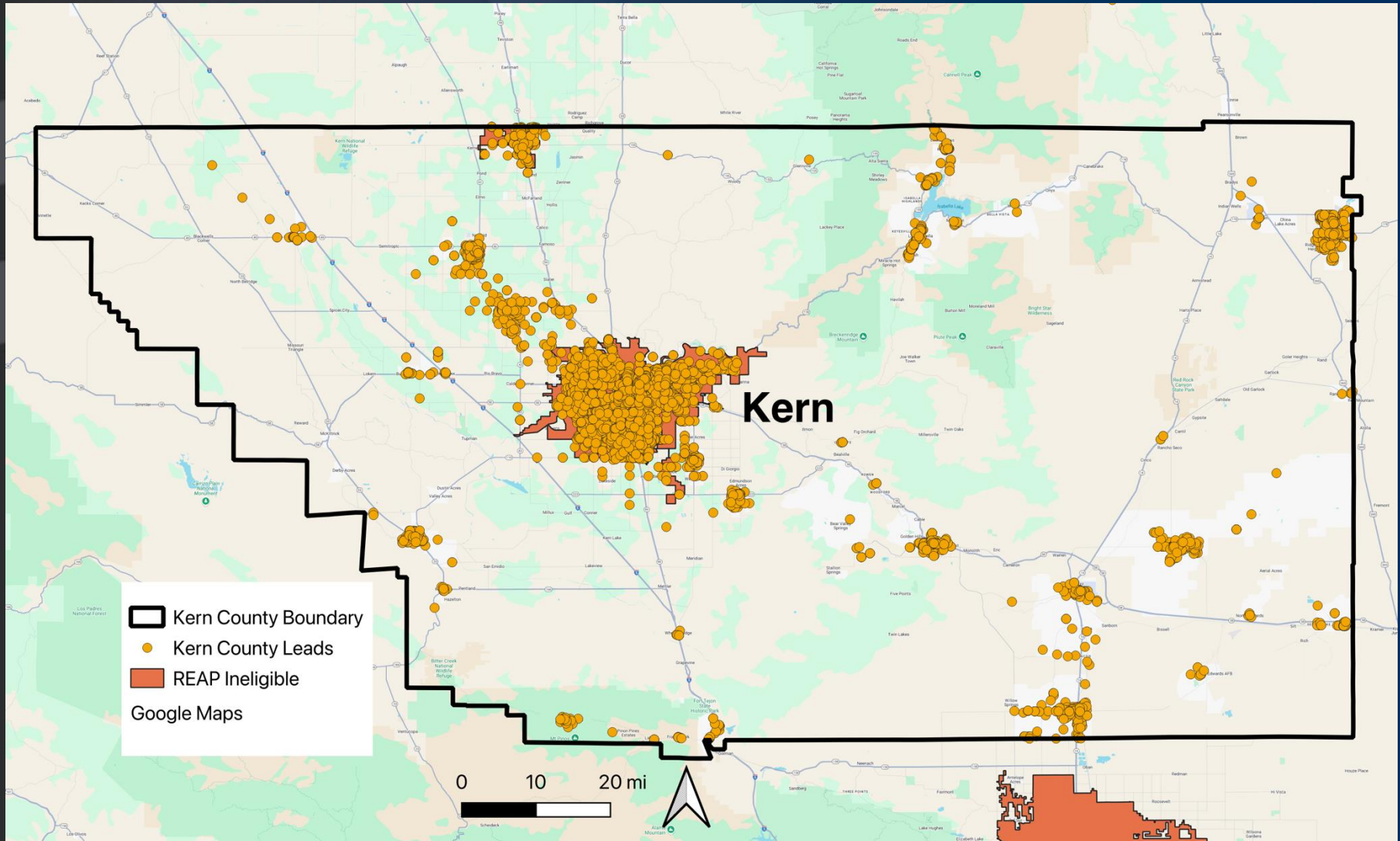
- Company Name
- Business Owner
- Address
- Phone Number
- # of employees
- Sales volume
- Industry type
- Website

Simple Filtering



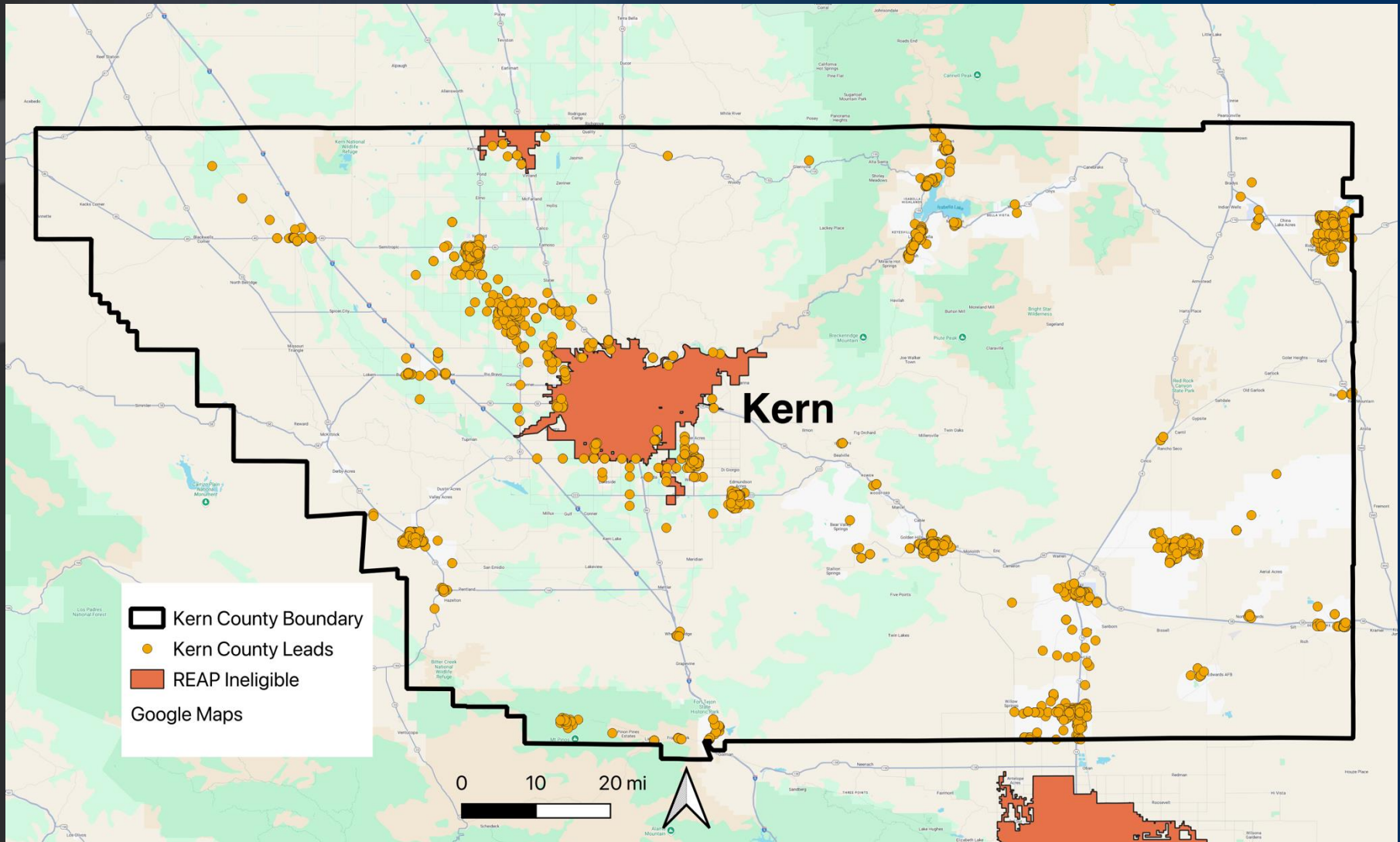
Map all businesses

Simple Filtering



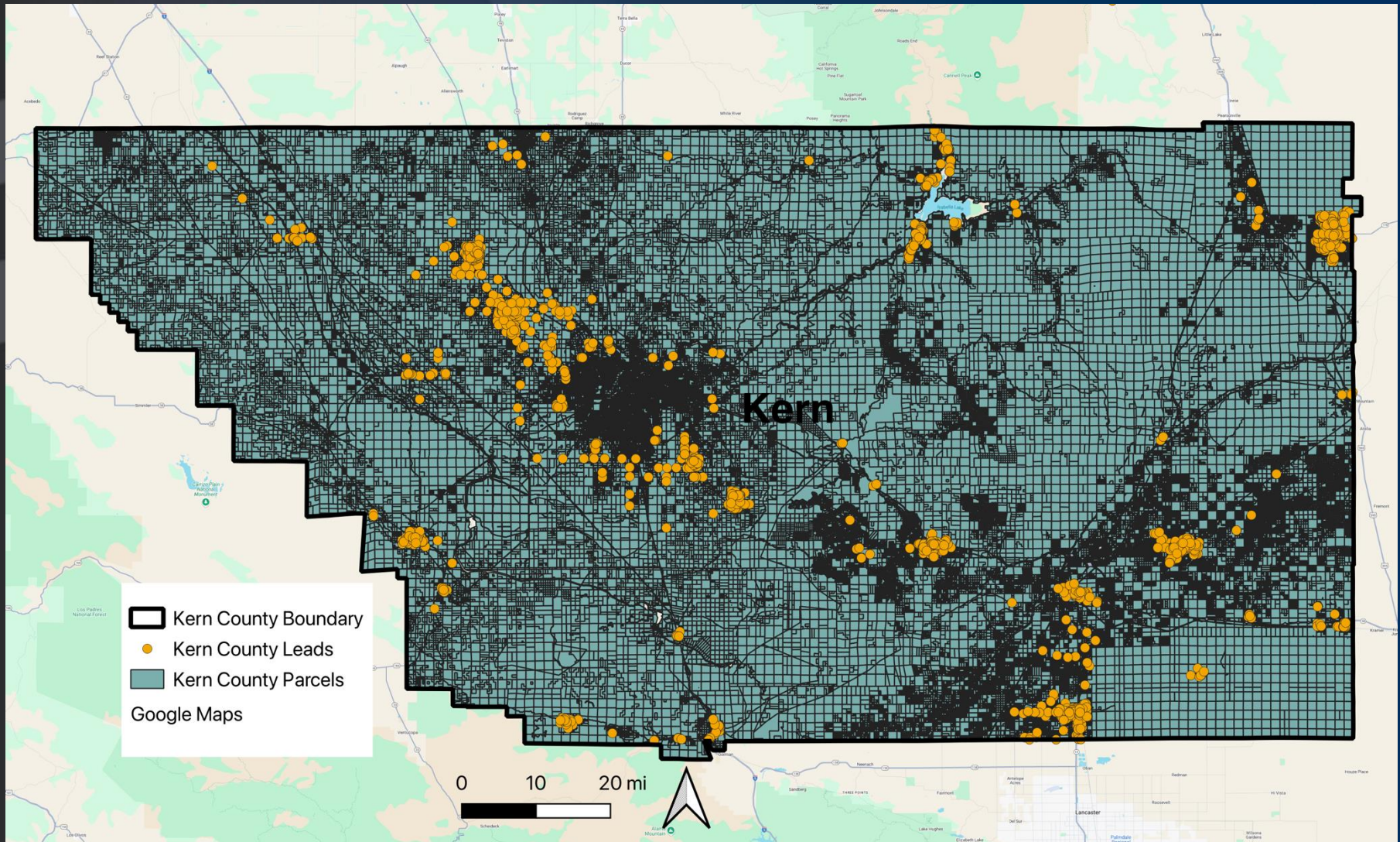
Apply the REAP Ineligible areas...

Simple Filtering



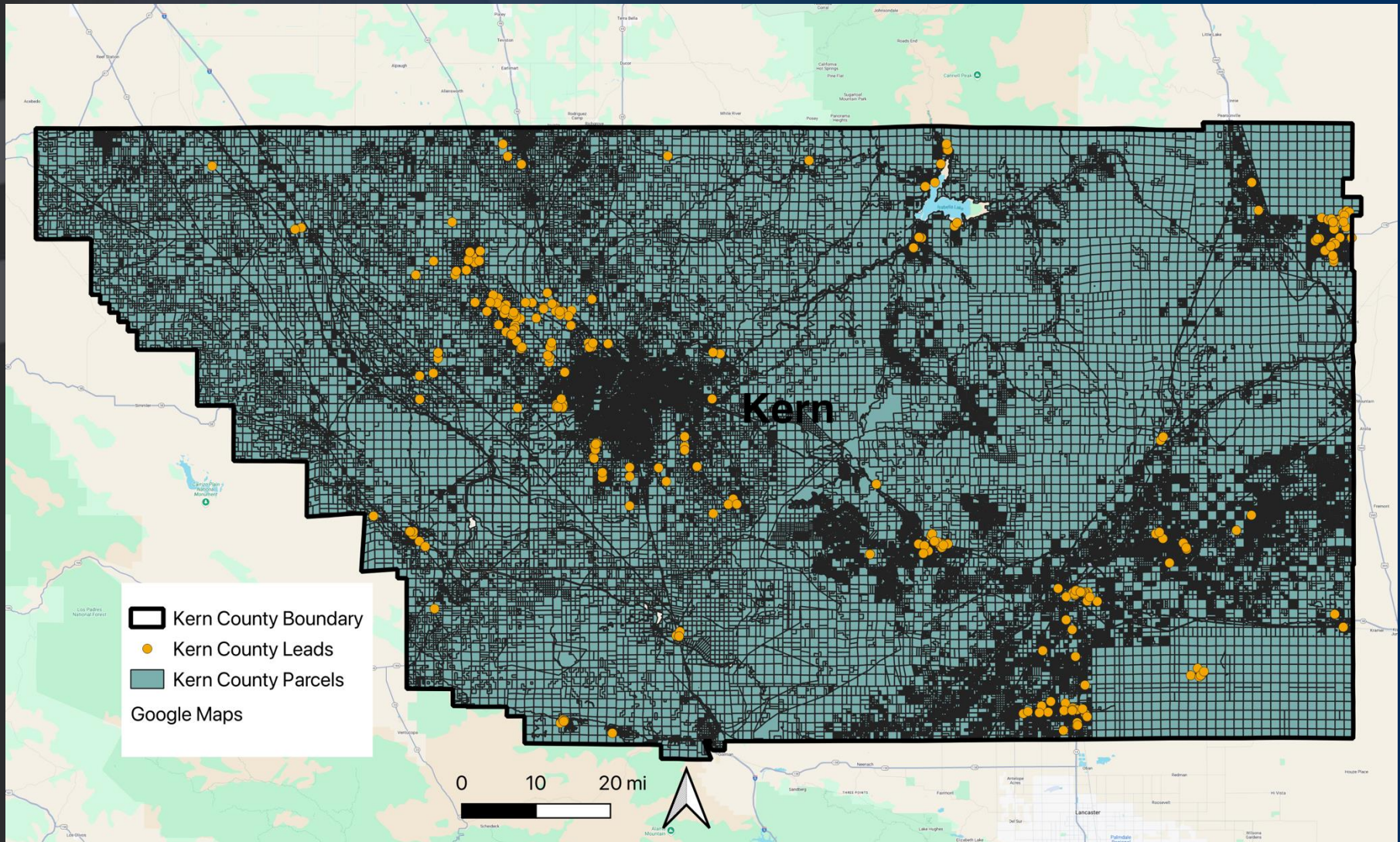
...and remove the businesses in those areas (if not ag related)

Simple Filtering



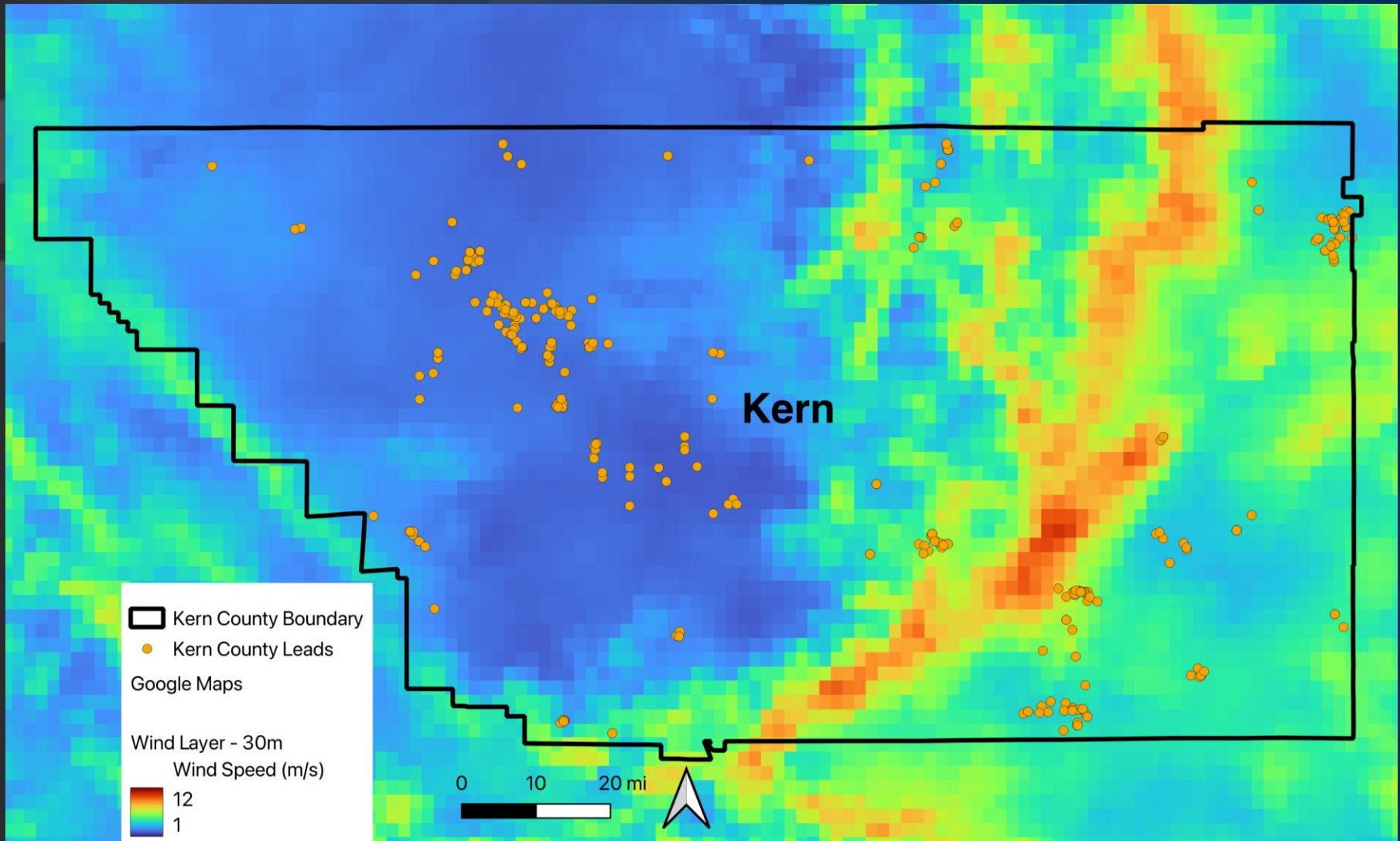
Apply the parcel data

Simple Filtering



Remove all businesses not situated on parcels of the correct size

Simple Filtering



Apply annual wind speed data to the remaining parcels/businesses

Mapping Businesses

Good Parcel Data
(based on property taxes)

- **Parcel ID #**
- Address
 - City
 - State
 - Zip
- Filing Name
- Acres
- County
- Deed Holder
- **Shape Area**
- **Shape Length**

Business Data
(pulled from USDA and Data Axle)

- **Company Name**
- Business Owner
- **Address**
- Phone Number
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Mapping Businesses

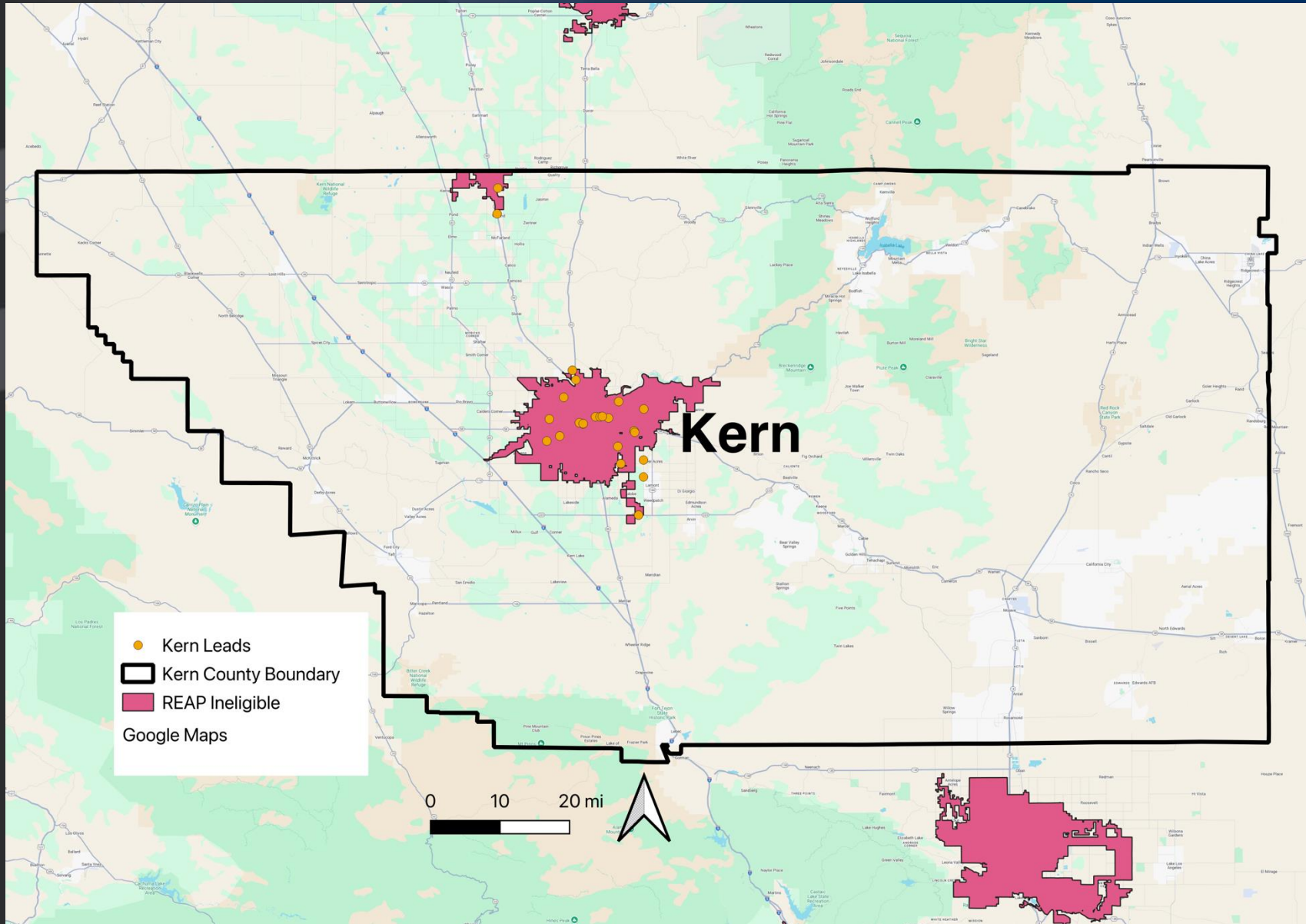
Good Parcel Data
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- **Parcel ID #**
- Address
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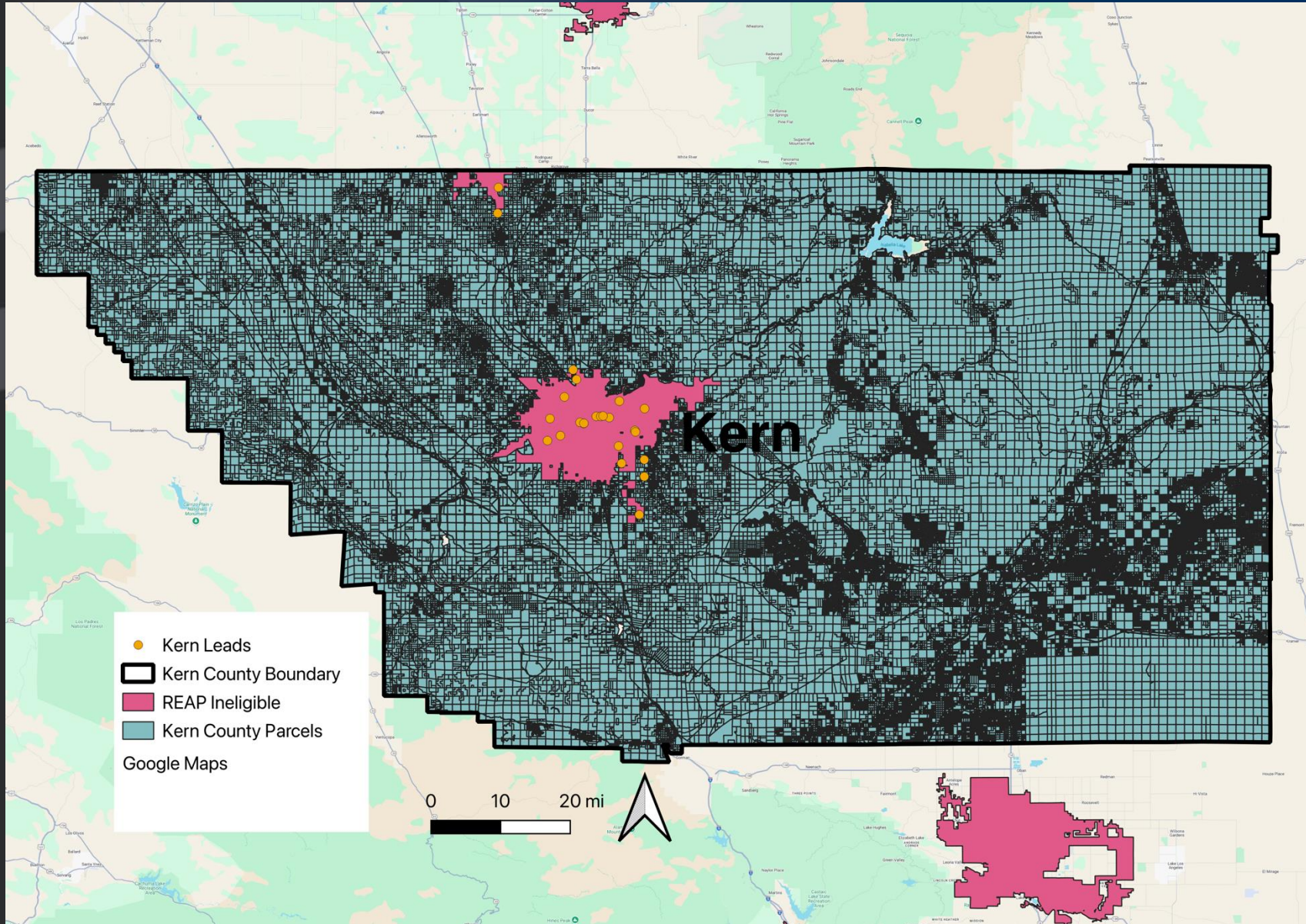
Business Data
(pulled from USDA and Data Axle)

- **Company Name**
- Business Owner
- **Address**
- Phone Number
- # of employees
- Sales volume
- Industry type
- Website

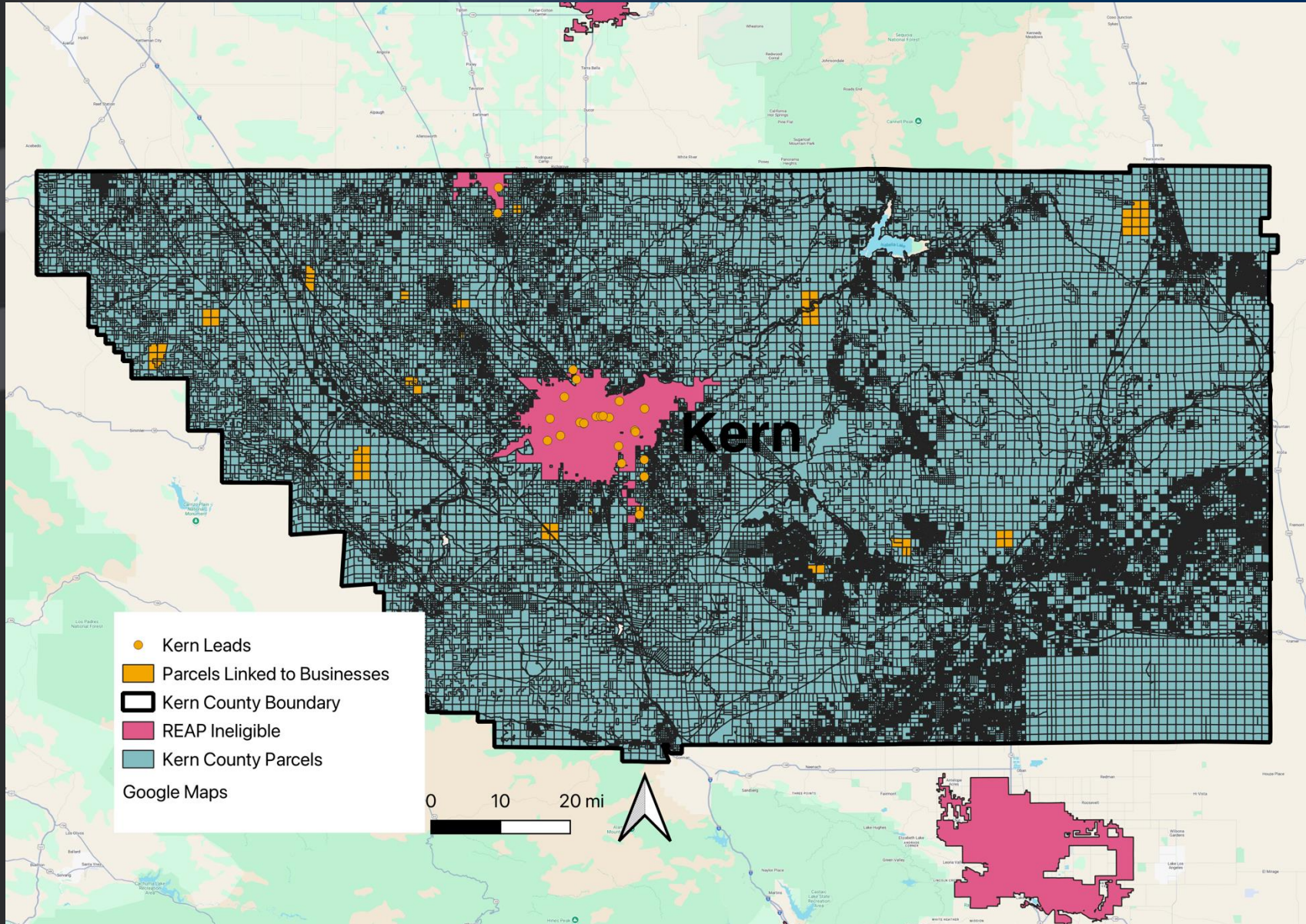
Parcel Matching



Parcel Matching



Parcel Matching



Finished Outputs

Summarized Spreadsheet Example

Acreage	Wind Mean (m/s)	Wind Min (m/s)	Wind Max (m/s)	Company Na	First Name	Surname	Address	City	State
15.2	7.93	7.93	7.93	Stake Mill			2555 Douglas Ave	Mojave	CA
407.28	6.52	6.17	6.58	Golden Queen Mining Co LLC			2818 Silver Quee	Mojave	CA
634.87	6.57	6.33	6.57	Asb Avionics LLC			1032 Sabovich St	Mojave	CA
634.87	5.03	4.91	5.20	Feuling Oil Pump Corp			1620 Sabovich St	Mojave	CA
6.66	6.33	6.33	6.33	Mojave Elks Lodge Trap Range			14866 United St	Mojave	CA
161.3	6.25	5.76	6.33	Stratolaunch			555 Riccomini St	Mojave	CA
29.88	6.26	6.25	6.26	Benz Propane			1401 Goodrick Dr	Tehachapi	CA
22.54	6.23	5.79	6.26	Green Valley Mutual Water			33274 Green Vall	reen Valley La	CA
161.3	6.25	5.76	6.33	SCK Poultry Ranches LP			331 W Citrus St	Colton	CA
561.41	6.57	6.33	6.57	Vander Bloem Ranch LLC			28709 Fresno Ave	Shafter	CA
321.89	7.06	6.82	7.22	Pond Heiger Ranch			11695 Jumper Ave	Wasco	CA

ZIP Code	Phone Numb	County	Location Employee Size Actual	Location Sales Volume Range	Location Sales Volume Actual
93501		Kern	3	Less Than \$500,000	230000
93501		Kern	50	\$5-10 Million	8133000
93501		Kern	2	Less Than \$500,000	242000
93501		Kern	59	\$5-10 Million	5058000
93501		Kern	1	Less Than \$500,000	76000
93501		Kern	1	Less Than \$500,000	76000
93561		Kern	3	Less Than \$500,000	327000
92341		Kern	30	\$1-2.5 Million	2292000
92324		Kern	59	\$5-10 Million	5058000
93263		Kern	26	\$1-2.5 Million	2229000
93280		Kern	9	\$1-2.5 Million	1101000

Applying Additional Layers

Filter by additional layers such as:

- Disadvantaged communities
- Coal plant closures
- Distance to utilities (3 phase, substation, power line)
- Tree canopy
- Wind Ordinances
- Land Use/Type

Professional Resources

Parcel Data

Regrid

Leading provider of land parcel data and location intelligence

LightBox

Rich property tax information, covers 99% of USA properties and territories

CoreLogic

Comprehensive parcel data with 250+ attributes

Business Lead Data

Data Axle

Leading provider of land parcel data and location intelligence

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