Texas Environmental Law Roundtable

The Litigation Landscape in 2018

November 7, 2018
The Houston Club
Houston, TX

www.bdlaw.com/2018TexasRoundtable

Beveridge & Diamond

New Frontiers in Citizen Monitoring Data and Crowdsourcing: Federal and State Developments and Assessing Litigation Risks

Texas Environmental Law Roundtable

Bina Reddy
Beveridge & Diamond

Clarise Ashworth
Chesapeake Energy Company

Julia Luongo
Ramboll

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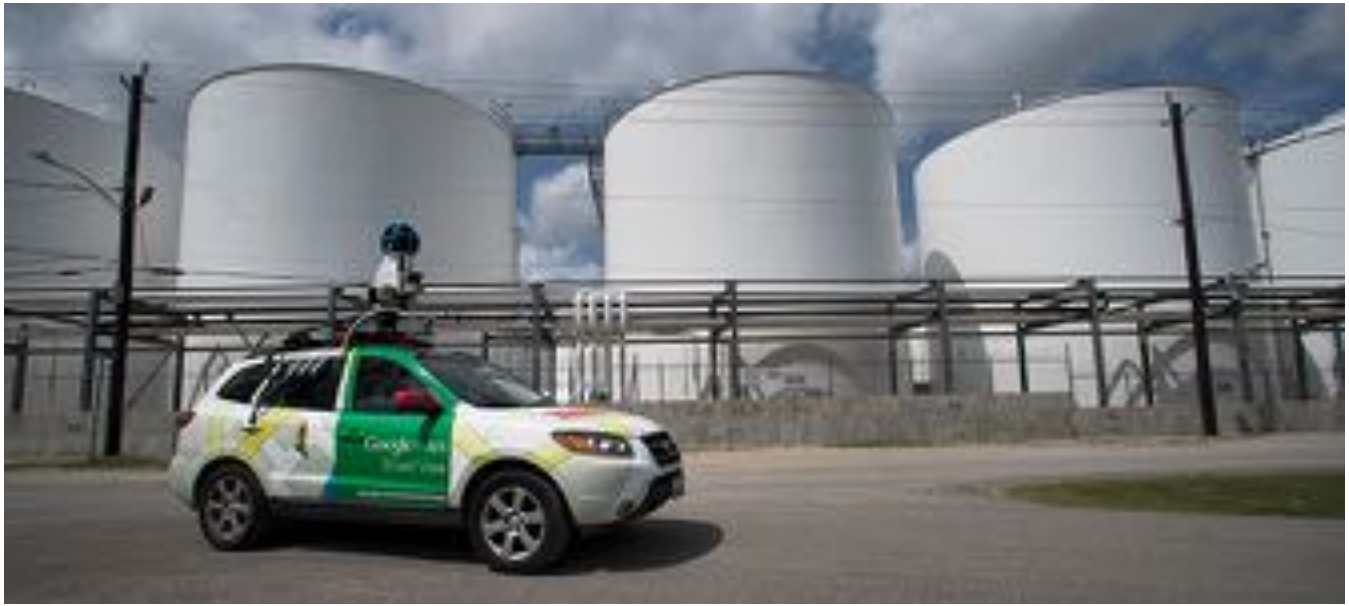
“Hey Google”



Credit: Marie De Jesus

Agenda

- What Is Happening Now and Where Is It Headed?
  - Why has the use of citizen sensors grown so dramatically?
  - What do they measure?
  - Are they accurate?
  - What are regulators saying and doing?
- Discussion: What are the litigation implications and risks?

Source: Aircasting.org

CITIZEN AIR MONITORING
WHAT'S HAPPENING NOW AND WHERE IS THIS GOING?

Julia Luongo, PhD

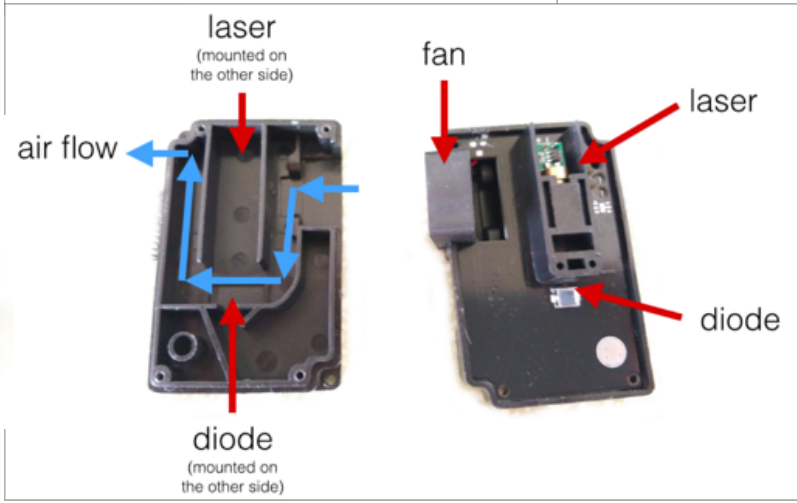
Managing Consultant

San Francisco, CA

RAMBOLL

AIR QUALITY SENSORS: WHAT ARE THEY?

- Low to mid-cost devices
- Often handheld/portable
- Measure physical or chemical phenomenon indicative of environmental concentration of pollutants (a proxy)
- Measure particulate matter or gases
  - PM2.5 (or PM10 – poorly)
  - Carbon dioxide & carbon monoxide
  - Nitrogen dioxide & nitric oxide
  - Ozone
  - Total VOC
  - Methane



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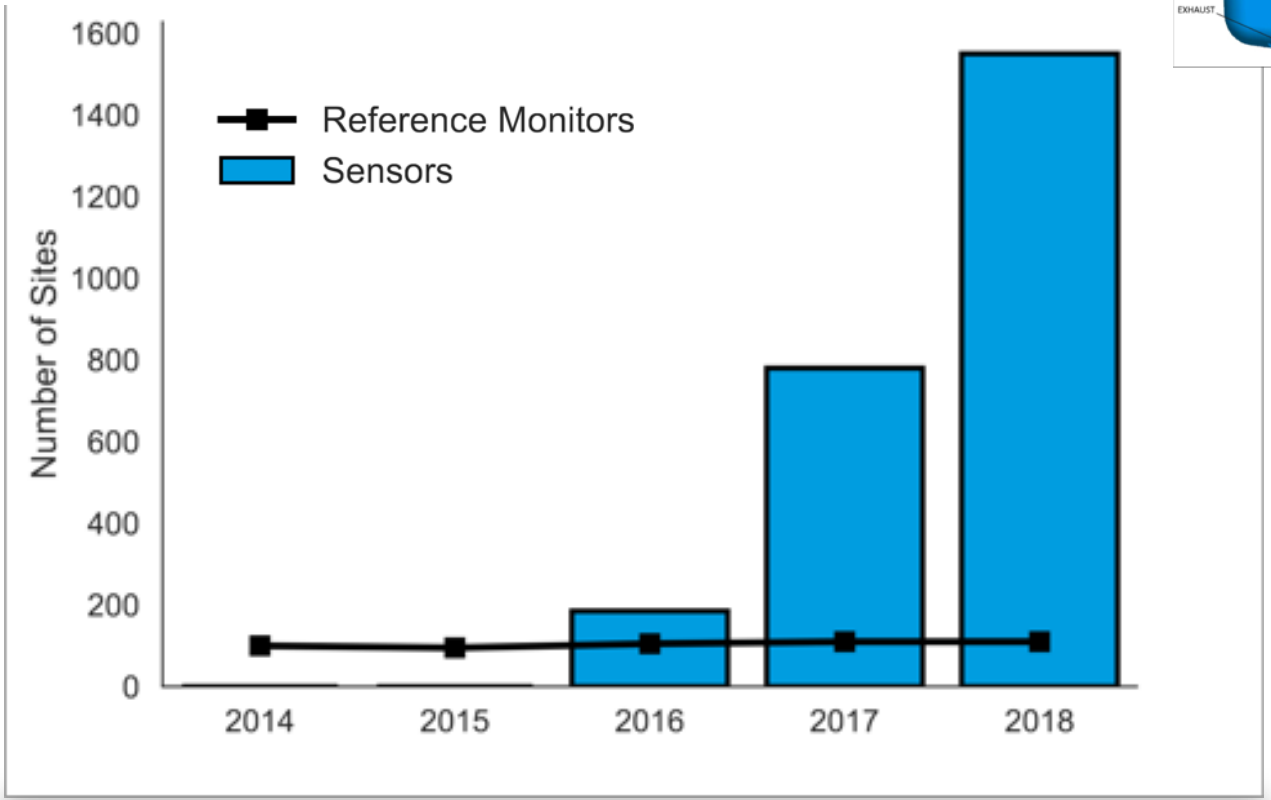
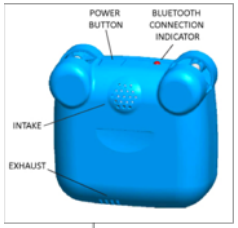
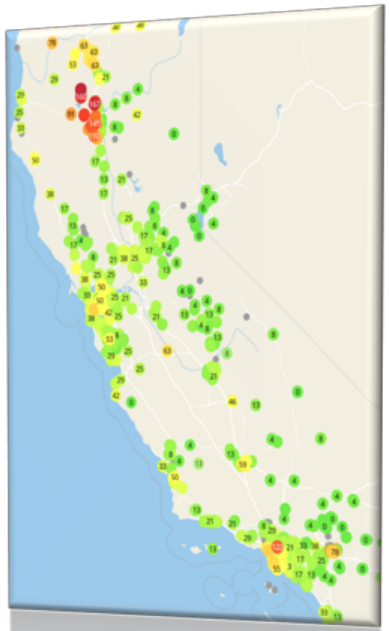
LOW COST SENSORS RANGE IN PRICE FROM $5 - $5,000

- Many additional components are needed to get from a raw signal to a concentration
  - Proper calibration and data quality are big hurdles
- Many "sensor aggregators" are already on the market

GROWTH OF AIR QUALITY SENSORS

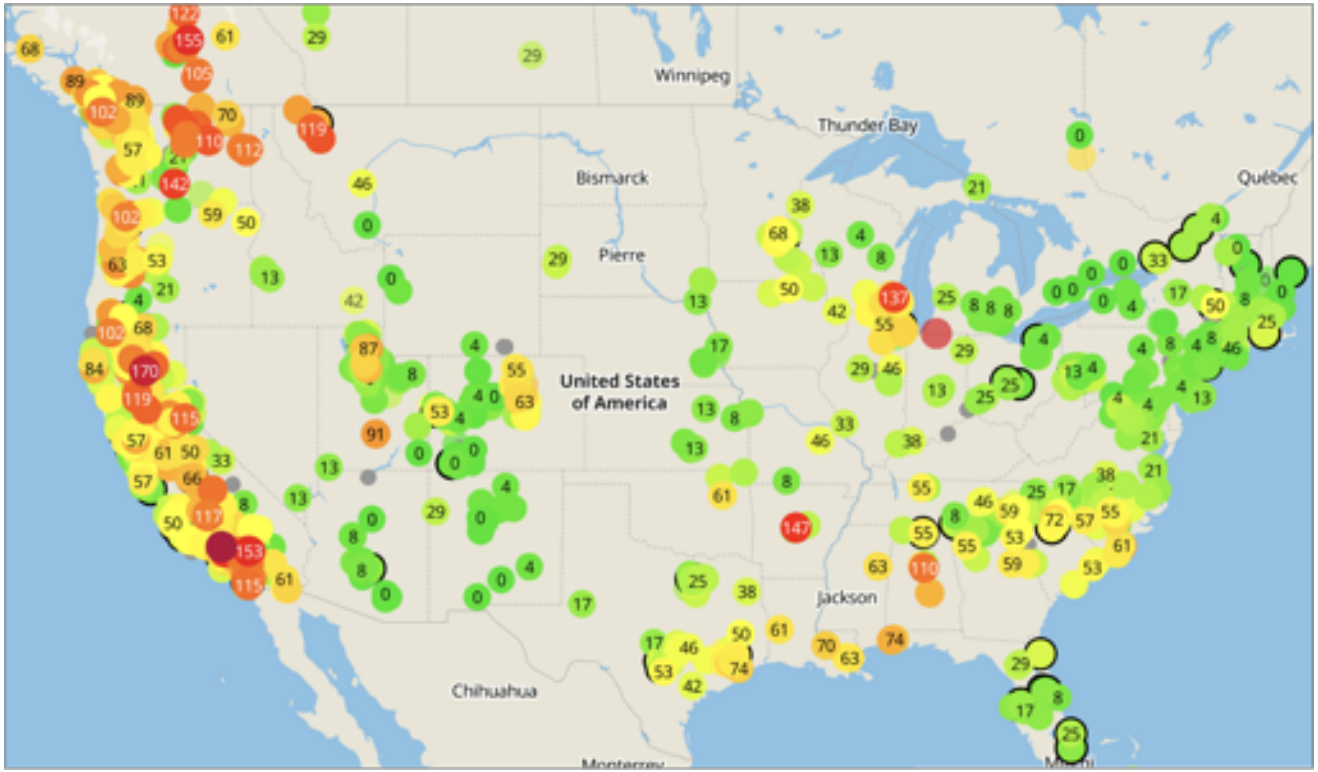






$PM_{2.5}$ sensors in California, data courtesy of Tim Dye (2018)

NOT JUST IN CALIFORNIA



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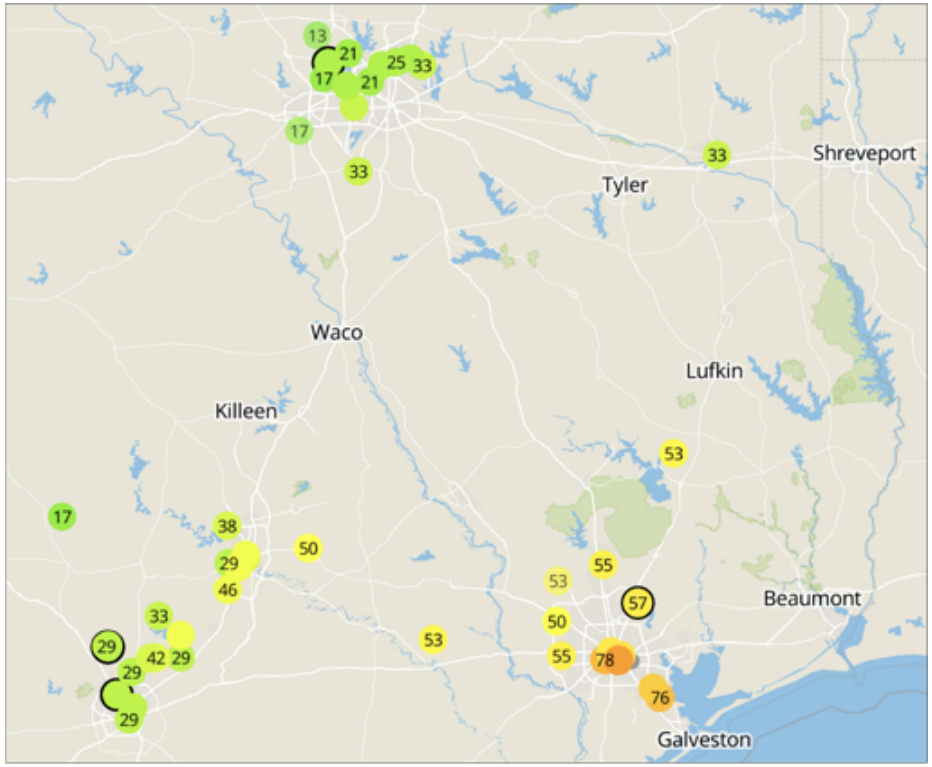

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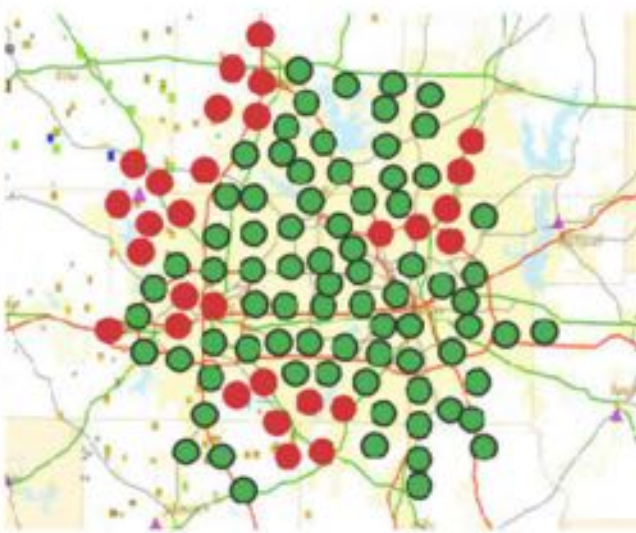
FROM A DALLAS CITY COUNCIL COMMITTEE MEETING ON SEPTEMBER 24TH

North Texas Clean Air Network

Dallas Can Turn This....

Into This



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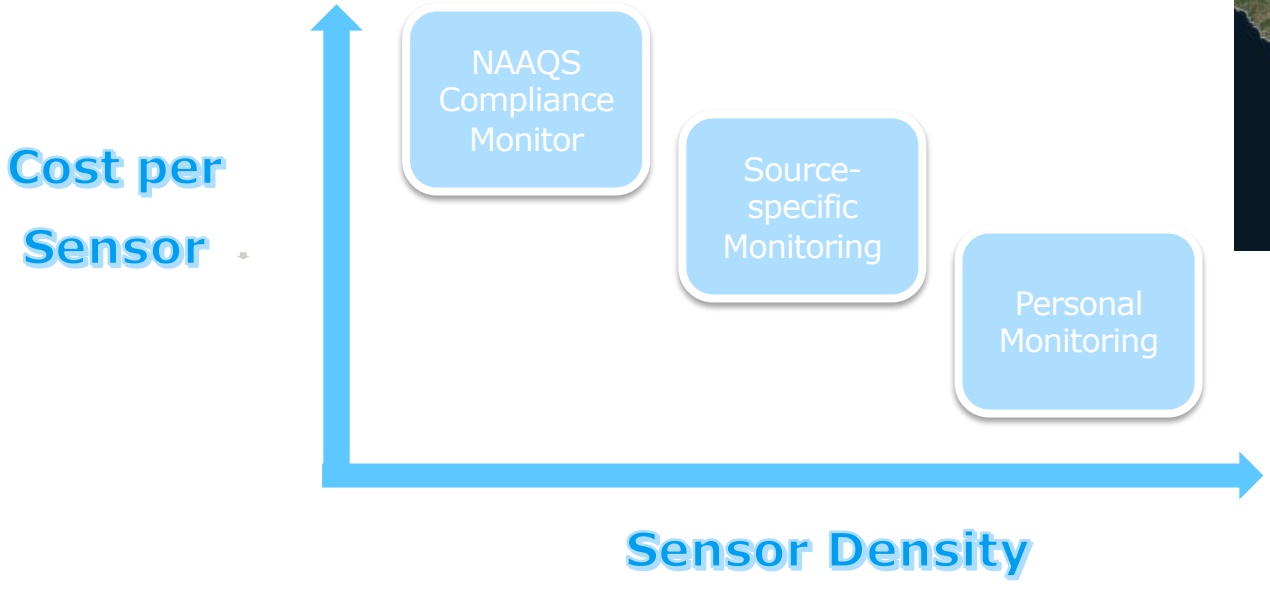
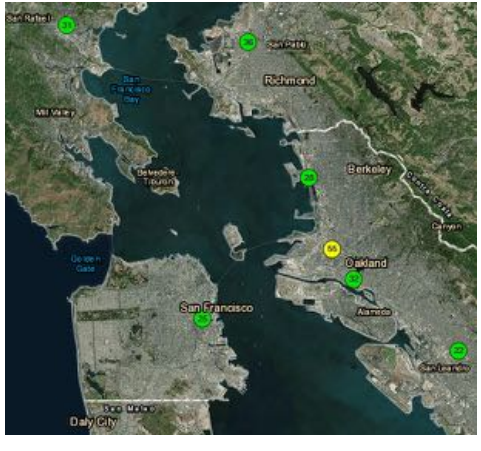
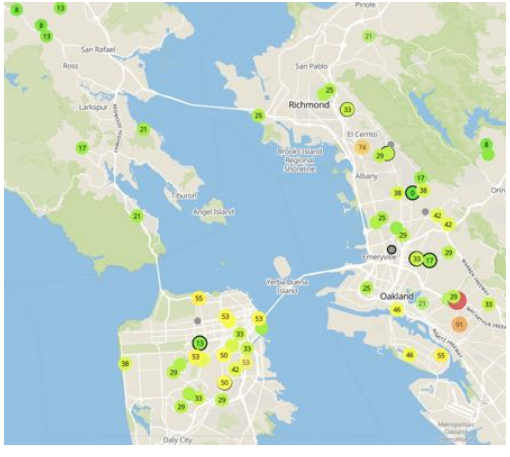
SHIFTING THE MONITORING PARADIGM WITH LOW-COST SENSORS







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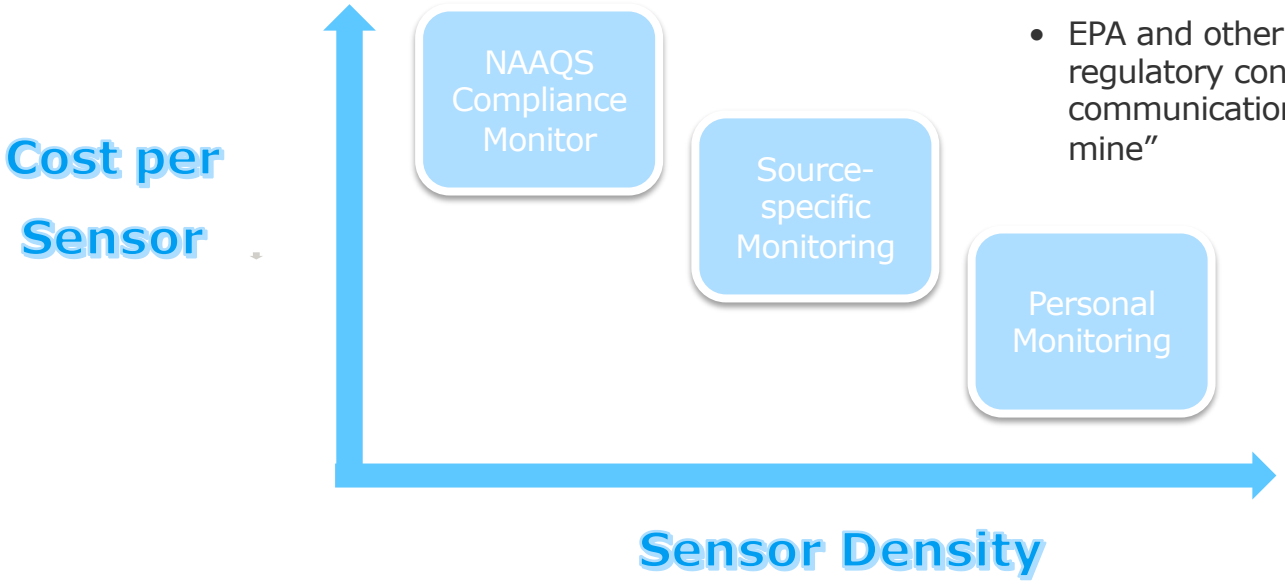
SHIFTING THE MONITORING PARADIGM WITH LOW-COST SENSORS

- EPA on record stating that regulatory grade and certified monitors required for attainment classification
  - EPA and other agencies still using sensors in non-regulatory context – wildfires, communication/education, trends, "canary in a coal mine"



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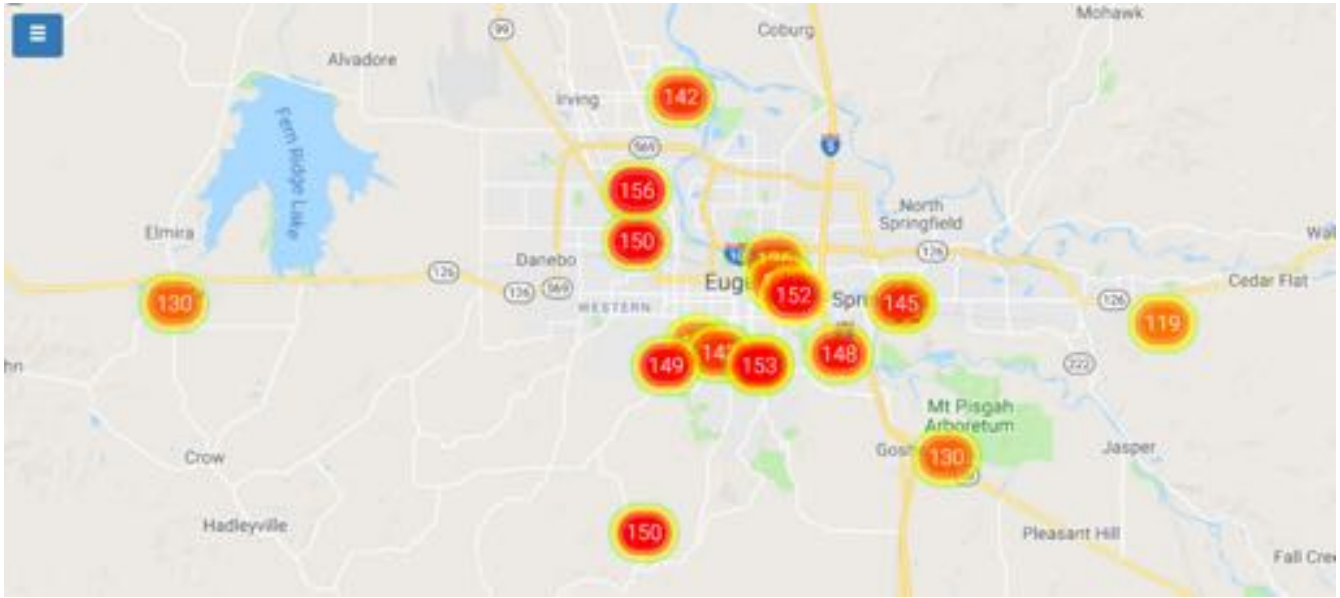
LANE REGIONAL AIR PROTECTION AGENCY IN OREGON USING SENSORS TO SUPPLEMENT THEIR NETWORK DURING WILDFIRES



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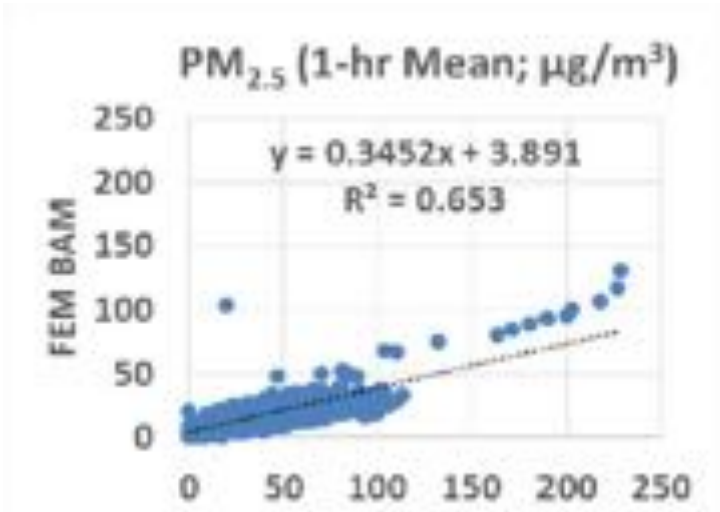
LRAPA
Lane Regional Air Protection Agency

HOW WELL DO THE SENSORS TRACK FEDERAL REFERENCE METHOD?

- The South Coast Air Quality Management District has a new sensor testing program: AQ-SPEC
- Compares 'out of the box' sensors with federal reference methods (40 CFR Part 53)
- PM2.5 and ozone sensors perform fairly well
  - Regulators pushing for "sensor certification" for these two pollutants
- Other pollutants not ready…yet



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Source: SCAQMD AQ-SPEC Program

http://www.aqmd.gov/docs/default-source/aq-spec/field-evaluations/hanvon---field-evaluation.pdf?sfvrsn=2

LIMITATIONS OF LOW COST SENSORS

- Data quality
  - Sensors can drift, degrade, over or under-estimate based on the calibration, have interferences from other pollutants, and show dependence on temperature and RH.
  - There is currently no standard or certification to verify data quality from low cost sensors.
  - Writing a protocol is non-trivial – sensors are often calibrated for the use case. They will perform well in the environment they were intended for, but would perform poorly in a standardized test.
- Cost
  - One sensor is cheap, but making a network can get expensive.
  - Caveat: Crowdsourcing
- Lifetime (less than ~2 years)
- Data analysis – “big data”

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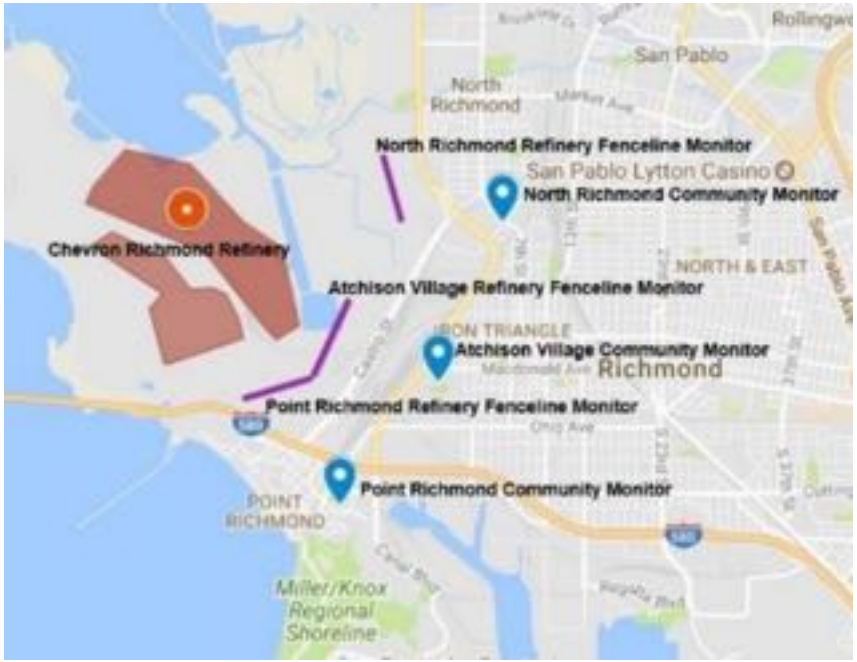
REGULATORY LANDSCAPE

- California Assembly Bill 617 (AB 617)
  - $250+ million allocated to address the disproportionate impacts of air pollution in environmental justice communities
  - "As California goes,"…?

- USEPA position:
  - Not a replacement for regulatory grade, high quality monitors
  - Federal Reference Method (40 CFR Part 53) required for attainment classification
  - BUT…
  - Sensors can be selected to fit a purpose
  - Guidance is being discussed to clarify appropriate uses of data from sensors
  - "Credible evidence" to enforce or establish a violation

NEXT GENERATION COMPLIANCE…

- Emissions inventories – if your emissions aren't what you say they are, someone is going to find out soon
- Can you use sensors to reduce your emissions, optimize operations, or protect yourself?
- Example: Our EPA-funded grant
  - Using refinery fenceline data and models to back out emissions inventories…does the data agree with the inventory?



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Litigation Implications and Risks

- Driver for enforcement? Citizen suits? Toxic tort claims?
- Are regulatory health-based standards applicable?
- Is data sufficient to meet standards for legal proof? Daubert challenges?
- Getting beyond air?
- Approaches to managing risk?

Thank You!

Bina Reddy
Beveridge & Diamond
breddy@bdlaw.com

Clarise Ashworth
Chesapeake Energy Company
clarise.ashworth@chk.com

Julia Luongo
Ramboll
jluongo@ramboll.com

Beveridge & Diamond

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