Investigating the Feasibility of Greenhouse Gas Mitigation in Santa Barbara County

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Project Motivation

Statewide GHG reductions are required under AB-32 and local reductions can generate local benefits
Project Objective

Determine which greenhouse gas mitigation projects are best-suited for Santa Barbara County
Project Phases

Background

GHG Forecast

Greenhouse Gas Emissions Forecast

GHG Abatement Cost Curve

Implementation

Recommendations
Project Phases

- Greenhouse Gas Emissions Forecast
- Greenhouse Gas Abatement Cost Curve
- Implementation
- Recommendations
Project Phases

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- Implementation
- Recommendations

Background

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1. Greenhouse Gas Emissions Forecast
2. Greenhouse Gas Abatement Cost Curve
3. Implementation

Recommendations
Greenhouse Gas Emissions Forecast
A greenhouse gas emissions forecast estimates future greenhouse gas emissions.
Sectors and sources included in our emissions forecast

- Agriculture Engines
- Oil & Gas Flares
- Organic Waste
- All On-Road Transportation
- Residential Electricity & Natural Gas
- Electricity & Natural Gas for Hotels, Motels, and Offices
Santa Barbara County Greenhouse Gas Emissions for 2015-2040 (kilotons CO$_2$e)

- **Largest Emitters**
  - Transportation: 35,000
  - Residential: 14,400
  - Commercial: 8,200

- **Client Interest**
  - Agriculture Engines: 650
  - Flares (Oil and Gas): 550
  - Organic Waste: 250
Greenhouse Gas Abatement Cost Curve
Greenhouse Gas Mitigation Strategies for Santa Barbara County

- Electric Vehicles
- Energy Efficiency Retrofits
- Commuter Benefits
- Solar Photovoltaics

Transportation

Residential

Commercial
Greenhouse Gas Mitigation Strategies for Santa Barbara County

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Residential
Commercial

Background  GHG Forecast  GHG Cost Curve  Implementation  Recommendations
What is a Greenhouse Gas Abatement Cost Curve?
To calculate costs, we made a number of assumptions.

- Price of Electricity
- Price of Fuel
- Price of Appliances
To calculate GHG reduction potential, we made a number of assumptions
Greenhouse gas reductions were calculated as reductions from the norm.
Santa Barbara County Greenhouse Gas Abatement Cost Curve (2015-2040)
Implementation
Implementing GHG Mitigation

Barriers
- Low Customer Awareness
- High Upfront Costs

Opportunities
- Rebates & Incentives
- Facilitator Programs
Recommendations
The best strategies are those that are cost-effective and easy to implement.
Recommendations

- **Abatement Cost**
  - $/ton CO$_2$e

- **Abatement Potential**
  - Kilotons CO$_2$e
  - Recommendations:
    - Highly Recommended: Green bars
    - Recommended: Yellow bars
    - Not Recommended: Red bars

Background, GHG Forecast, GHG Cost Curve, Implementation, Recommendations
Acknowledgements

Advisor
Sangwon Suh

External Advisors
Andrew Plantinga & David Raney

Client
Santa Barbara County Air Pollution Control District: Molly Pearson, Brian Shafritz, & Carly Wilburton
For access to the full report:

http://www2.bren.ucsb.edu/~sbc_offsets/