



# Public Workshop on the Agriculture Sector to Inform Development of the 2030 Target Scoping Plan Update

*April 27, 2016*



# Workshop Outline

- ▣ Introduction and Welcome
- ▣ 2030 Target Scoping Plan Overview
- ▣ Agriculture/Natural and Working Lands: Vision and Goal Setting
- ▣ Open Discussion Period

# 2030 Target Scoping Plan Overview

CALIFORNIA AIR RESOURCES BOARD

# CALIFORNIA CLIMATE STRATEGY

*An Integrated Plan for Addressing Climate Change*



## VISION

**Reducing Greenhouse Gas Emissions  
to 40% Below 1990 Levels by 2030**

## GOALS

**50%  
reduction  
in petroleum  
use in vehicles**



**50%  
renewable  
electricity**



**Double energy  
efficiency savings  
at existing buildings**

**Carbon  
sequestration  
in the land base**



**Reduce  
short-lived  
climate pollutants**

**Safeguard  
California**



# CALIFORNIA CLIMATE STRATEGY

## PRINCIPLES

Create jobs



Transform to a  
clean energy economy



Save water



Support vulnerable  
communities

Give consumers  
clean energy choices

Make California  
more resilient



# CALIFORNIA CLIMATE STRATEGY

## IMPLEMENTATION

### SCOPING PLAN

Climate  
Action Plans

SLCP Plan

Forest  
Carbon Plan

Cap and Trade  
Regulation

2040 CA  
Transportation Plan

### LEGISLATION

AB758 Energy  
Efficiency Plan

GGRF  
Investment Plan

Healthy Soils  
Action Plan

Other plans/regulations for renewables, efficiency, transportation, fuels

## BUILDING BLOCKS

Partnerships



Incentives



Voluntary Action



Local Action



Research

Grants

Regulations

# Prior Scoping Plans

- First Scoping Plan required by AB32
- Established new paradigm for climate mitigation
- First economy-wide climate change plan
- Pioneered the concept of a market-based program supplemented with complementary measures
- Sector-by-sector approach
- Public outreach and education
- Must be updated at least every 5 years

# Executive Order B-30-15

- Reduce greenhouse gas emissions to 40% below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80% below 1990 levels by 2050
- Update the AB 32 Scoping Plan to incorporate the 2030 greenhouse gas target
- Update the State's climate adaptation strategy and factor climate change into planning and investment decisions



# 2030 Target Scoping Plan Development

- ▣ Collaborate with State Agencies
- ▣ Engagement with Legislature
- ▣ Coordination with other plans (i.e. 111(d), Cap & Trade, SIP, Freight Strategy, etc.)
- ▣ Environmental Justice Advisory Committee Engagement
- ▣ Environmental Analysis (CEQA)
- ▣ Public Process: Workshops
- ▣ Economic Analysis with Peer Reviewers
- ▣ Draft Report / Final Report (targeted measures and estimated emission reductions)

# Elements of 2030 Strategy

- ▣ Focus areas within the pillars framework
  - ▣ Energy
  - ▣ Green buildings
  - ▣ Transportation
  - ▣ Water
  - ▣ Natural and working lands/Agriculture
  - ▣ Waste management
  - ▣ Short-lived climate pollutants
  - ▣ Industry
- ▣ Maximize synergies among sectors

# Goal Setting: Agriculture and Natural and Working Lands

- Long-term Goals and Vision
  - Set goals/vision at statewide or landscape level
  - May not currently have the tools to measure progress; part of a longer-timeframe effort to achieve success
  - Goals to continue to be implemented as part of future Scoping Plan efforts
- Short-term Targets to Inform 2030 Scoping Plan
  - Set targets to ensure sector is directionally on path to achieving long-term goals/vision, even in light of known data gaps
  - Must be able to measure progress towards meeting Scoping Plan targets

# Environmental Analysis

- Environmental Analysis (EA) being prepared analyzing potentially significant adverse impacts caused by reasonably foreseeable actions.
- Meets requirements of ARB's certified program under the California Environmental Quality Act (CEQA).
- The CEQA Environmental Checklist (CEQA Guidelines Appendix G) is used to identify and evaluate potential indirect impacts.
- The EA will be an appendix to the proposed Draft 2030 Target Scoping Plan Update.

# Environmental Analysis to be Prepared

- The EA will include:
  - Description of reasonably foreseeable actions taken in response to the plan
  - Programmatic level analysis of potential adverse impacts caused by reasonably foreseeable actions
  - Beneficial impacts
  - Feasible mitigation measures to reduce/avoid significant impacts
  - Alternatives analysis
- Input invited at this early stage on appropriate scope and content of the EA.
- Draft EA will be released for 45 day public comment period.

# Public Process to Date

- Governor's Climate Change Strategy Pillar Workshops
  - July/August 2015
- 2030 Target Scoping Plan Update Kickoff Workshop
  - October 1, 2015
- First EJAC Public Meeting
  - December 7, 2015
- Electricity/111(d) Public Workshop
  - December 14, 2015
- GHG Modelling/Economic Analysis Public Workshop
  - January 15, 2016
- Public Workshop on the Natural and Working Lands Sector
  - March 23, 2016

# Next Steps: Tentative Schedule

- Technical and Economic Workshops – Early/Mid 2016
  - Economic/environmental analyses
- Sector-specific Public Workshops – Spring 2016
- Discussion Draft Scoping Plan – Spring 2016
- Draft 2030 Target Scoping Plan – Summer 2016
- Regional workshops - 2016
  - Bay Area, Los Angeles, Central Valley
- Final 2030 Target Scoping Plan presented to Board – Q1 2017

# Public Comments

- Please provide comments on this workshop by May 11, 2016 at 5:00 p.m.
- Links to submit both written comments and view all comments received can be found at:  
<http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>
- Additional opportunities to comment will be available at subsequent workshops



# Presentation 2

## AGRICULTURE VISION AND GOAL SETTING

# Scope

Forests



Wetlands



Rangeland



Farmland



# The Value

- **California's land base stores carbon** below ground, in soil and root systems, and above ground, in trees, shrubs, grasses and other plant biomass
- **Healthy and resilient natural and working lands provide sustainable public benefits in addition to carbon sequestration**, such as water filtration, improved air quality, wildlife habitat, temperature moderation through shading, and soil fertility that supports food production
- **Conservation of natural and working lands supports sustainable communities**
- **Natural and working lands provide jobs, support regional economies and improve quality of life for all California residents.**

# Agricultural Food & Fiber Systems

## ▣ Food Production

- ▣ In 2014, California's farm production topped \$54 billion
- ▣ California has the most diverse food production in the country

## ▣ Vibrant Rural Communities

- ▣ California's 77,500 farms and ranches cover 25.5 million acres

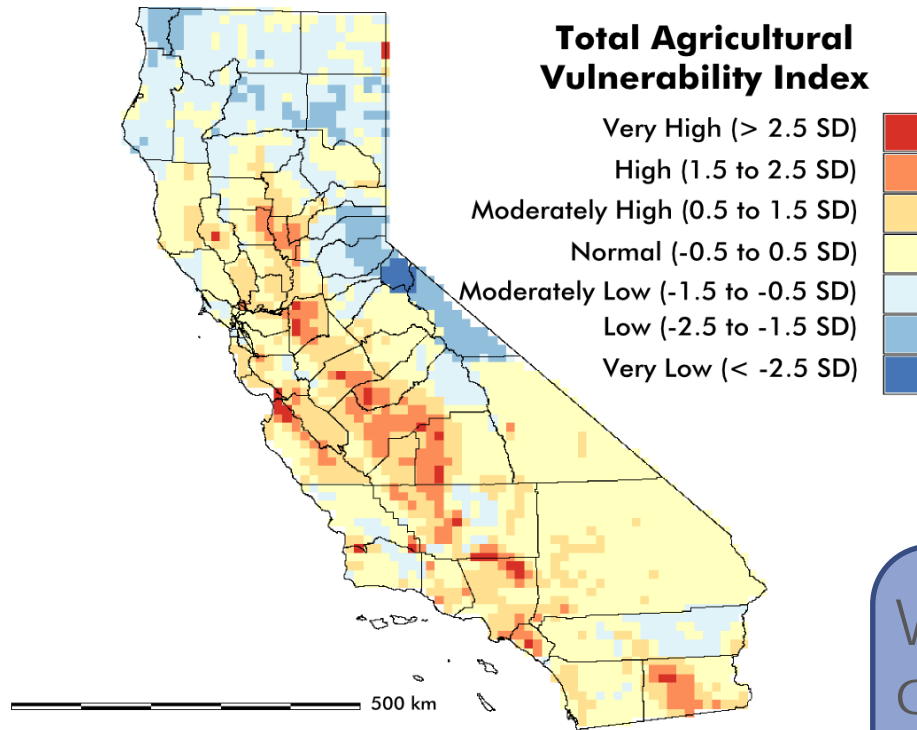
Rangeland



Farmland



# Climate Change Vulnerability



Vulnerability Index uses 4 sub indices:

1. Climate
2. Crop
3. Land use
4. Socioeconomic

When indices are combined, total agricultural vulnerability in some areas of the state is very high

# Vision 2030 and 2050

- ▣ **Protect** Minimize Conversion
- ▣ **Enhance** Carbon Sequestration Potential
- ▣ **Innovate** Across Sectors
- ▣ **Develop** Sequestration Goals
- ▣ **Align** Climate Goals with Co-Benefits

# California's Climate Smart Ag Practices

## Voluntary On-farm Practices Include:

- ▣ Soil Carbon Sequestration
- ▣ Manure Management
- ▣ Water Management
- ▣ Nitrogen Management
- ▣ Integrated Farming Systems
- ▣ On-farm Renewable Energy & Energy Efficiency
- ▣ Agricultural Land Conservation



Electricity



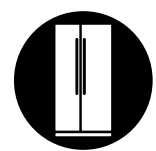
Petroleum



Buildings



Land-base



Short-Lived



# Soil Carbon Sequestration

## Healthy Soils Initiative

An interagency plan to reduce greenhouse gases and improve drought resiliency through innovative farm and ranchland practices.

- **Climate Benefit:** Sequester and Reduce Greenhouse Gases
- Co-benefits:
  - Increase water retention
  - Improve plant health and yields
  - Reduce sediment erosion and dust
  - Improve water and air quality
  - Improve biological diversity and wildlife habitat





# Manure Management

- Methane is a powerful Short Lived Climate Pollutant that the state is committed to reduce by 40 percent below 1990 levels by 2030
- Practices to reduce methane emissions include digesters, dry scrape, solids separation, and other technologies
- Additional benefits include renewable energy production and soil amendments



# Water Management

- **Increasing water and energy use efficiency.**
  - Techniques to increase water use efficiency – such as soil moisture sensors for irrigation scheduling and water conserving irrigation systems – can simultaneously reduce greenhouse gas emissions because less energy is required for water pumping
  - Energy use efficiency can be achieved through practices such as conversion to variable frequency drive pumps and incorporating renewable energy, such as solar power



# Nitrogen Management

- Optimizing the rate, timing, placement and type of nitrogen fertilizers has significant potential to reduce  $N_2O$  emissions



# Integrated Farming Systems

- Planting perennial grasses, shrubs, and trees on croplands and rangelands can sequester substantial carbon while providing a range of other important services, such as:
  - Pollinators
  - Insect Pest Predators
  - Habitat for Wildlife
  - Reduce Soil Erosion
  - Water Quality





# On-Farm Renewable Energy & Energy Efficiency

- ▣ Biomass Waste Diversion

- ▣ Bioenergy
- ▣ Biofuels
- ▣ Compost

- ▣ Solar

- ▣ Wind

- ▣ Energy Efficiency



# Vision 2030 and 2050

- ▣ Protect
  - ▣ Agricultural Land Conservation
- ▣ Enhance
  - ▣ Soil Carbon Sequestration
  - ▣ Integrated Farming Systems
- ▣ Innovate
  - ▣ Manure Management
  - ▣ Water Management
  - ▣ Nitrogen Management
  - ▣ On-farm Renewable Energy & Energy Efficiency

# UC Davis Research Forum

February 11, 2016

## ■ Key Findings:

1. Farmland conservation is one of the largest opportunities for reducing emissions; land use strategies at the urban edge benefit rural & urban communities
2. Conversion to micro-irrigation, surface, and subsurface drip significantly reduces on-farm emissions and has co-benefits for sustainable water resource management
3. Soil carbon is sequestered with addition of organic matter (e.g. cover crops, compost, crop rotation), even with periodic tillage, & offers co-benefits for soil moisture retention
4. New studies show potential for on-farm renewable energy production, which more than doubled in CA from 2009-2012
5. Integrated/diversified farming systems that build healthy soils & utilize biodiversity contribute to both mitigation and adaptation

# Protect: Ag Land Conservation

- ▣ Agricultural and Rangeland Conservation
- ▣ Land Use Planning





# NWL Discussion Paper: Draft Goals

- Fulfill the Healthy Soils Initiative, an interagency plan announced by Governor Brown in 2015, to reduce GHG emissions and improve drought resiliency by updating farm and ranchland practices to build soil organic matter.
- Promote on-farm and ranch management practices that sequester carbon or reduce GHGs.
- Employ a suite of ready-to-implement practices, such as managing manure in dairies, and increasing the efficiency of on-farm water and energy use to increase net carbon sequestration and reduce GHG emissions across diverse agricultural systems.

# Questions and Comments