



One Water and Adaptation Committee

# Carbon Sequestration & Capture Opportunities

Item 6e

April 7, 2025

# Item 6e Carbon Sequestration & Capture Opportunities

## Subject

Carbon Sequestration & Capture Opportunities

## Purpose

Define key terms related to carbon sequestration and share opportunities for meeting climate goals and generating revenue

## Next Steps

Continue ongoing studies and explore feasibility of new opportunities with regular reports back to Board

# Carbon Removal Methods

- Aim to extract and store atmospheric carbon dioxide (CO<sub>2</sub>)
- Address climate change by reducing atmospheric CO<sub>2</sub> concentration and mitigating the effects of global warming
- Include both natural and technological approaches



## Afforestation and Reforestation

- Planting new or replanting harvested forests to sequester CO<sub>2</sub>



## Soil Carbon Sequestration

- Using agriculture and ecosystem restoration to reverse past loss of soil carbon and sequester CO<sub>2</sub>



## Bioenergy with Capture and Storage

- Farming bioenergetic crops, which extract CO<sub>2</sub>, burning for energy, sequestering carbon underground



## Direct Air Capture

- Pulling CO<sub>2</sub> out of the air and either burying underground or using in a chemical process



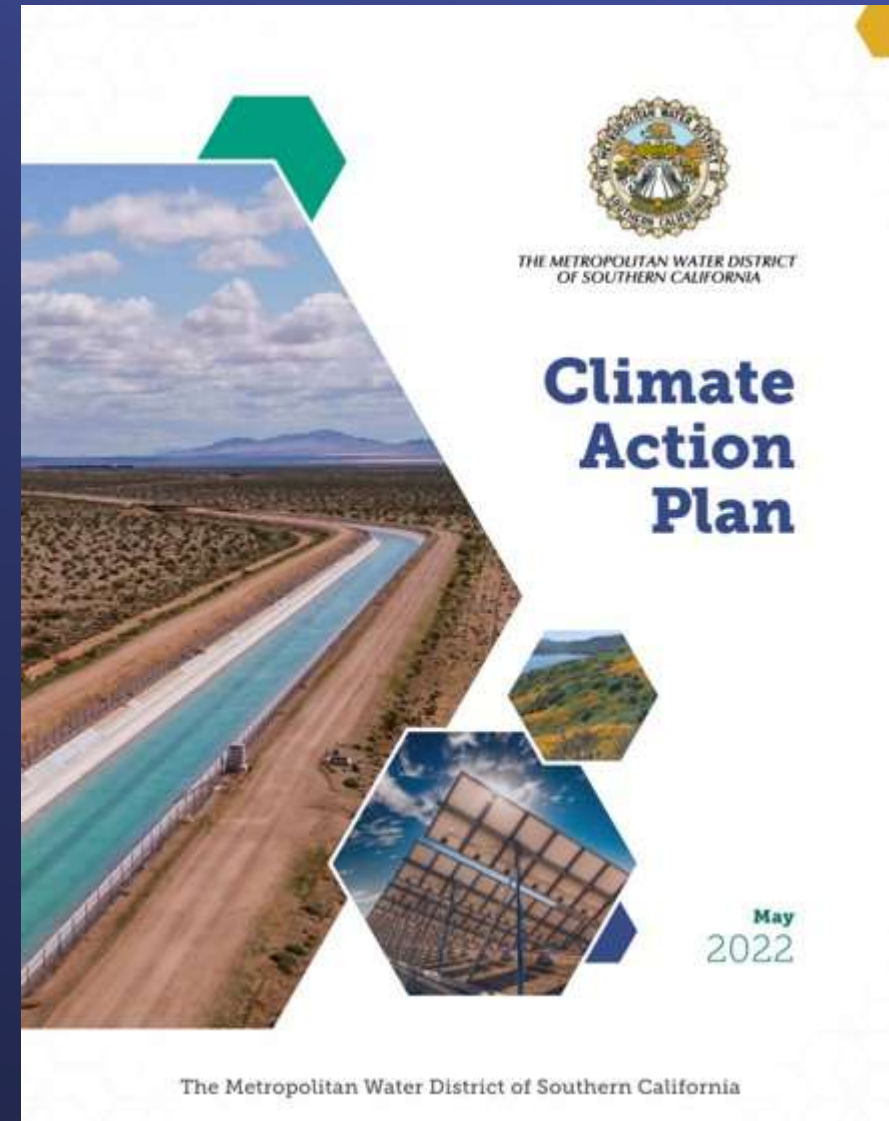
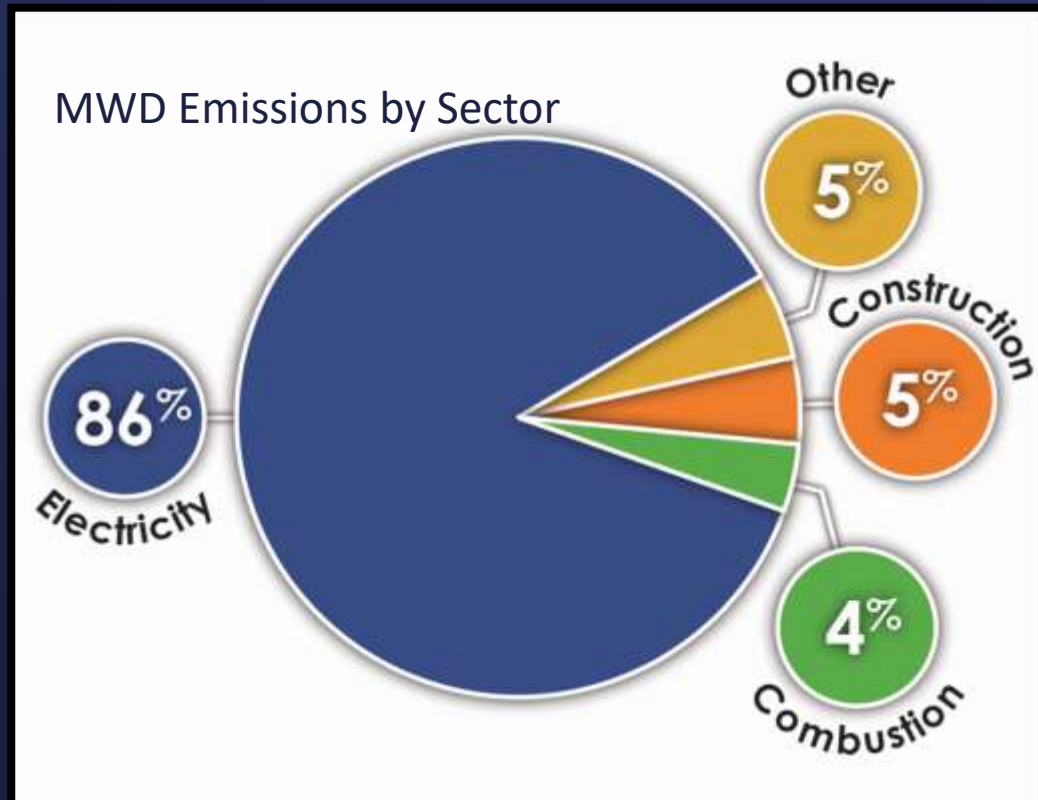
# Climate Action Plan - GHG Reduction Targets

**Established an emissions target:**

- Carbon neutrality by the year 2045

**Interim target to ensure compliance:**

- 40% below 1990 levels by 2030



# Role of Carbon Sequestration in Metropolitan's Climate Action Plan

- Included as a key CAP strategy to reduce emissions, indirect emissions
  - **CAP Strategy 9** – Investigate and Implement Carbon Capture and Sequestration Opportunities
- Co-Benefits in other CAP strategies
  - **CAP Strategy 8** – Increase Water Conservation and Local Water Supply
    - Compost application to range lands and agricultural fields enhances plant growth; soil health; water retention; sequesters carbon

# Metropolitan Carbon Sequestration and Capture Activities

## Forest Restoration and Carbon Sequestration

- Northern Sierra Watersheds
  - Forest Resilience Bonds with public and private finance
  - Projects study water supply, climate resilience, and carbon sequestration benefits

## Soil Carbon Sequestration on Met Lands

- Palo Verde Valley
  - Regenerative Ag study with Chico State
  - Low/no tilling, cover crops, flux towers
- Bay Delta Islands
  - Rice/subsidence reducing farming
  - Wetlands restoration
- Carbon Credits Potential

## Carbon Capture and Storage on Met Lands

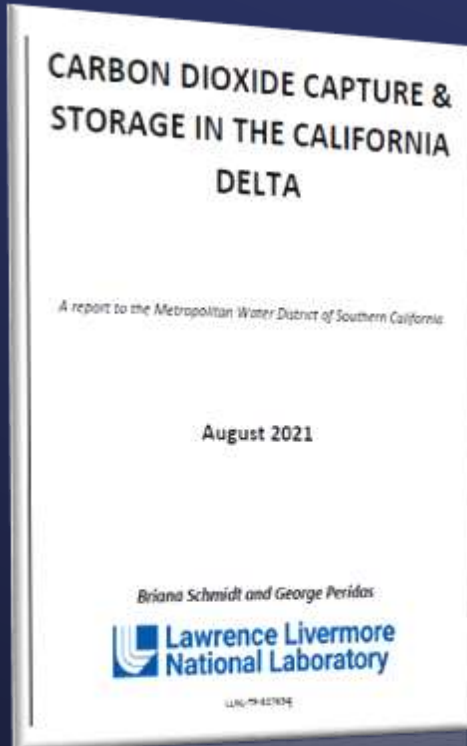
- Bay Delta Islands
  - Underground Capacity Preliminary Assessment
  - Proximity to port and bioenergy sources
- Revenue Potential through Various Programs, Credit Systems





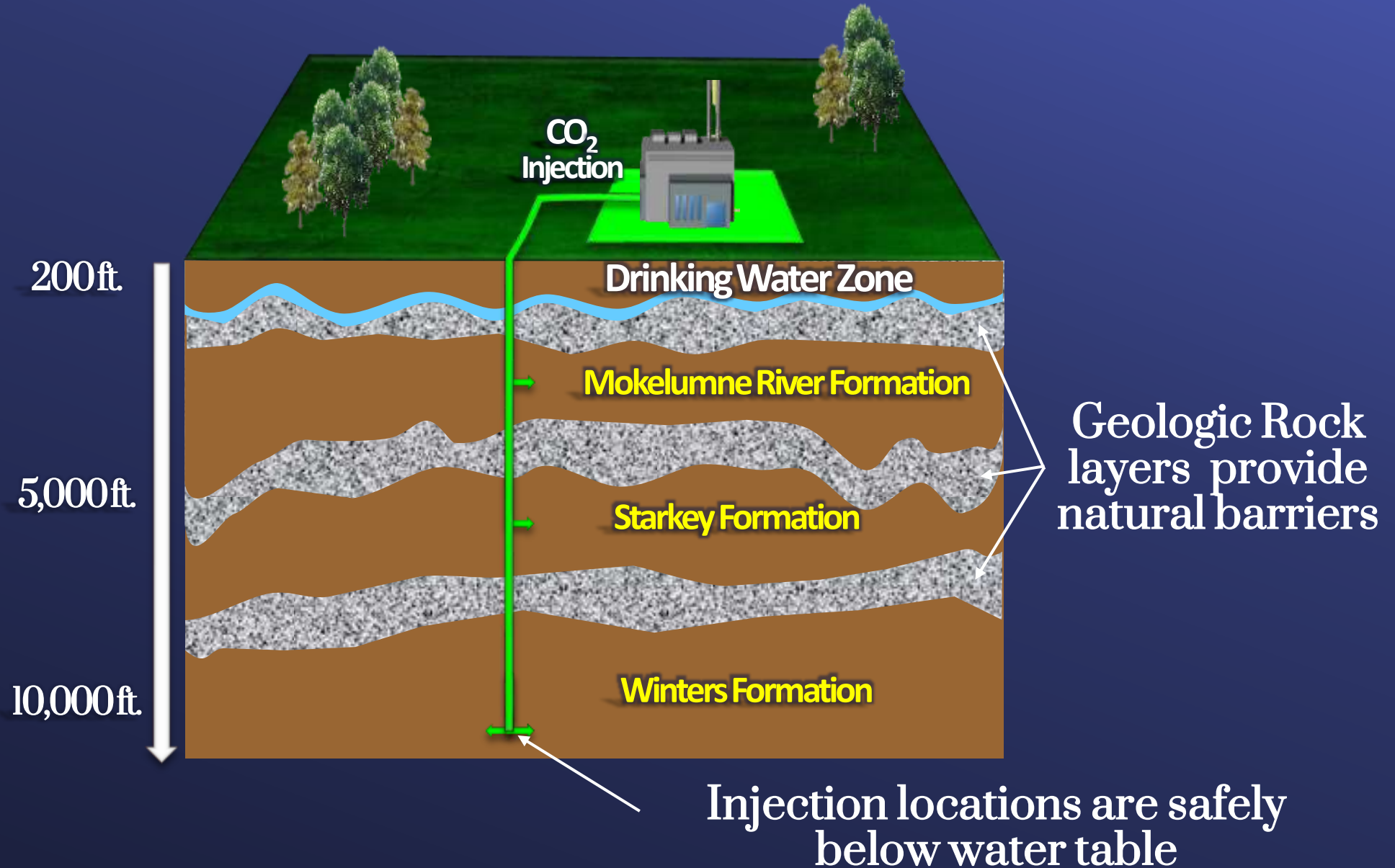
# Potential for Carbon Capture and Storage (CCS) on Metropolitan Land

## Initial Investigation



- Geology under Delta islands is well suited for safe CO2 storage
- EPA issued first Class VI Injection Well Permit for CCS in California
- Delta entities interested in partnership
- Federal and state incentives
- Potential MWD revenue in tens or hundreds of \$millions/year
- Consistent with Board's adopted Climate Action Plan and CA climate policies
- Public and community understanding and support remains mixed

# Initial Investigation – Geology Below Delta Islands

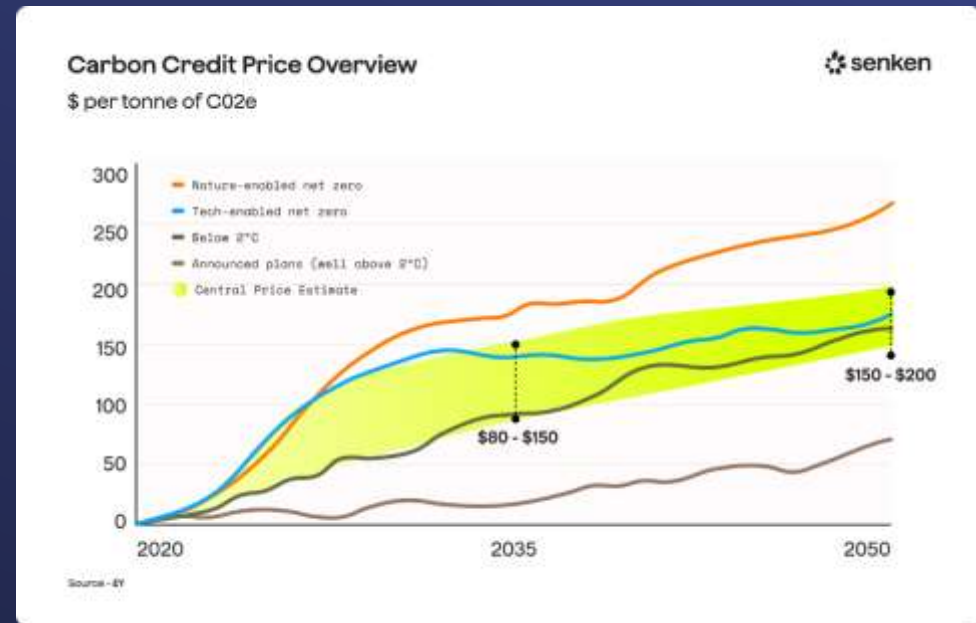




## What are Carbon Credits?

- CA's cap-and-trade program established an innovative carbon credit or emissions trading system to limit carbon emissions, provide a market for tradable credits, and help fund climate-related projects
- A carbon credit represents one metric ton of CO<sub>2</sub> emissions reduced or avoided from entering the atmosphere
- Produces certificates that entities can buy to offset their carbon emissions, allowing them to meet their emissions targets
- Carbon credits can be generated through various projects, including CCS, reforestation, agriculture, and renewable energy initiatives

The credit value of carbon storage, or carbon credits, fluctuates based on market demand, supply, and quality



# Next Steps

- Receive Board Input and Feedback
- Determine Feasibility
  - Technical & Permitting Issues
  - Safety & Environmental Considerations
  - Community Impacts
  - Real Property & Legal Interests
- Explore Financial Structures



