



Irvine Ranch
Water District

IRVINE RANCH WATER DISTRICT OVERVIEW

CLEAN WATER SOCAL – COMMITTEE DAY

MARCH 26, 2025



ABOUT IRWD

A not-for-profit local public agency serving residents and businesses throughout central Orange County.



181 square miles

20% of Orange County



445,000

Residents served

670,000

Daytime population

125,000

Service connections



Serving all or parts of:

Irvine

Lake Forest

Newport Beach

Tustin

Costa Mesa

Orange

Unincorporated Orange County



Orange County, CA



IRVINE RANCH WATER DISTRICT SERVICES



DRINKING WATER

6 water treatment plants
27 wells
37 closed reservoir tanks
1,976 miles of pipeline



SEWER COLLECTION

2 sewage treatment plants
1,374 miles of collection pipes
Sewer water treated and reused for nondrinking purposes



RECYCLED WATER

4 recycled water reservoirs
25 million gallons per day
576 miles of pipeline
130+ dual-plumbed buildings
6,400+ metered connections



URBAN RUNOFF

46 wetland treatment sites
Removes nutrients
Cost-effective
Environmentally sound
Modeled after natural treatment ponds

WHY RESOURCE RECOVERY FROM SEWAGE?

A Paradigm Shift.

From historical “disposal” of by-products:

- *Water*: Treated effluent to an ocean outfall.
- *Gas*: Biomethane flared off.
- *Solids*: Biosolids trucked to a landfill.

To recovering and beneficially reusing resources:

- *Water*: Reused to meet local needs.
- *Gas*: Biomethane used for energy generation and storage facilities.
- *Solids*: Fertilizer pellets produced from heat-dried biosolids residuals.



IRWD'S NATURAL TREATMENT SYSTEM

- Expanded wetlands treatment at nearly 50 sites throughout the San Diego Creek watershed.
- Integrated with the cities' and the County's Clean Water Act compliance programs (MS4 and NPDES permits).
- Partnerships with government, private, regulatory and environmental entities.

Removals in 2024:

- 50,000 pounds of nitrogen
- 5,000 pounds of phosphorus
- 99% of pathogens



SAN JOAQUIN MARSH WILDLIFE SANCTUARY

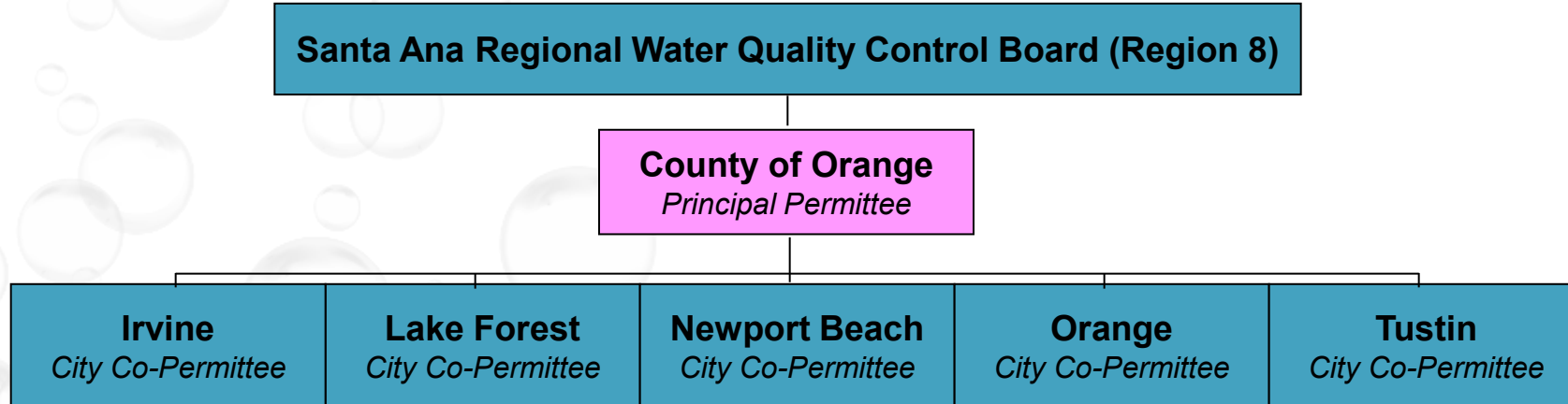


More than 300 acres of coastal freshwater wetlands.

Hiking trails open from dawn until dusk in partnership with the Sea and Sage Audubon Society.



WATERSHED PROTECTION: MS4 PERMIT COMPLIANCE

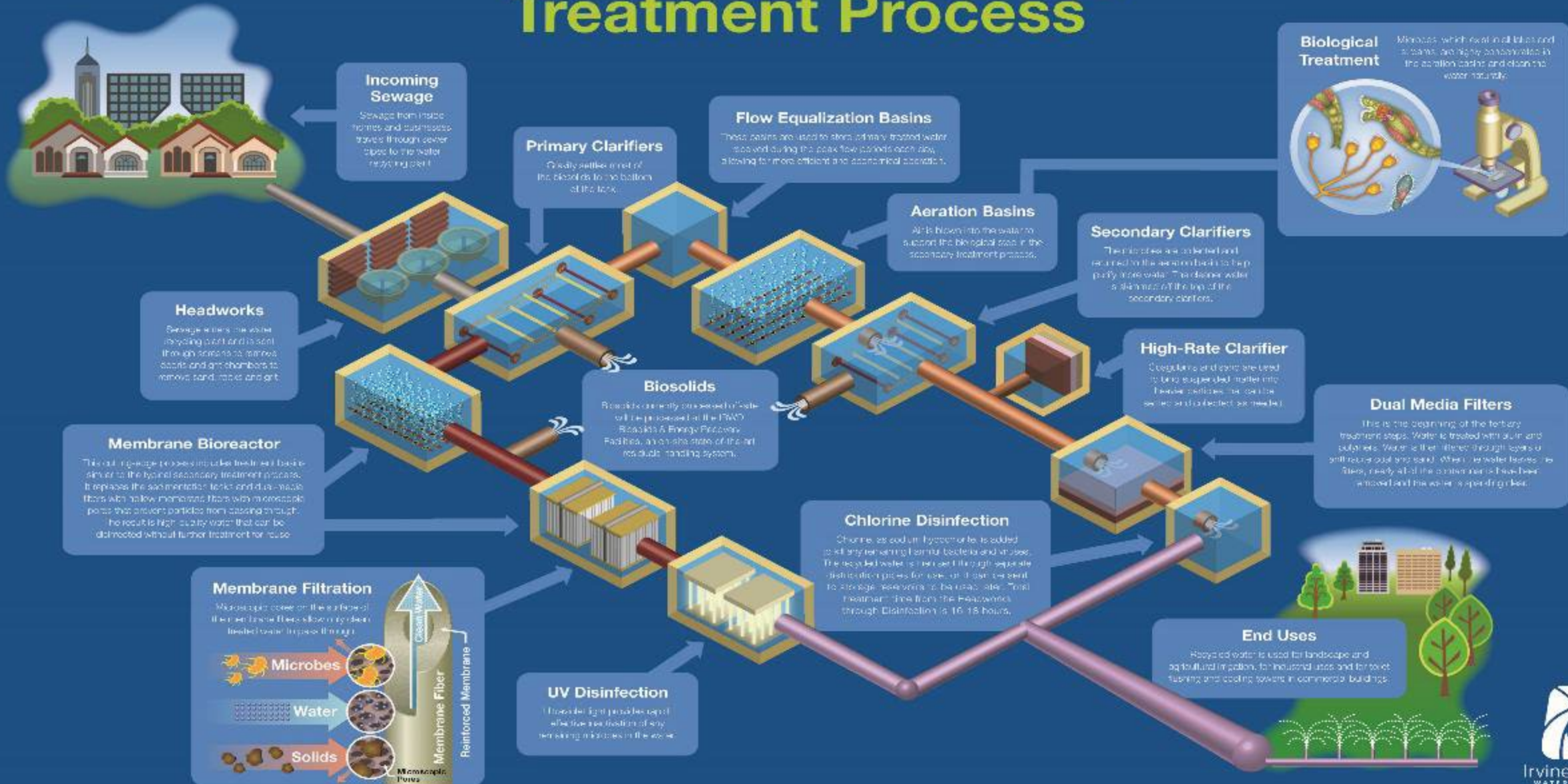


Permittee Compliance Mechanisms

- Education/Training/ Inspection
- Development/Construction Standards
- Water Quality Monitoring
- Local structural BMPs
- Runoff management and Source Control (Conservation and demand management)
- Watershed-wide Treatment BMPs

IRWD's
Runoff Management
Strategies

Michelson Water Recycling Plant Treatment Process



MICHELSON WATER RECYCLING PLANT

MWRP Current Capacity: 28 MGD
Ultimate Capacity: 33 MGD

MWRP is one of two sources of recycled water for IRWD

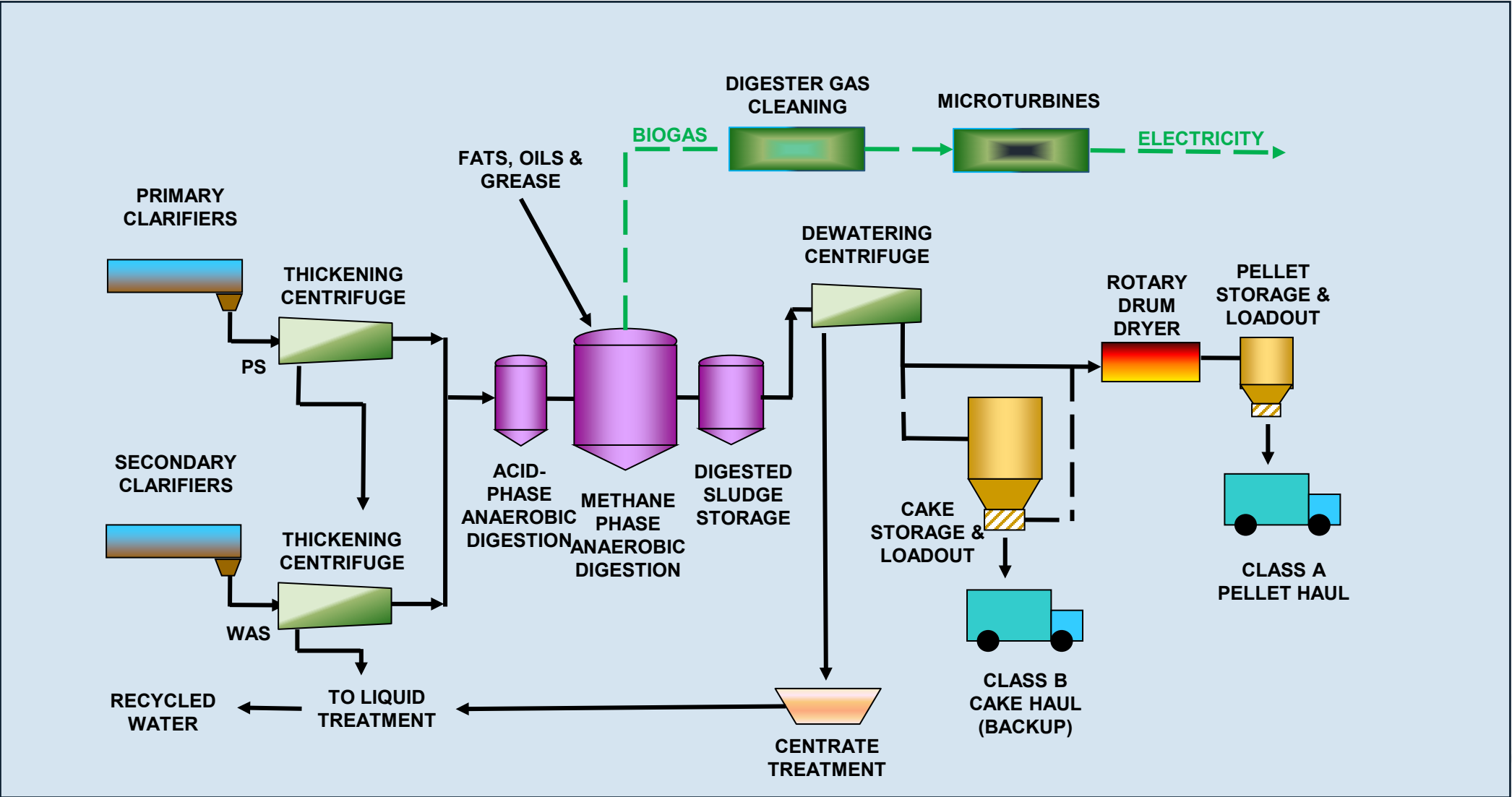


BIOSOLIDS AND ENERGY RECOVERY FACILITY

- Opened in 2020
- Green and sustainable
 - Biogas used to fuel facility
 - Biosolids for soil amendment and fuel
- Biomethane generates 1.6 MW of renewable energy



MWRP BIOSOLIDS PROCESS FLOW DIAGRAM



WATER RELIABILITY



WATER SYSTEMS SERVING CALIFORNIA



**Groundwater Banking
and Transfers**

**Local Supplies:
Groundwater, Recycling,
Desalination**

Enhanced Water Efficiency

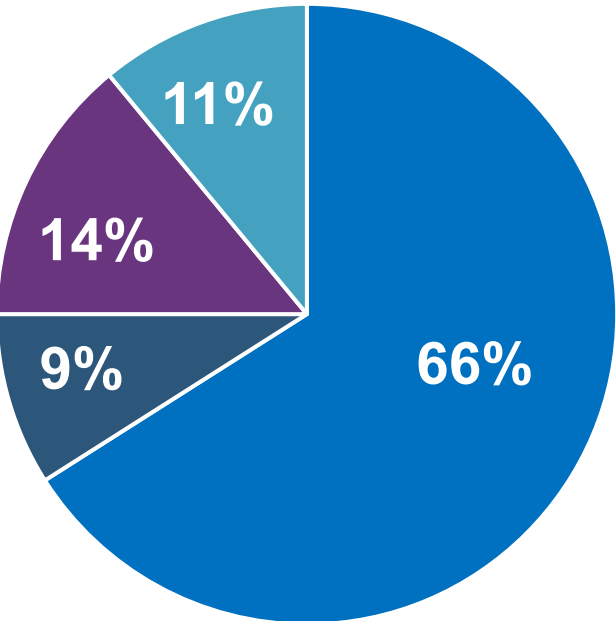
**Sacramento-San
Joaquin River Delta**

State Water Project

**Colorado River
Aqueduct**

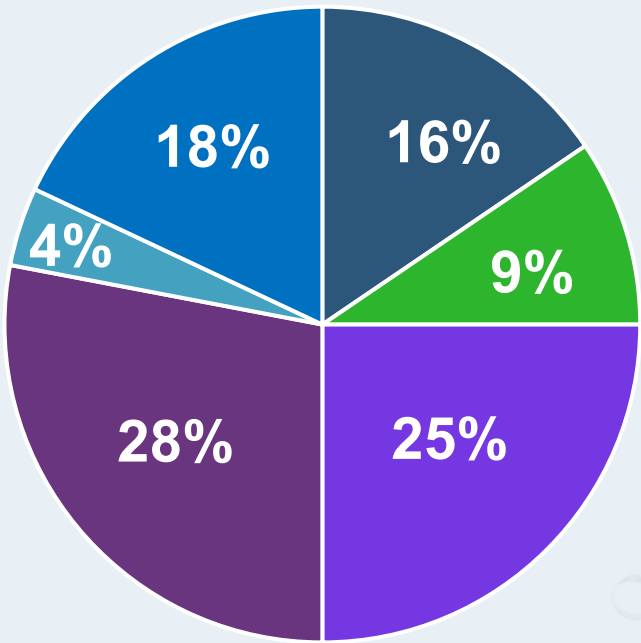
IRWD WATER SOURCE PORTFOLIO

1990



- Imported water
- Clear groundwater
- Recycled water
- Local surface water

Today



- Clear groundwater
- Treated groundwater
- Indirect Potable Reuse
- Recycled water
- Local surface water
- Imported water

Over 50% of IRWD's total water supply is from potable reuse or IRWD-produced recycled water.

GROWING COMMUNITY, GROWING EFFICIENCY

1990



IRWD customers are among the most efficient in California

2023



DOES IRWD HAVE ENOUGH WATER FOR OUR COMMUNITY NOW AND INTO THE FUTURE?

YES!



NO PROJECTED SHORTAGE- IRWD had no projected shortage during any of the recent droughts, even if they had continued for an additional five years

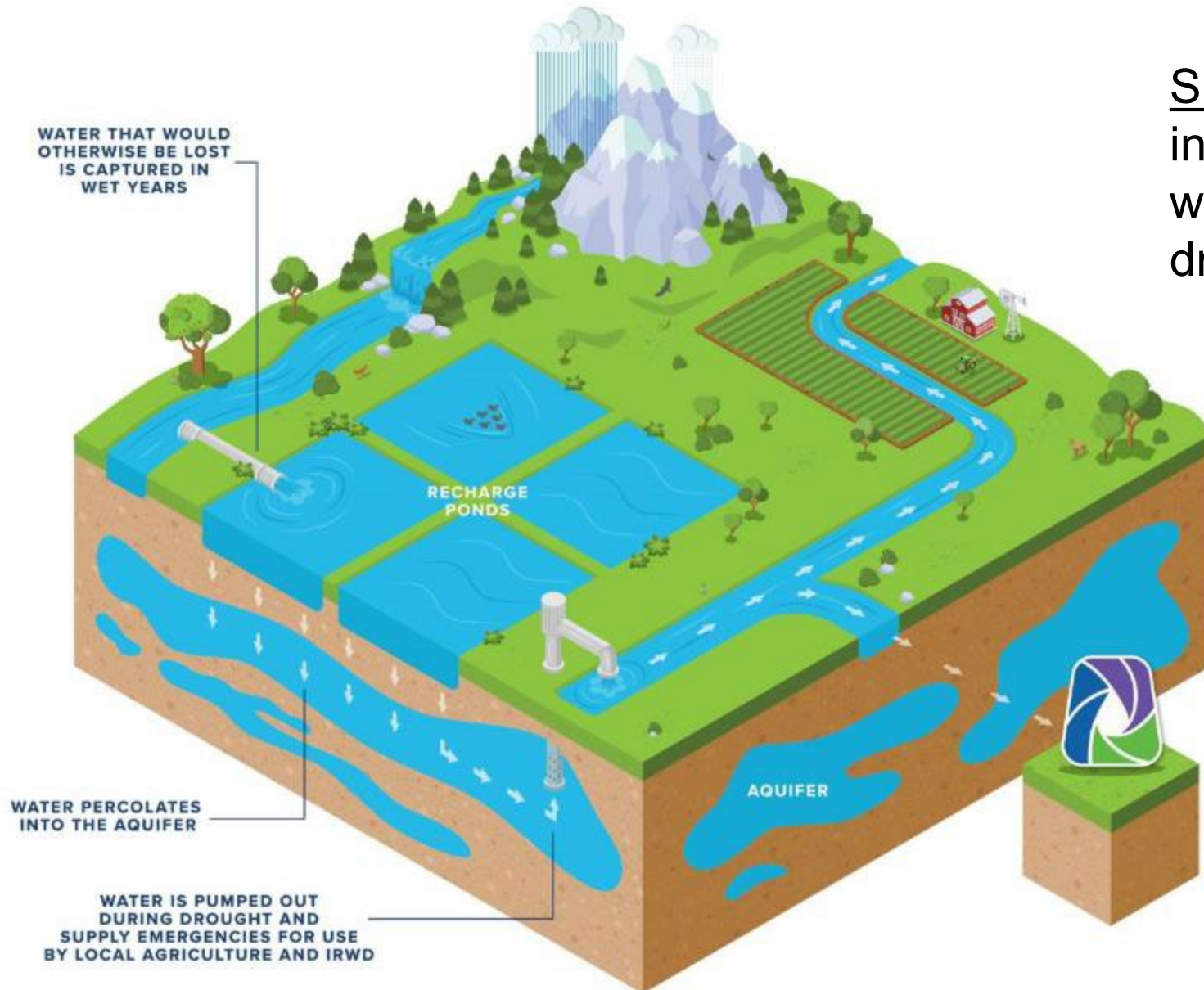


IRWD IS PREPARED FOR THE FUTURE- IRWD invests and will continue to invest in climate and drought resiliency to ensure our community has sufficient water supplies well into the future.

- Water Efficiency
- Emergency Supply Development

- Water Recycling
- Infrastructure Replacement & Investment

INNOVATION: WATER BANKING FOR DRY-YEAR USE



Supply Reliability: IRWD's water banks in Kern County capture and store water in wet years for use during droughts and supply interruptions.



WATER SUPPLY RELIABILITY THROUGH EMERGENCY SUPPLY DEVELOPMENT

IRWD's Water Banking Program:

- Provides 15% of IRWD water demands though a shortage period of up to three years.
- Stores wet-year supplies for dry-year use.
- Partnerships with urban and agricultural water agencies (State Water Project Contractors) for mutual benefit.
- Kern Fan Groundwater Storage Project will expand IRWD's water banking and recovery capacities.



How our banked water is conveyed

Water recovered from the IRWD Strand Ranch Water Banking Project is delivered to IRWD's service area via the Cross Valley Canal, the California Aqueduct and MWD facilities.

WATER QUALITY AT IRWD



HOW DOES IRWD SUPPORT FIRE PROTECTION EFFORTS?

IRWD coordinates closely with the Orange County Fire Authority and other firefighting entities by:

- *Monitoring:* Track weather conditions that heighten risk, such as low relative humidity, strong winds, dry fuels, the possibility of lightning strikes, and more;
- *Water Supply:* Top off water storage tanks and reservoirs when the risk of fire is high since gravity is more reliable than electricity from the grid;
- *Maintenance:* Continuously maintain all hydrants in its system by testing hydrants and painting them regularly; defective hydrants are replaced as quickly as possible;
- *Communication:* Communicate year-round with other agencies and first-responders to ensure hazardous conditions are addressed before problems strike;
- *Power:* Permanent and portable generators at key facilities help keep the water flowing during power outages. IRWD is upsizing its fuel storage capacities;
- *Open Reservoirs:* Irvine Lake and IRWD's other open reservoirs are used by fire authorities to draw water for fighting wildfires with fixed-wing and rotorcraft air attacks. Local firefighters and emergency response teams also use our reservoirs to practice these maneuvers.



RECYCLED WATER



IRWD IS A NATIONAL LEADER IN RECYCLED WATER

Recycled water helps meet our community's water needs

RECYCLED WATER COMES FROM



Dishwashers



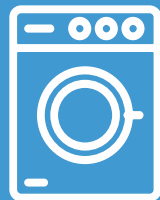
Showers & bathtubs



Sinks



Toilets



Washing machines

AND IS USED FOR



Landscape irrigation



Cooling office buildings



Flushing toilets



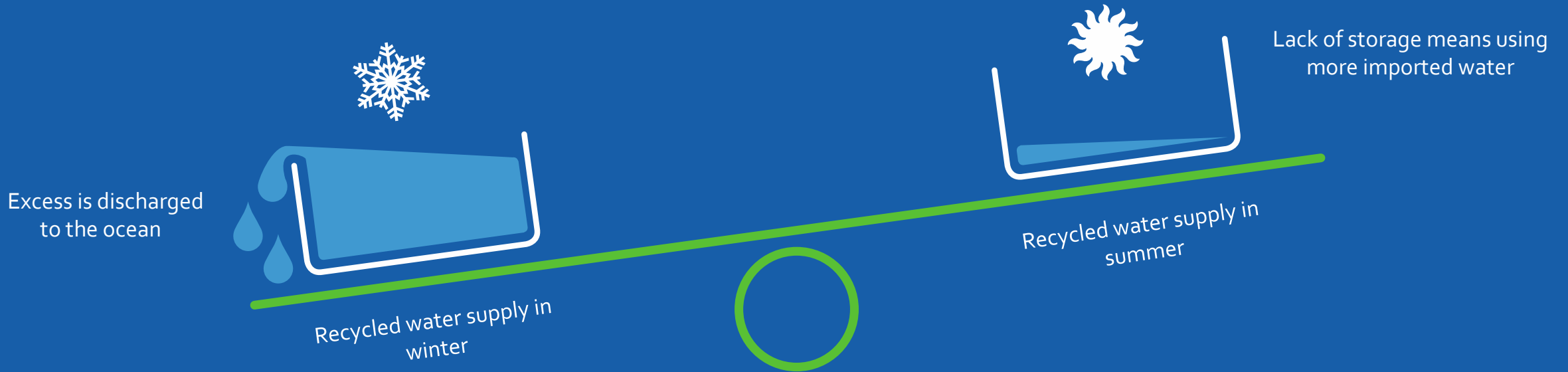
Concrete mixing, manufacturing, industrial use



Fighting wildfires

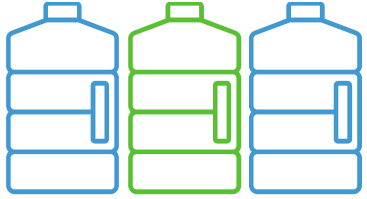
THE WATER BALANCE

More storage is needed so IRWD can capture all the recycled water we make.





SYPHON RESERVOIR IMPROVEMENT PROJECT



Prepares us for the future by storing **more drought-proof water**



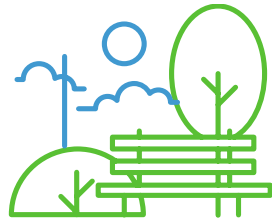
Enables IRWD to **use nearly 100%** of the recycled water it produces



Provides water to **fight wildfires** throughout the region



Saves IRWD \$85 million over 50 years and **preserves low customer rates**



Keeps parks, medians, athletic fields, public landscaping, golf courses **green and beautiful**



DOING THINGS DIFFERENTLY

- District-wide recycled water system;
- IRWD rate structure;
- Watershed protection;
- Water banking in Kern County;
- First-priority Colorado River rights;
- Water treatment on a regional basis;
- Biosolids drying and energy recovery;
- Renewable energy and battery-storage facilities;
- Financial prep for replacements;
- Real estate investment;
- Policy leadership and advocacy;
- Capital Asset Management; and
- Developing Climate Action Plan and updating IRWD's Embedded Energy and Greenhouse Gas Master Plan

