

This presentation premiered at WaterSmart Innovations

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THE VALUE OF WATER EFFICIENCY IN CALIFORNIA'S URBAN WATER CYCLE

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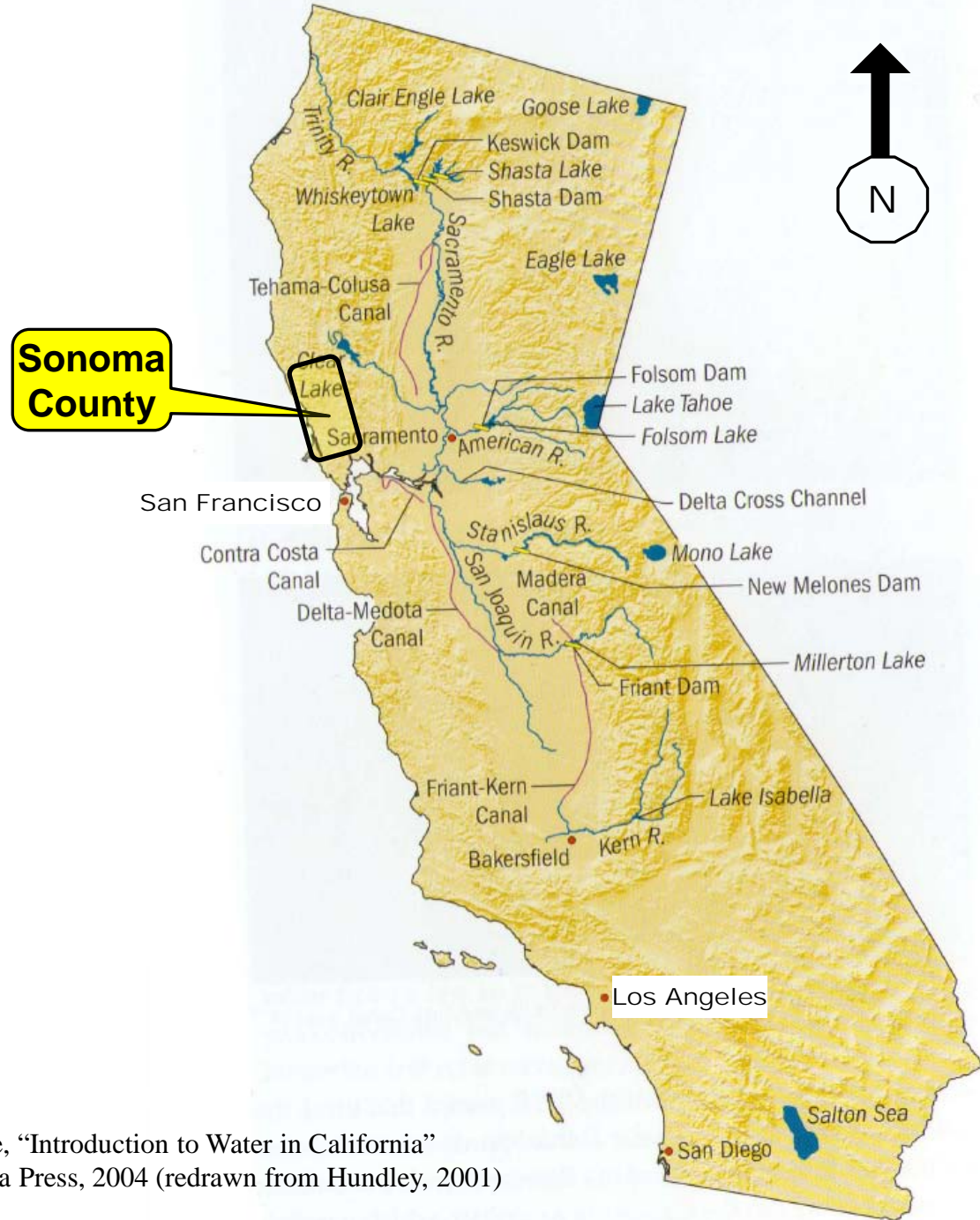
OUTLINE

WATER EFFICIENCY:

- ✓ reduces demand
- ✓ reduces GHG emissions
- ✓ reduces costs

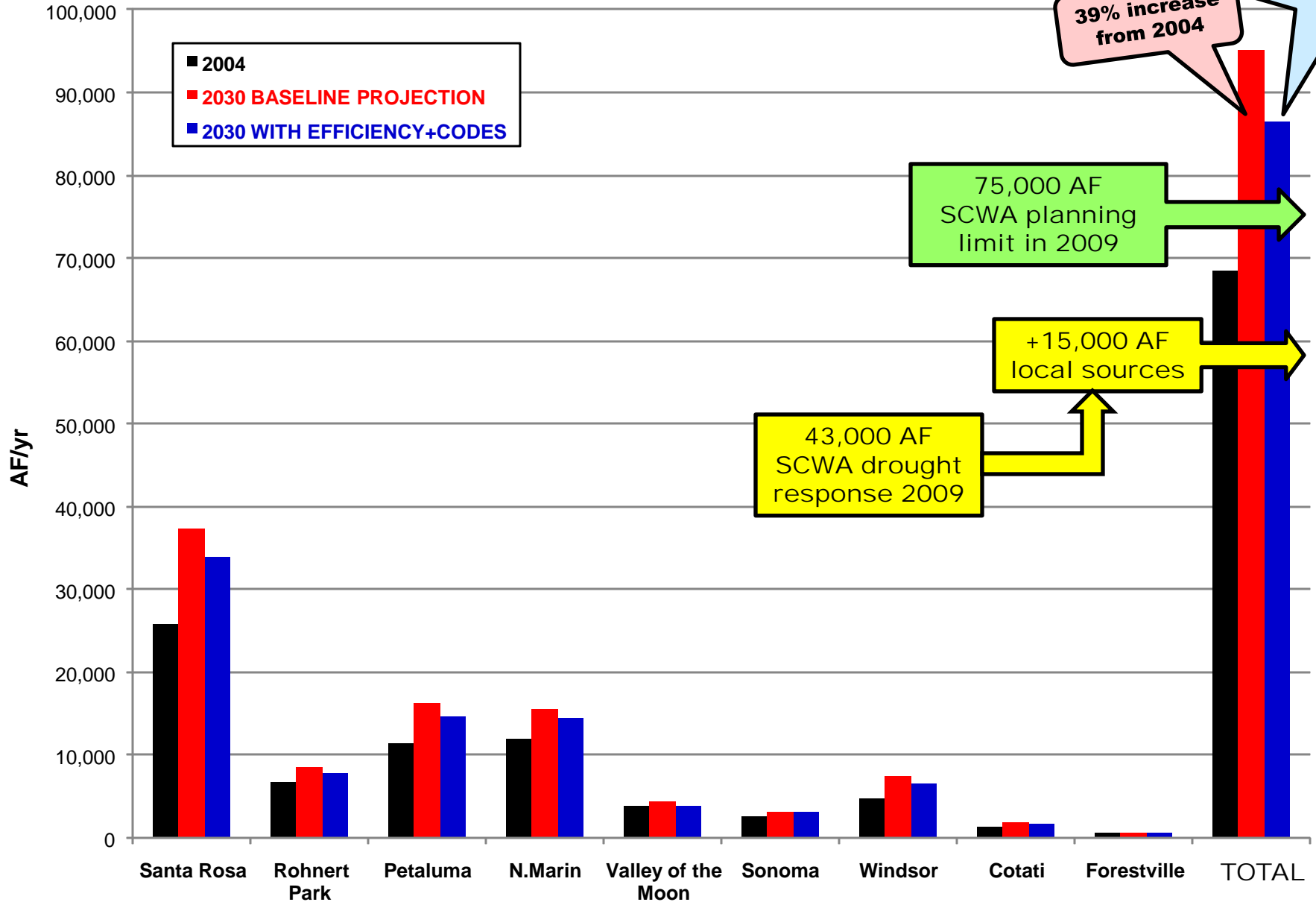
WATER SUPPLY PLANNING,
SONOMA COUNTY
WATER AGENCY
(SCWA)

CALIFORNIA

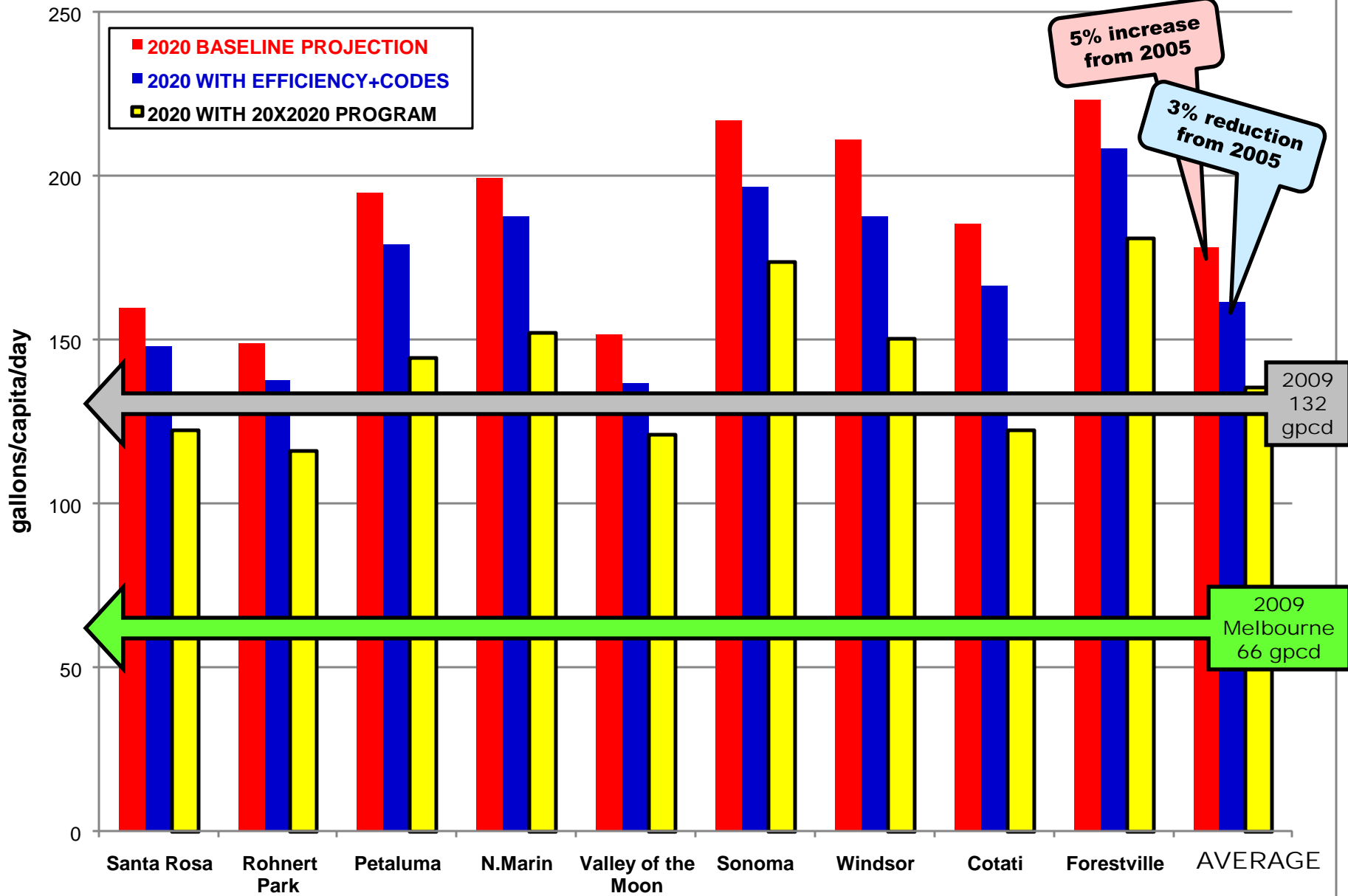


SOURCE: David Carle, "Introduction to Water in California"
University of California Press, 2004 (redrawn from Hundley, 2001)

SCWA CONTRACTOR DEMANDS PROJECTED FOR 2030

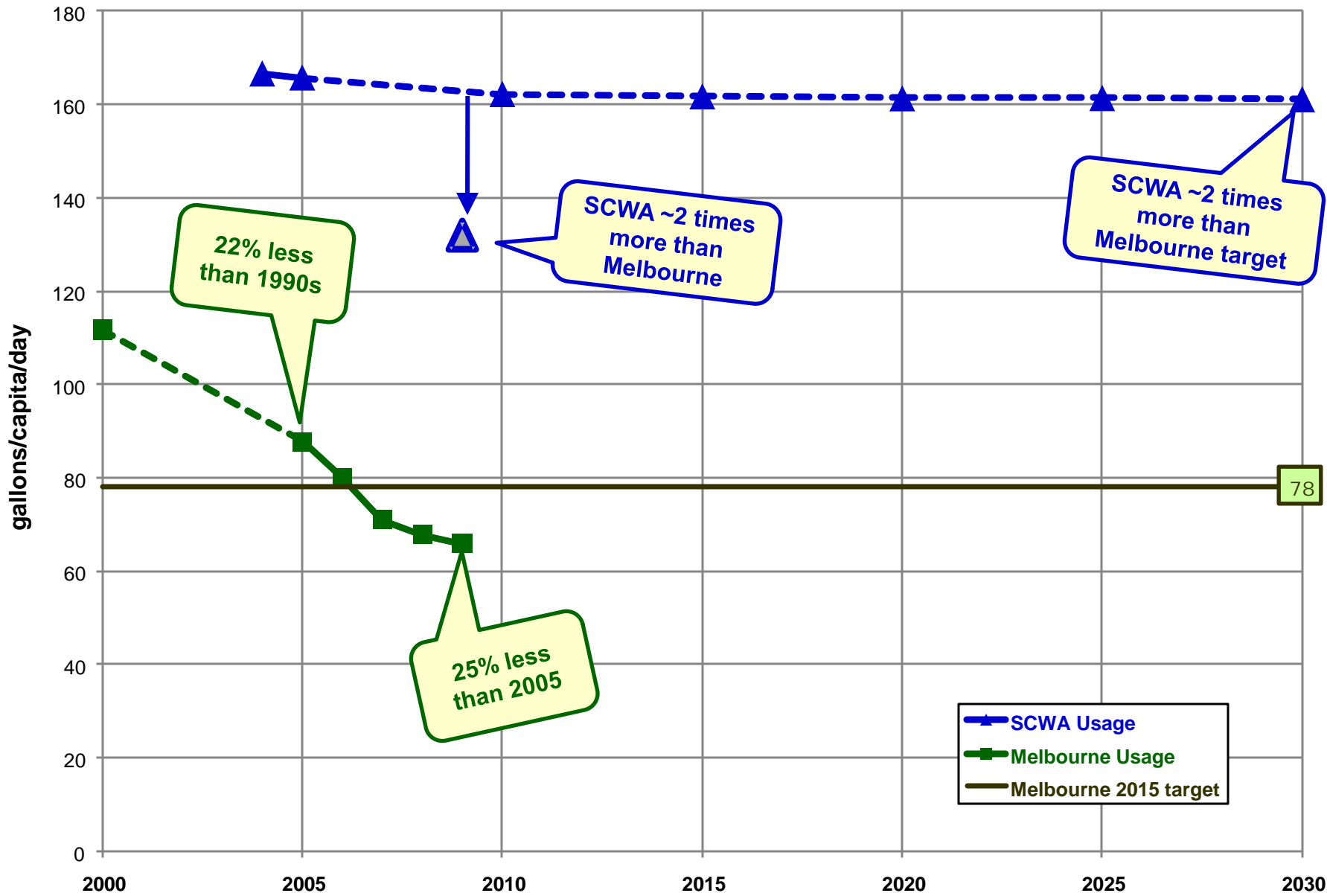


SCWA DAILY WATER USE PER CAPITA IN 2020



WATER EFFICIENCY POTENTIAL FOR SCWA

COMPARISON OF UNIT URBAN WATER USE: SCWA vs MELBOURNE



COMBINING CUSTOMERS' WATER/ENERGY EFFICIENCY

HIGH-PERFORMANCE EFFICIENCY:

97 gpcd

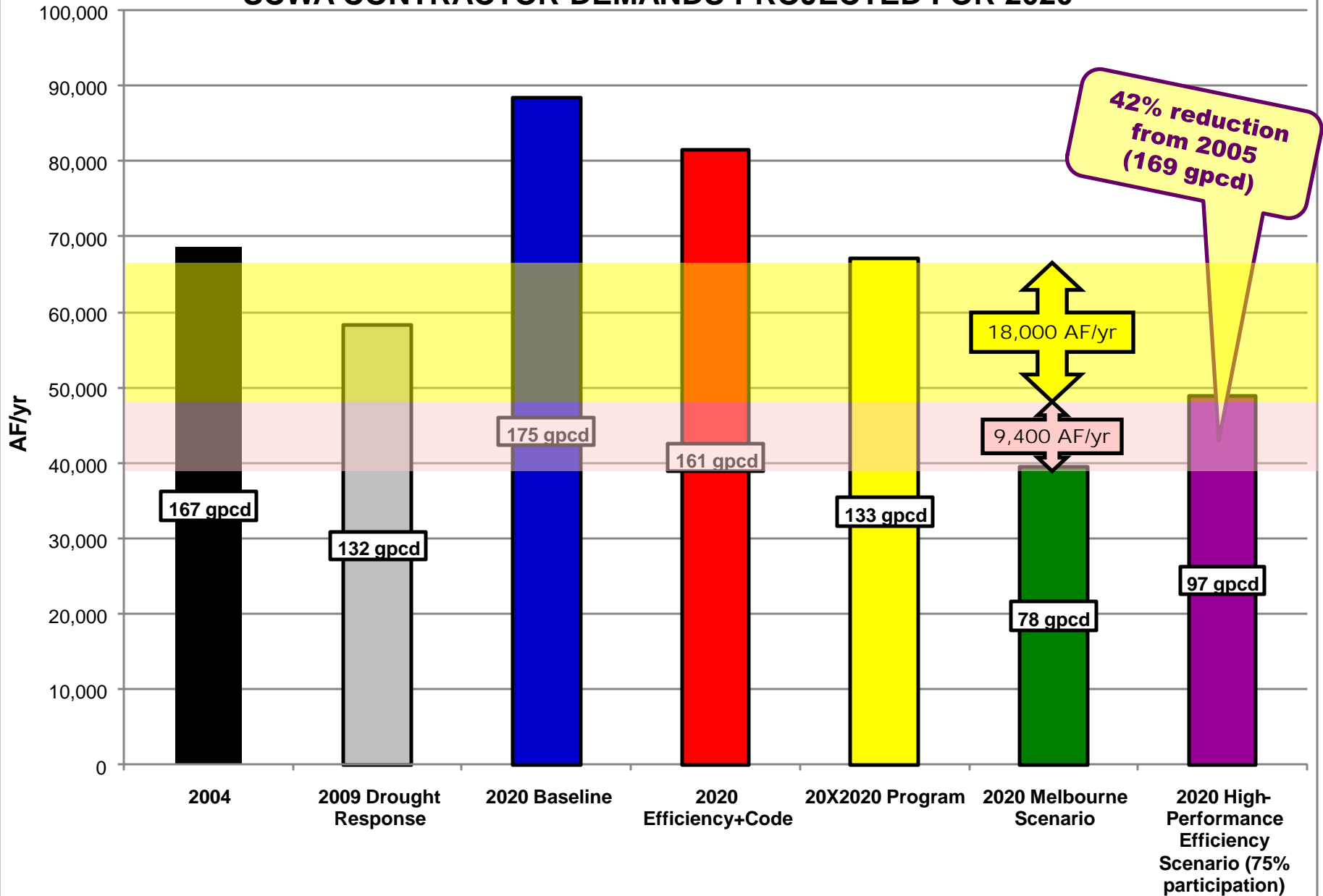
- Off-the-Shelf high-performance appliances (⇒ecovillagegreen.com)
- Smart irrigation controllers
- Up-front financing to increase participation to 75%

DOES NOT INCLUDE:

MELBOURNE
66 gpcd

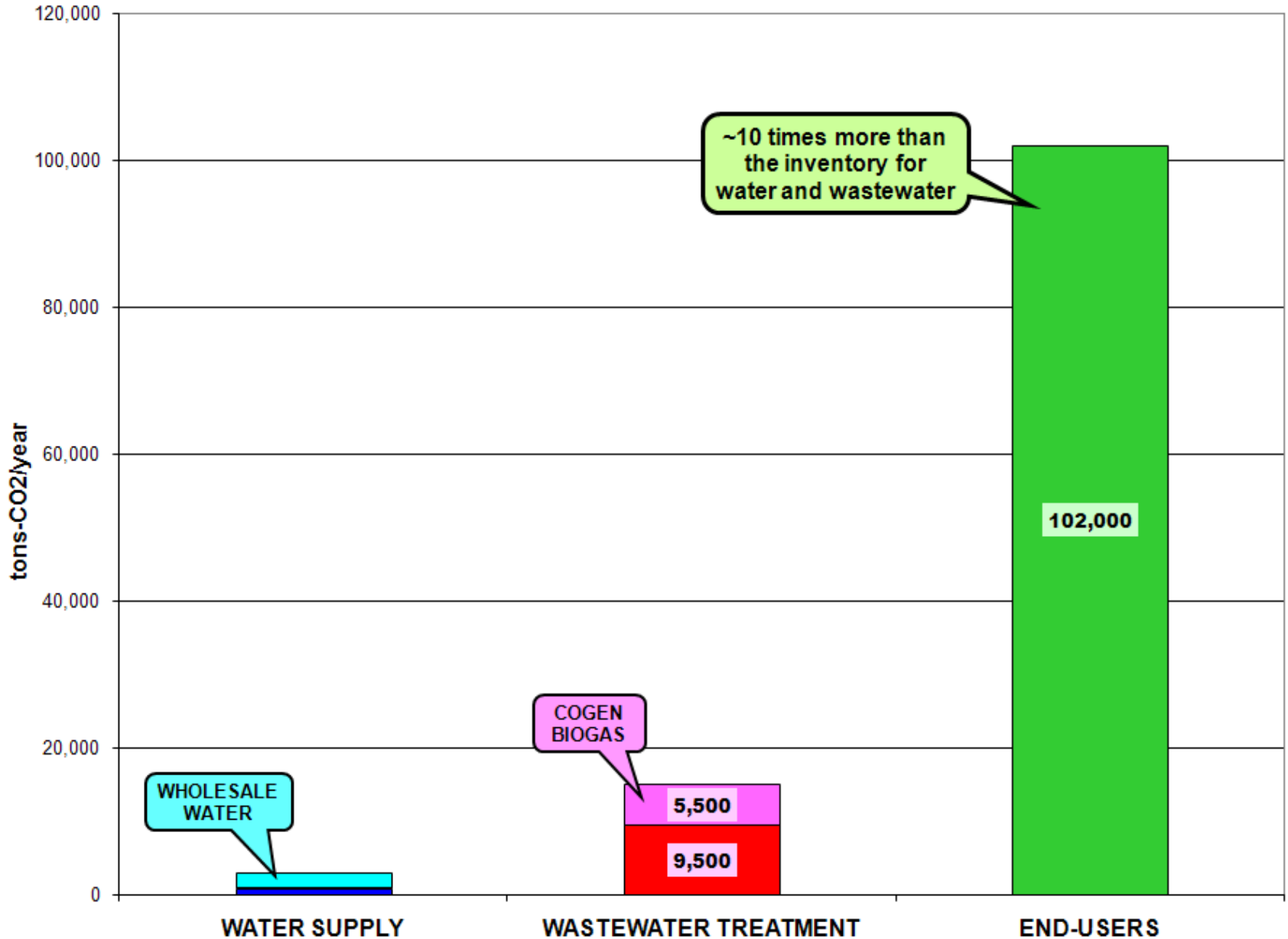
- Changes in behavior
- Restrictions & bans ⇒ *irrigation, car-washing, pool-filling*
- Landscape changes
- Sharply tiered rates
- Enforcement, penalties, lock-outs
- Efficiency financing to avoid infrastructure costs
- Tighter - mandatory - performance standards
- Residential plumbing for reclaimed wastewater

SCWA CONTRACTOR DEMANDS PROJECTED FOR 2020

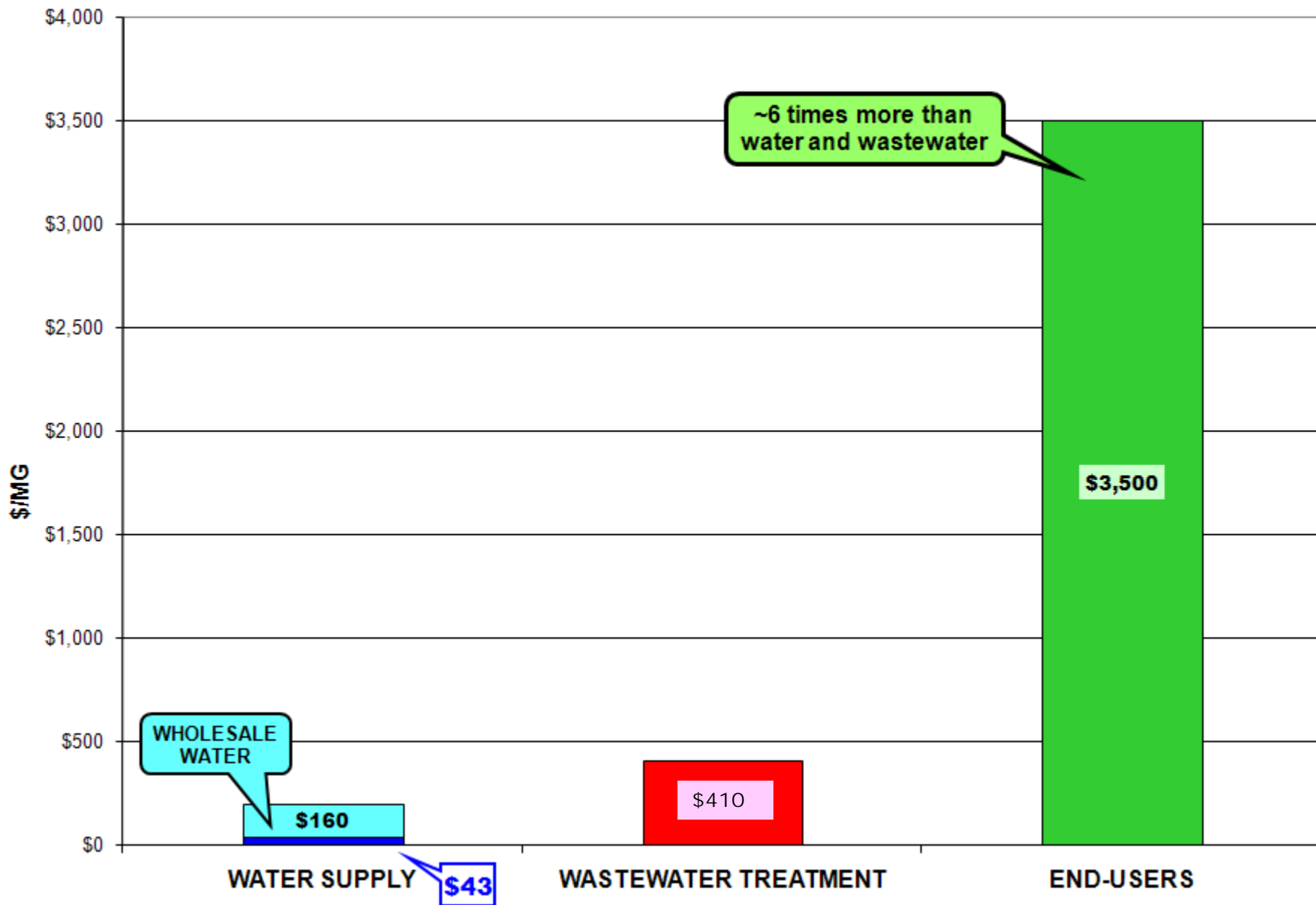


WATER EFFICIENCY
ALSO PROVIDES
CLIMATE BENEFITS

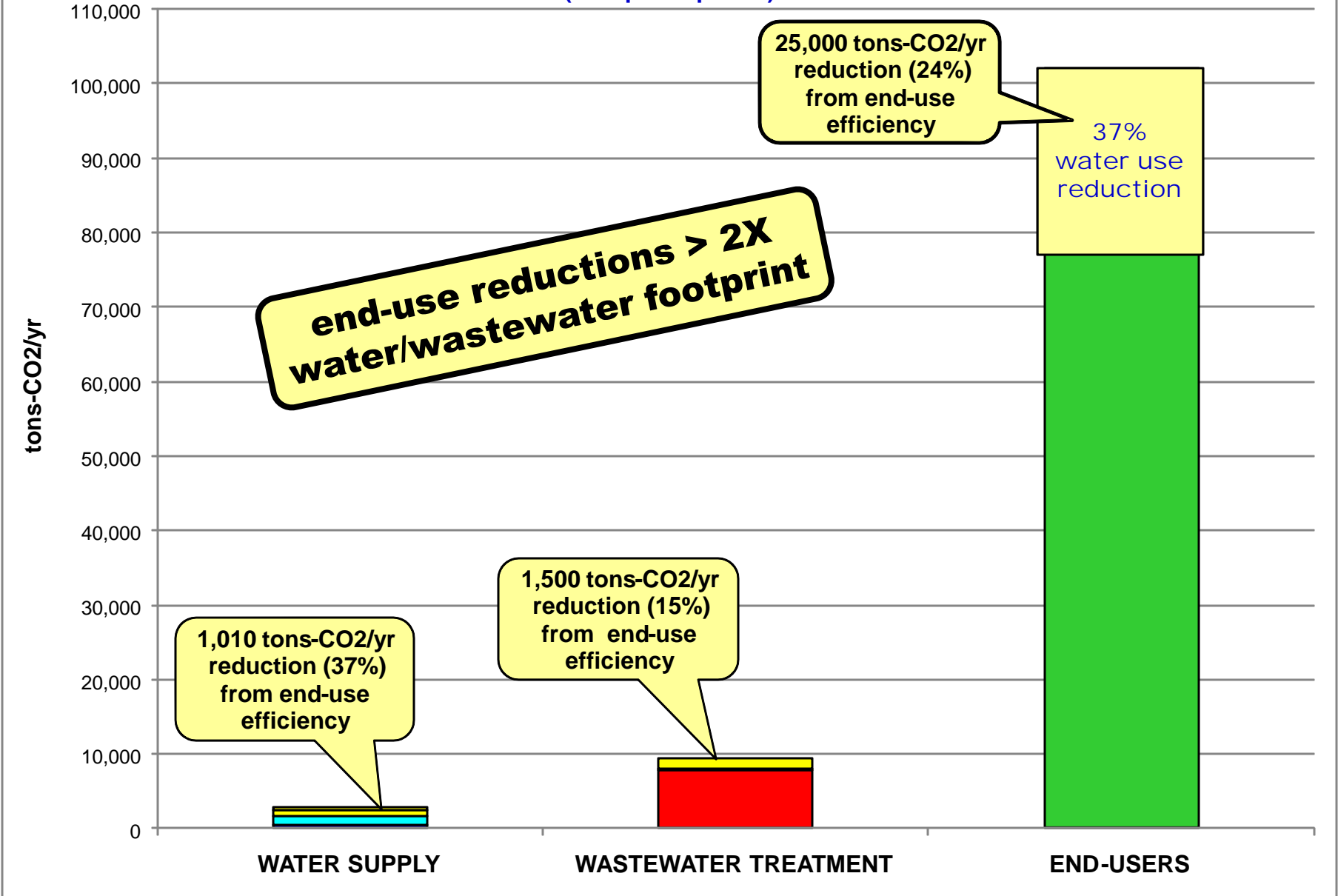
2005 GHG Emissions from Santa Rosa's Urban Water Cycle



2005 Water-Related Unit Energy Costs for Santa Rosa's Urban Water Cycle



SANTA ROSA 2005 GHG REDUCTIONS FROM WATER EFFICIENCY (75% participation)



**end-use reductions > 2X
water/wastewater footprint**

1,010 tons-CO2/yr
reduction (37%)
from end-use
efficiency

1,500 tons-CO2/yr
reduction (15%)
from end-use
efficiency

25,000 tons-CO2/yr
reduction (24%)
from end-use
efficiency

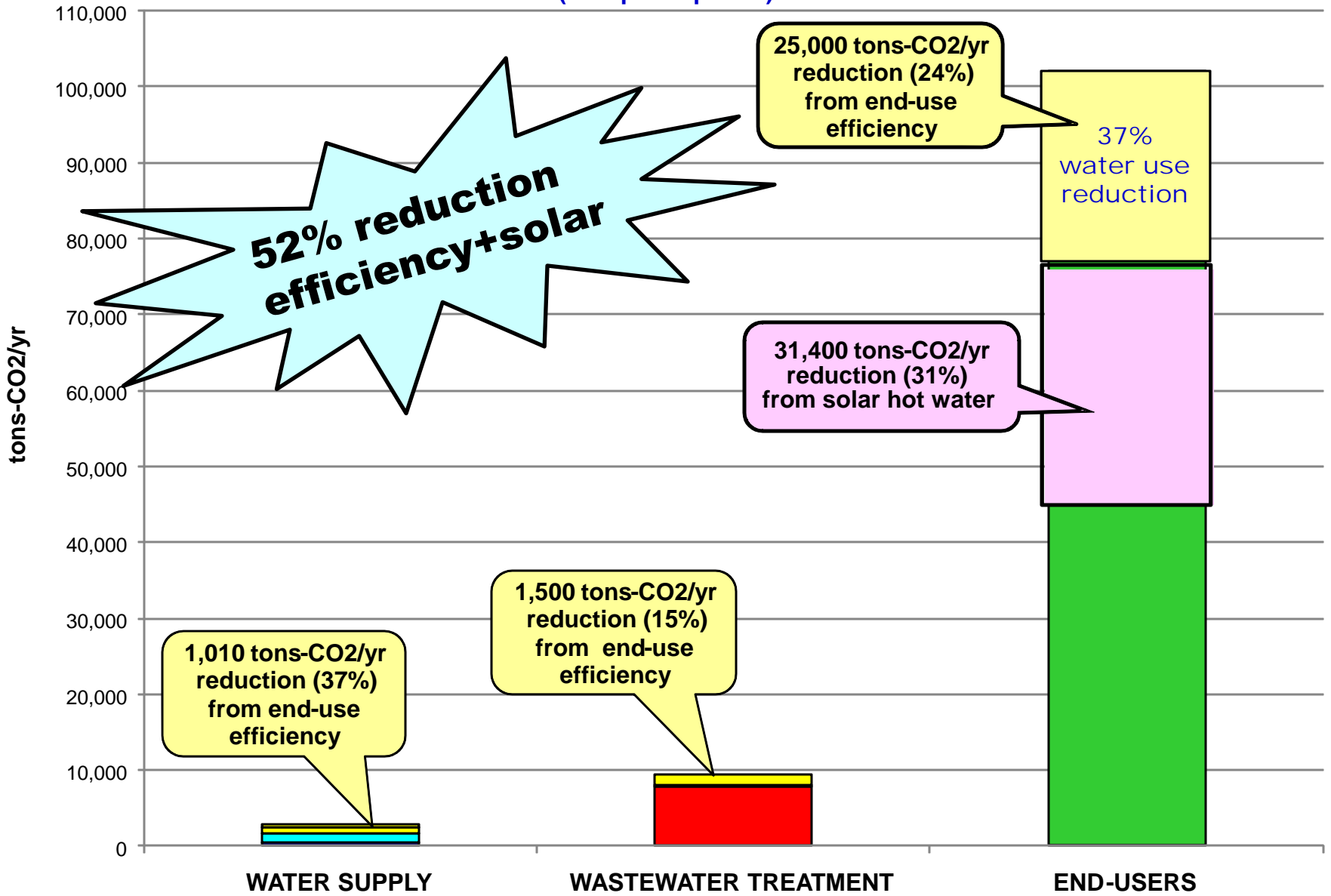
37%
water use
reduction

WATER SUPPLY

WASTEWATER TREATMENT

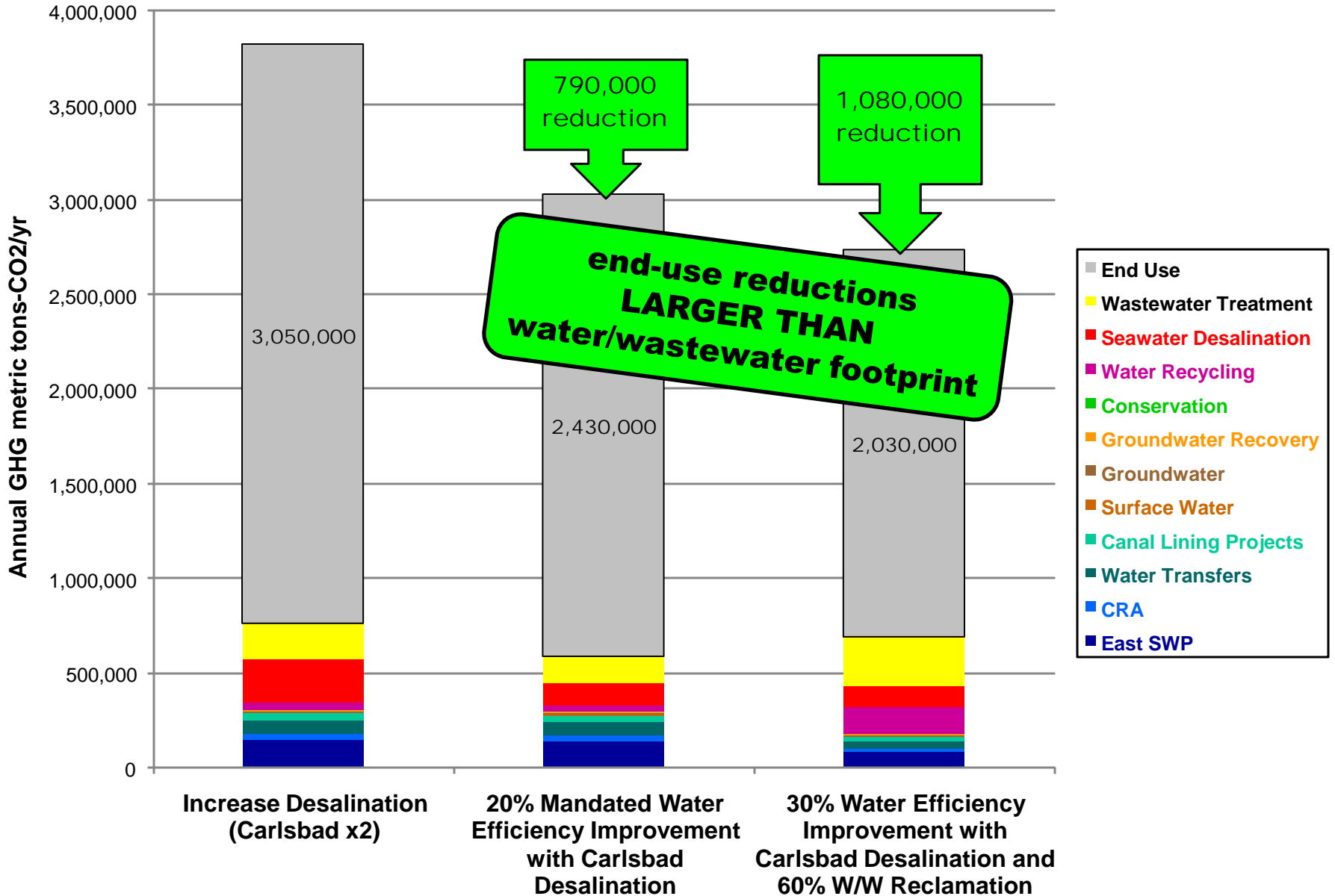
END-USERS

SANTA ROSA 2005 GHG REDUCTIONS FROM WATER EFFICIENCY (75% participation)



NOT ONLY SCWA... ALSO
SAN DIEGO COUNTY

2020 GHG EMISSIONS FOR OPTIONS TO RESOLVE IMPORT DEFICITS



INTEGRATED PLANNING OUTLINE

CAPACITY INCREASES COSTS

~\$2-3 BILLION

infrastructure planned for SCWA+retailers

water: \$1.5-1.6 billion

wastewater: \$0.7-1.4 billion

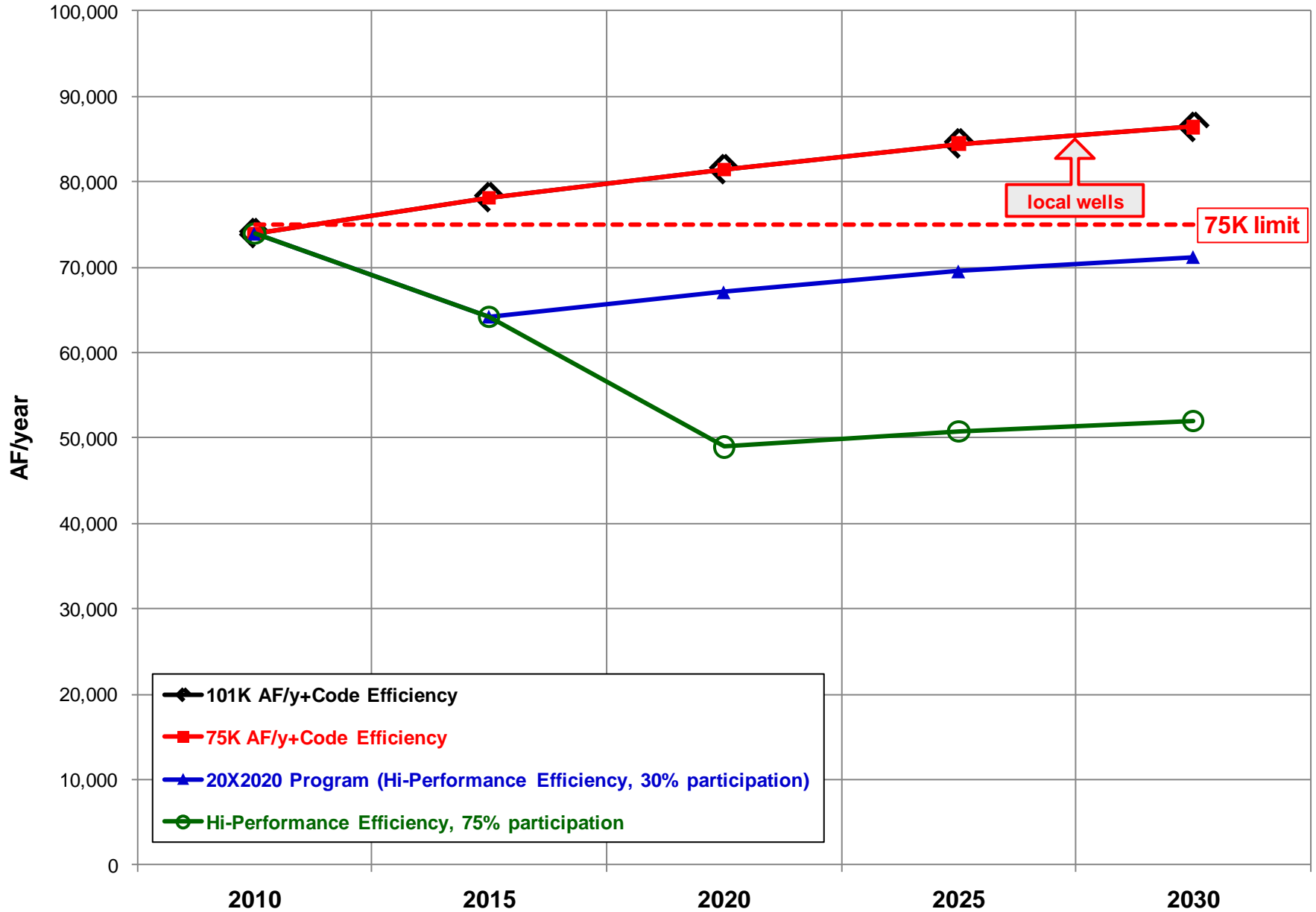
... LIKELY MUCH MORE ...

EFFICIENCY LOWERS COSTS

PLANNING OPTIONS

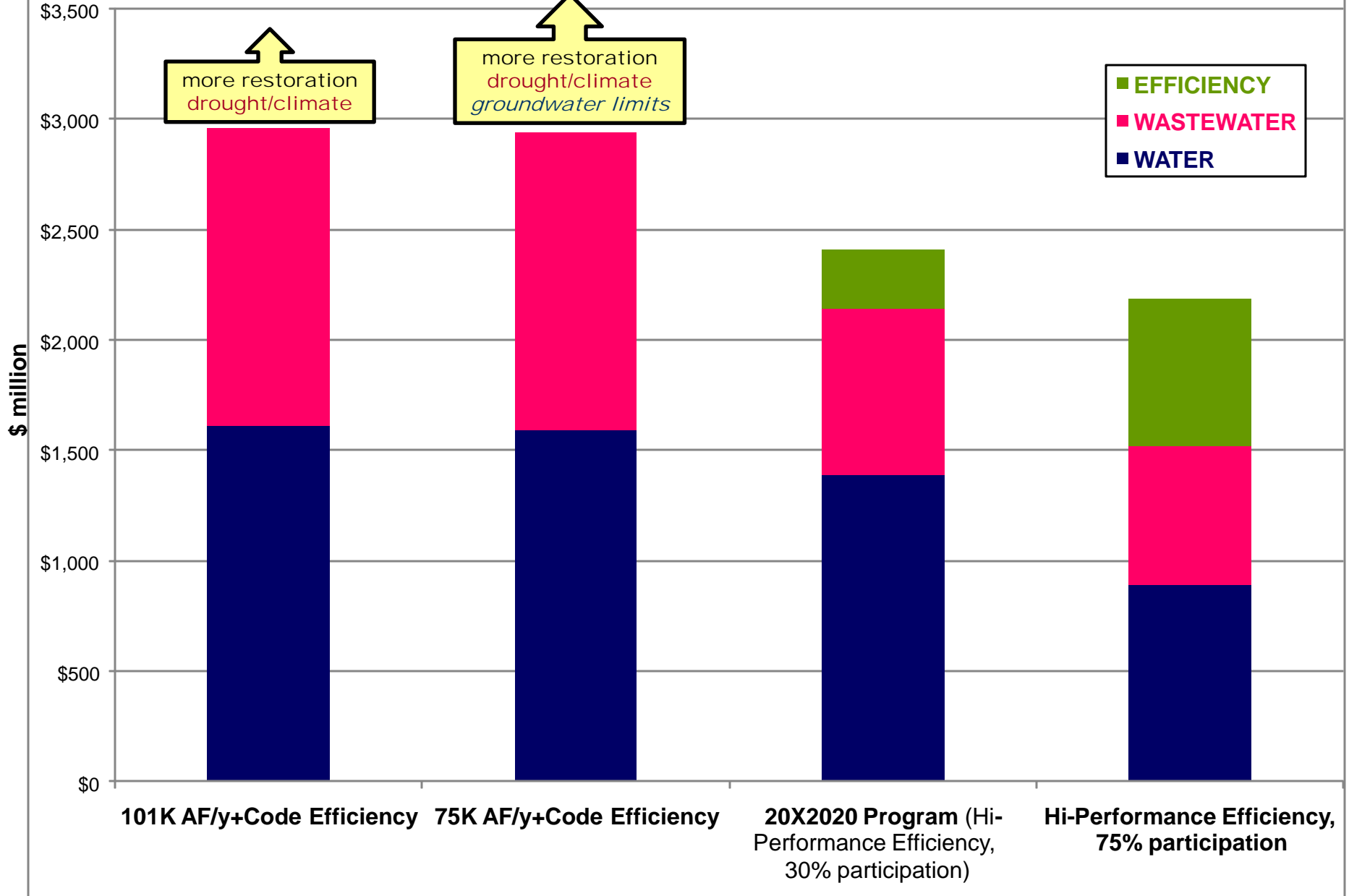
- 101K AF/yr+code efficiency original baseline plan.
- 75K AF/yr+code efficiency diversions reduced \Rightarrow more wells; base demand.
- 20X2020 Program high performance efficiency at 30% of end users.
- Hi-Performance Efficiency+75% participation high performance efficiency at 75% of end users.

TOTAL WATER DEMAND

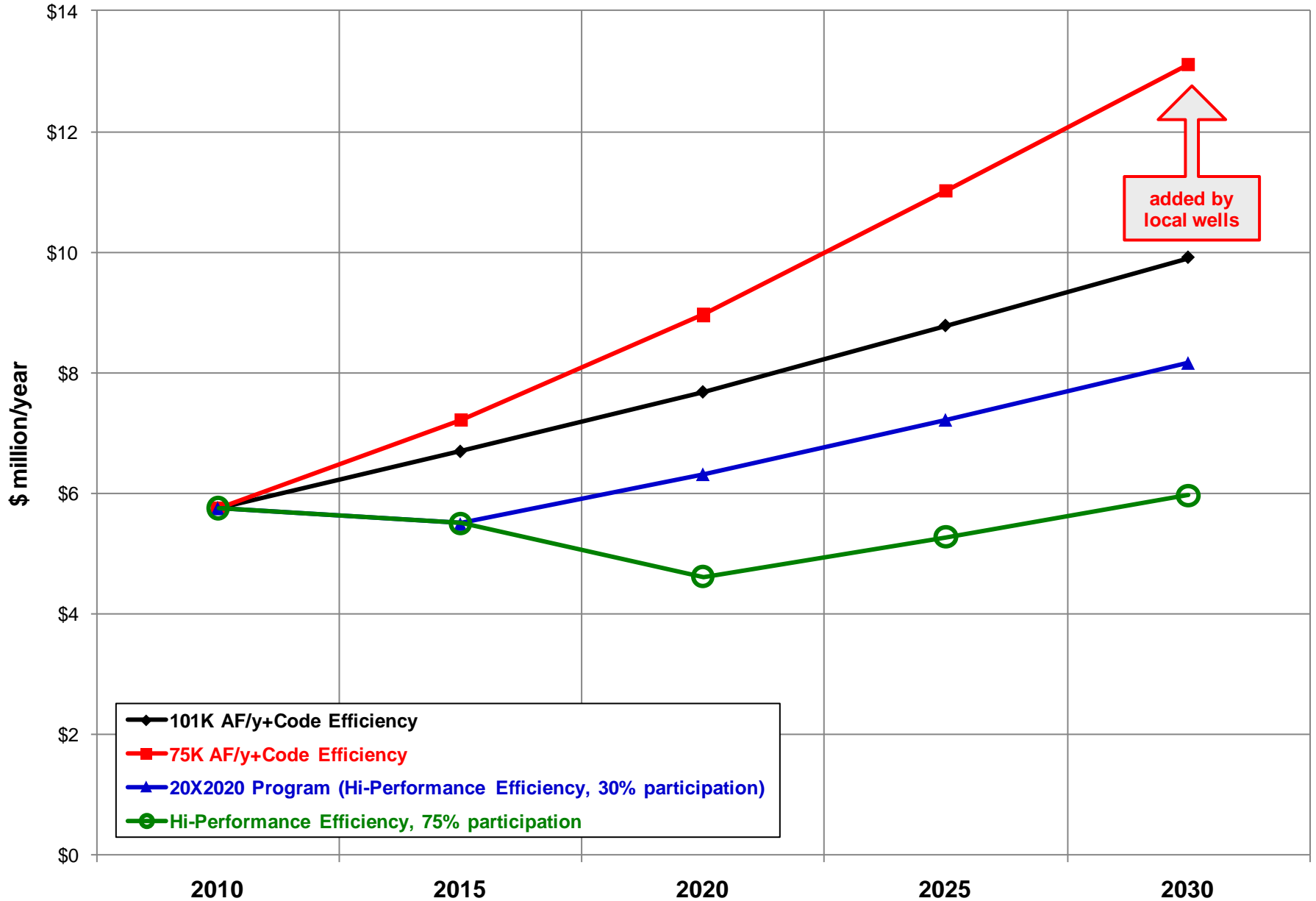


- ◆ 101K AF/y+Code Efficiency
- 75K AF/y+Code Efficiency
- ▲ 20X2020 Program (Hi-Performance Efficiency, 30% participation)
- Hi-Performance Efficiency, 75% participation

MAX CAPITAL IMPROVEMENT REQUIREMENTS FOR SCWA+CONTRACTORS

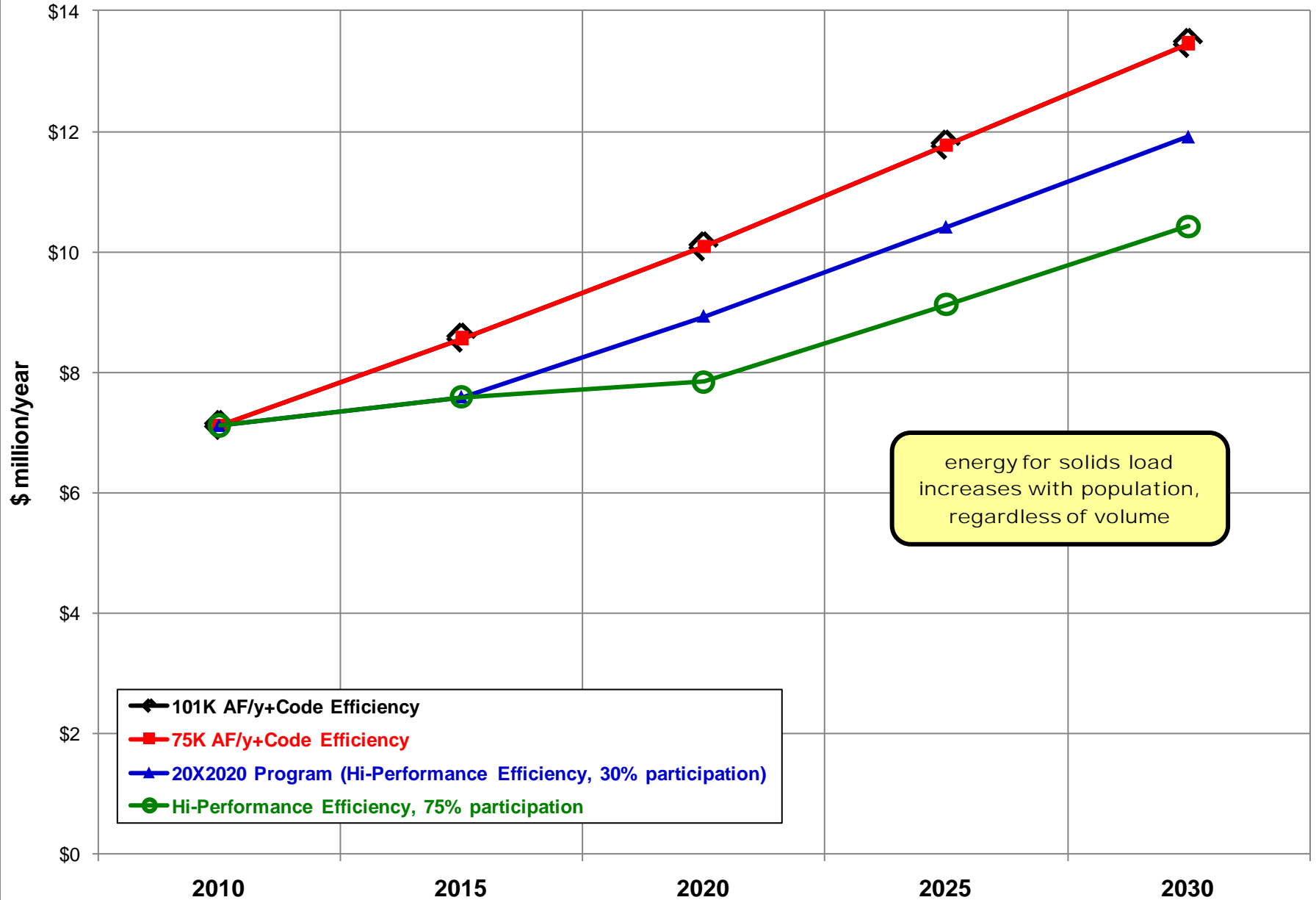


WATER SUPPLY ENERGY COSTS

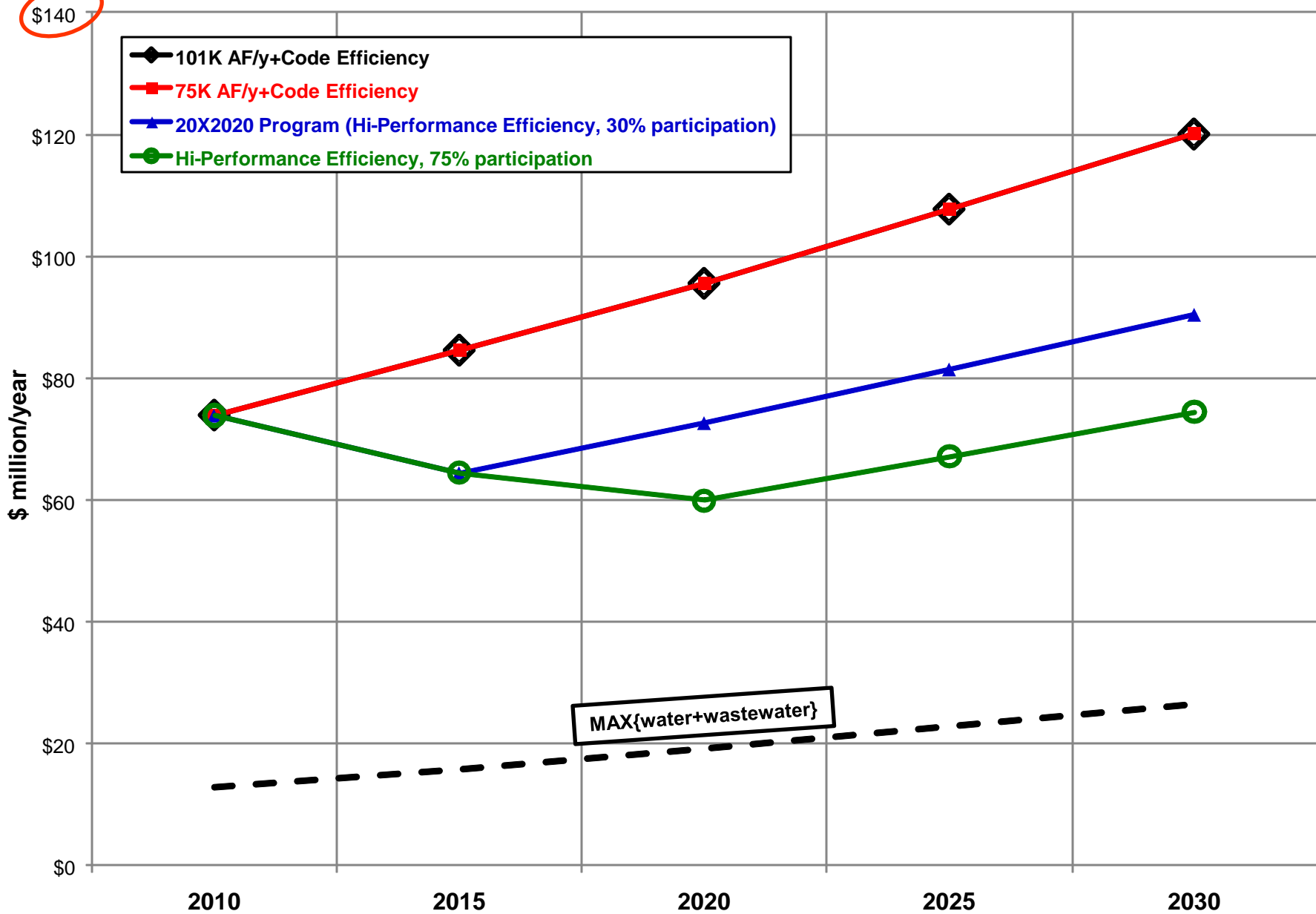


added by
local wells

WASTEWATER SYSTEM ENERGY COSTS



END-USE WATER-RELATED ENERGY COSTS



\$140

- 101K AF/y+Code Efficiency
- 75K AF/y+Code Efficiency
- 20X2020 Program (Hi-Performance Efficiency, 30% participation)
- Hi-Performance Efficiency, 75% participation

MAX{water+wastewater}

2010

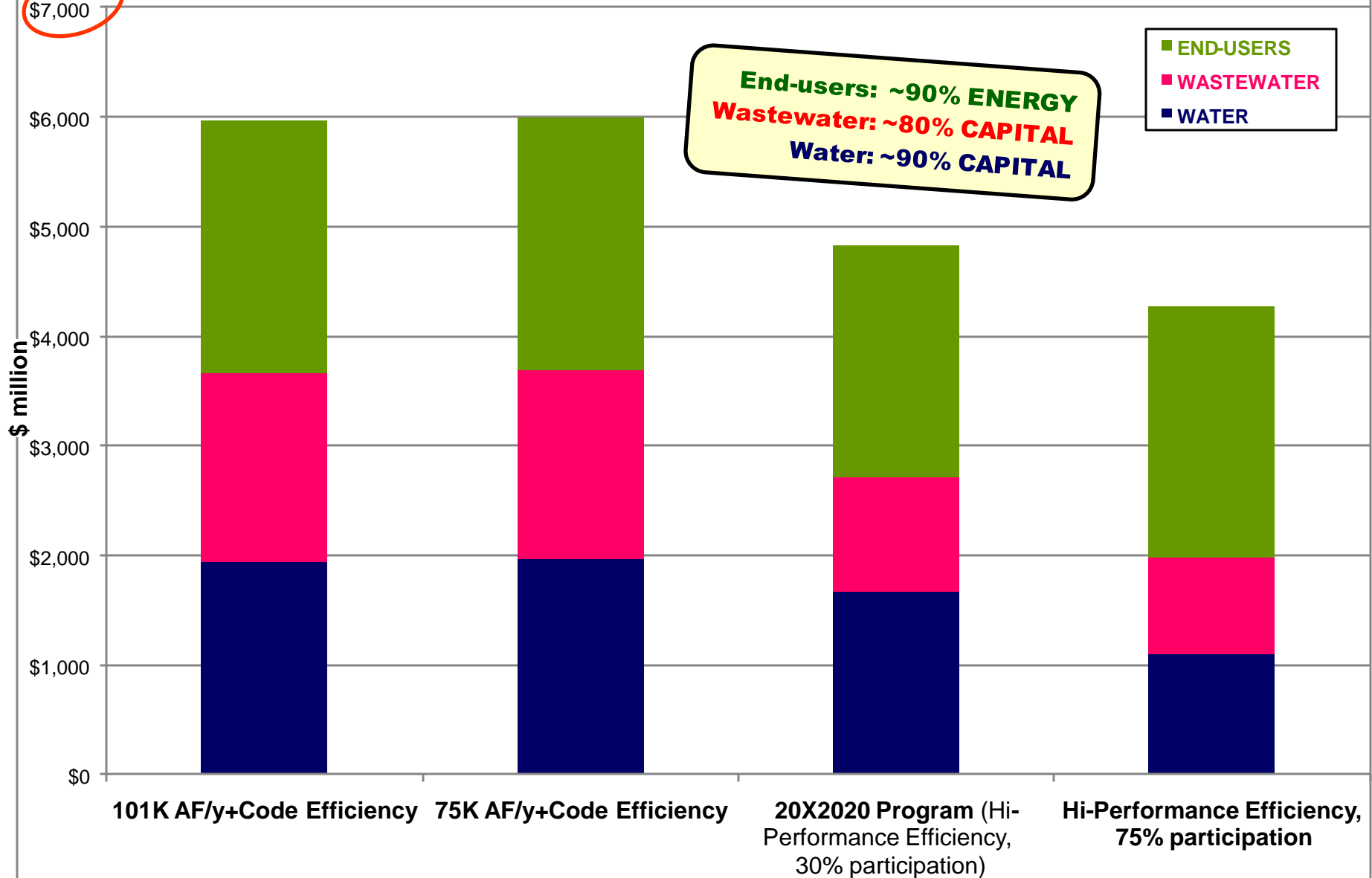
2015

2020

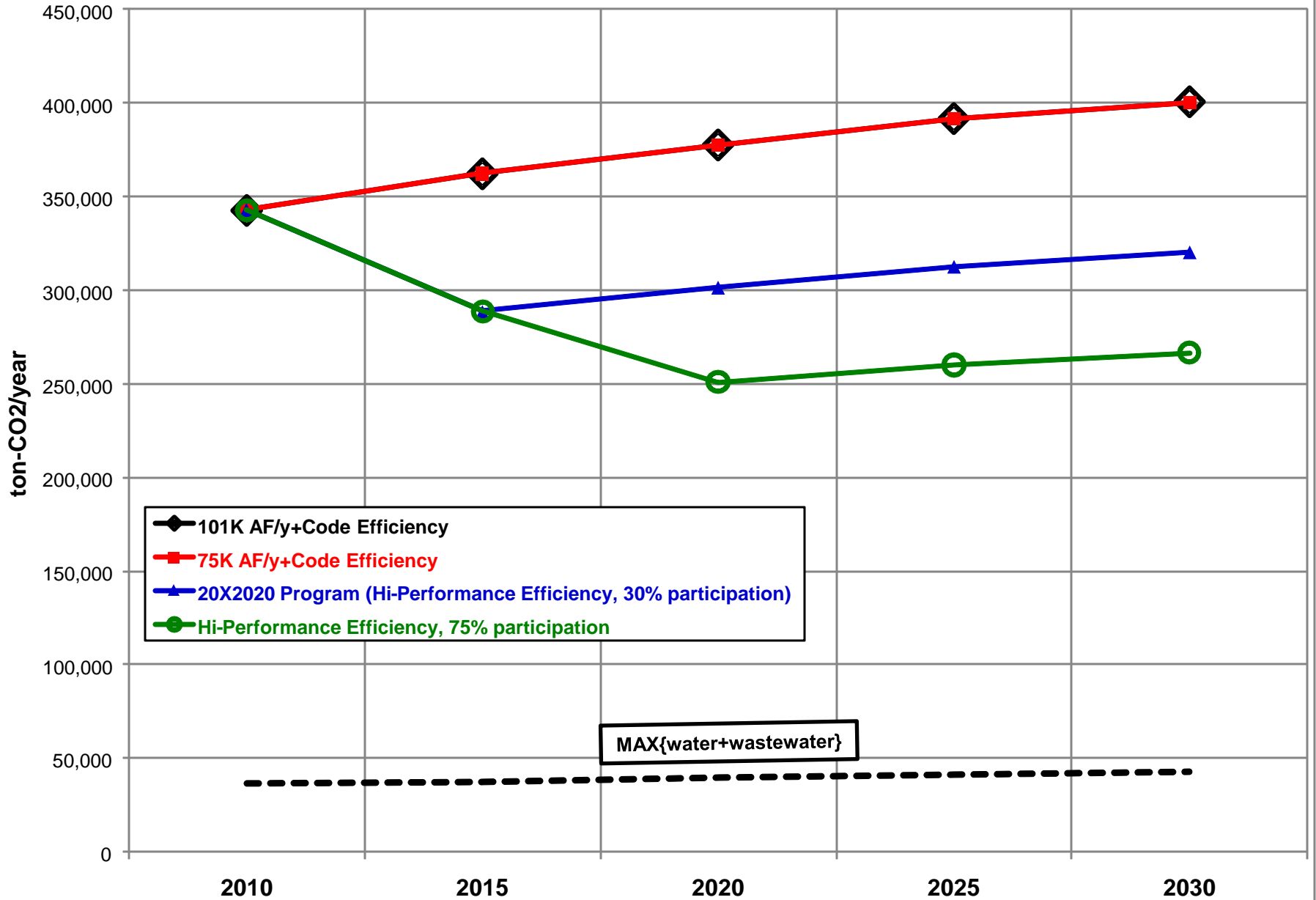
2025

2030

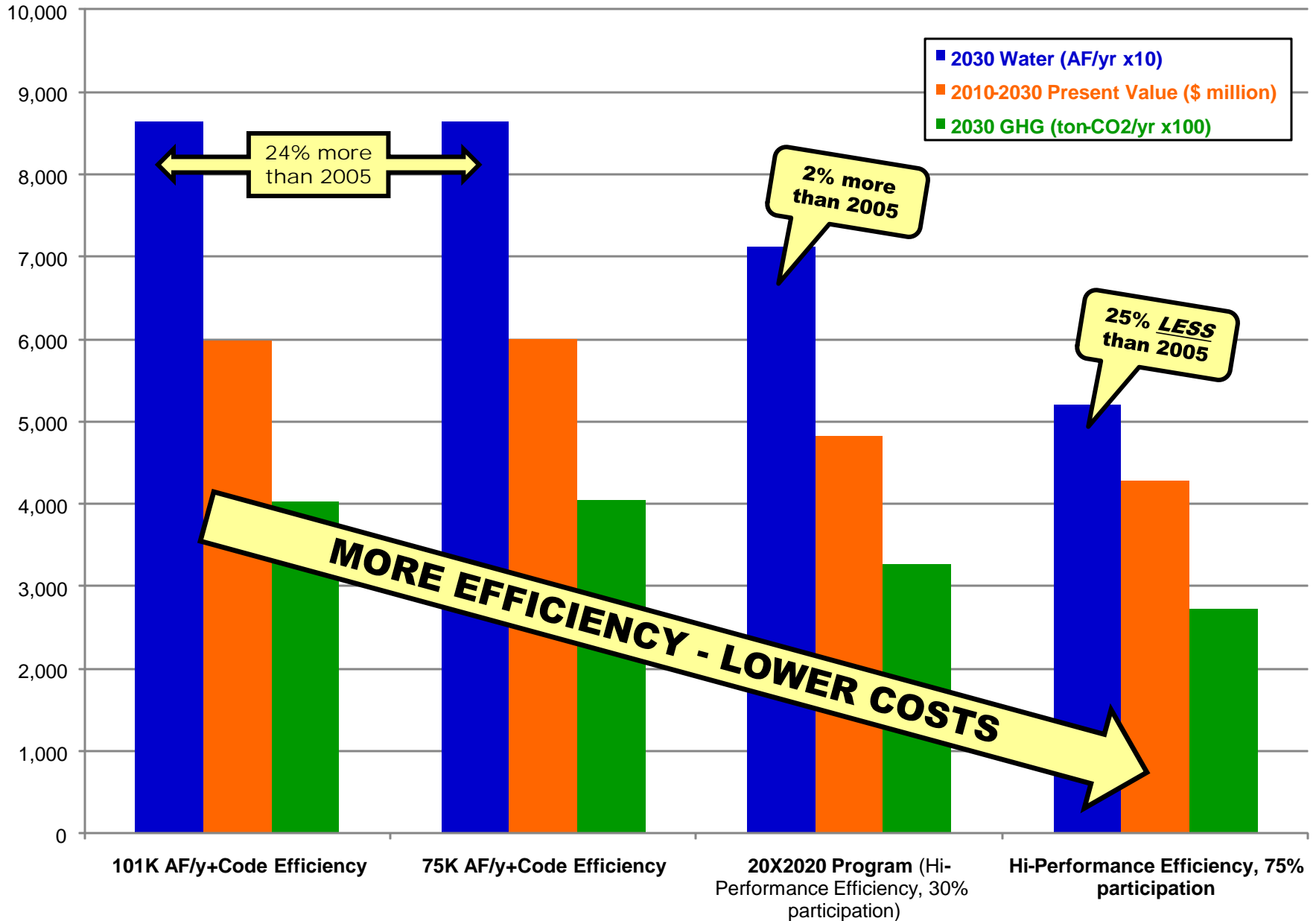
2010-2030 PRESENT VALUE - URBAN WATER CYCLE



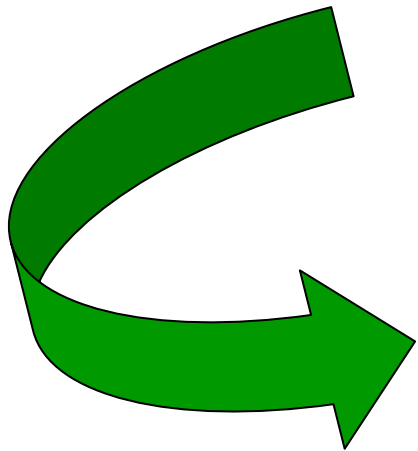
END-USE WATER-RELATED GHG EMISSIONS



2010-2030 PRESENT VALUE, 2030 WATER USE AND 2030 GHG EMISSIONS



END-USE EFFICIENCY
IS ESSENTIAL FOR MEETING
WATER SUPPLY DEFICITS
CLIMATE TARGETS



and probably very cost-effective!

2010-2030 PRESENT VALUE, 2030 WATER USE AND 2030 GHG EMISSIONS

