

This presentation premiered at WaterSmart Innovations

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SNWA Smart Irrigation Controller Coupon

Program Water Savings & *Risks*

Water Smart Innovations 2018

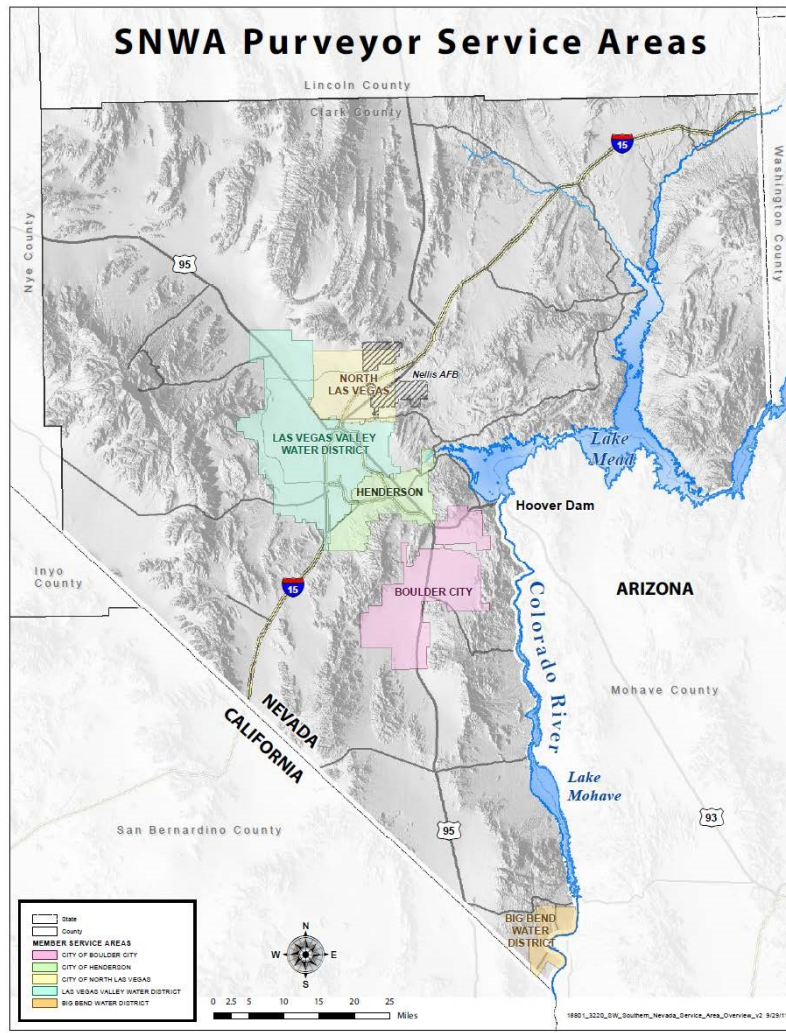
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Kent Sovocool



SOUTHERN NEVADA WATER AUTHORITY®



Southern Nevada Water Authority (SNWA)



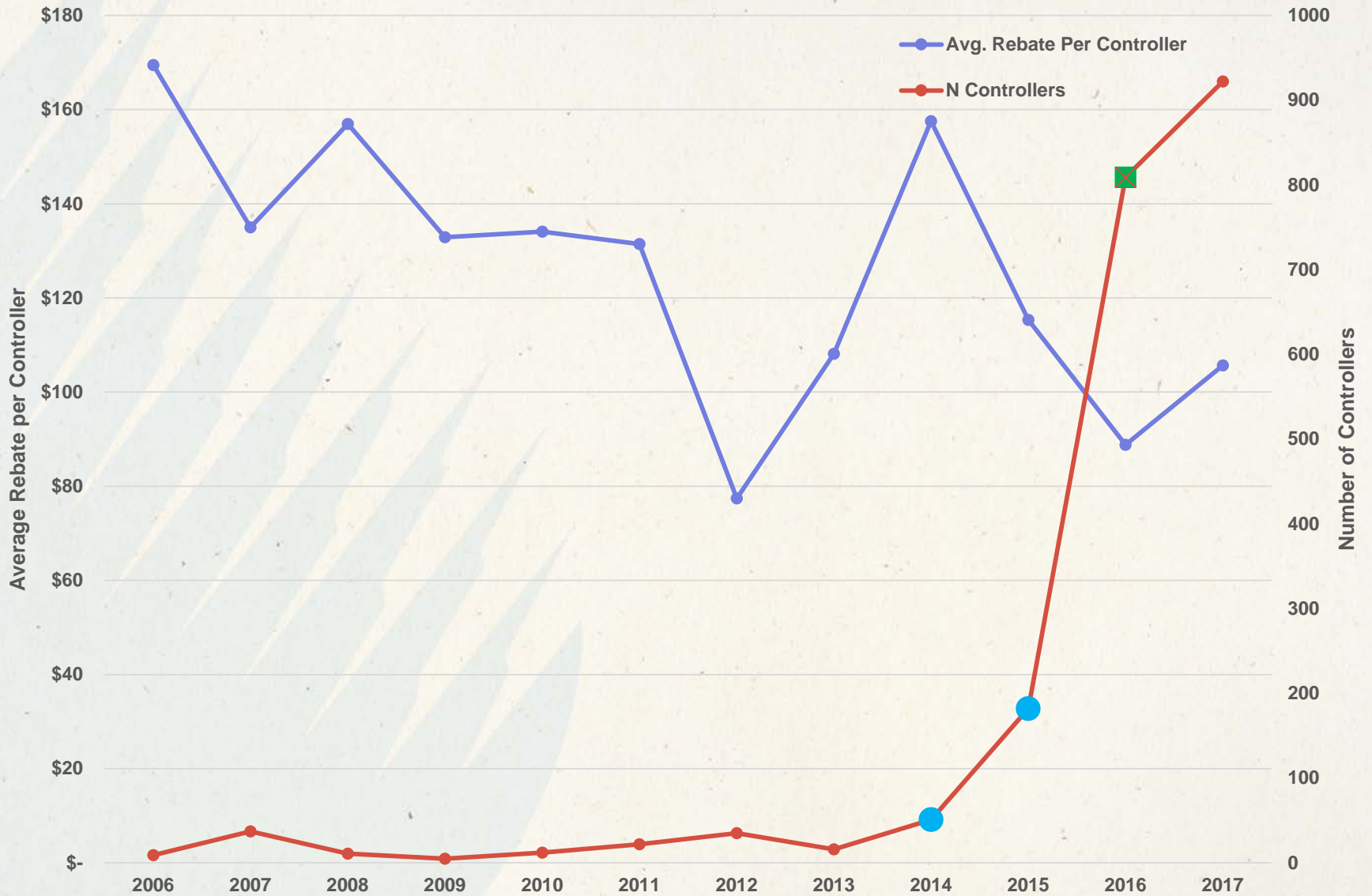
Member Agencies

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Reclamation District
- Las Vegas Valley Water District

Smart Irrigation Controller Coupon Program (SIC)

- 50 percent off the purchase price or up to \$100
- Qualified product list from 25 manufacturers
- Five retailers and five water smart contractors authorized to accept coupons
- Participants apply online, must submit a survey & consent to a mandatory site inspection by SNWA staff.
- One coupon per property
- Only single family residential (SFR) customers evaluated here. We Also have another version for multi-family and commercial customers.

SIC Program Participation History



Selection Process – Two Sets For Analysis

- Started with all those who redeemed a coupon in 2014 to 2015 (Blue 1st Set).
- Another, larger set drawn from 2016 participants (Green 2nd Set.)
- Limited to Las Vegas Valley Water District (LVVWD) customers
- Eligible properties were screened for participation in other programs.
- Had complete monthly consumption records for the entire duration used for the analysis.
- Removed outliers from Green set where pre/post difference was more than two standard deviations off the mean (18 cases).
- For those who redeemed in 2014 there are three years of average pre / post annual consumption for analysis (N = 23)
- For those redeemed in 2015 we have two years (N = 104)
- Only one year pre / post for those in 2016. (N = 513)

Savings Analysis Results – Blue Set

- Average Pre-coupon Annual Use: 245,100 gallons
- Average Post-coupon Annual Use: 230,561 gallons
- Difference: 14,539 gallons
- Percent Difference: 5.9%
- T-test Pre vs. Post: $p < .03$

Savings Analysis Results – Green Set (N = 513)

- Average Pre-coupon Annual Use: 164,657 gallons
- Average Post-coupon Annual Use: 156,804 gallons
- Difference: 7,853 gallons
- Percent Difference: 4.8%
- T-test Pre vs. Post: $p < .01$

Savings Analysis Results – Both Sets Together (N = 640)

- Average Pre-coupon Annual Use: 180,620 gallons
- Average Post-coupon Annual Use: 171,440 gallons
- Difference: 9,180 gallons
- Percent Difference: 5.1%
- T-test Pre vs. Post: $p < .01$

Background Conservation Rate

- Control Group Selection Process – Blue Group Only
 - Queried LVVWD single family residential customers
 - Removed all that had participated in Water Smart Landscapes, Irrigation Clock Coupon, Pool Cover Coupon, or Rain Sensor Coupon programs
 - Required a one – to – one relationship between parcel and service
 - Required continual monthly use for the entire observed period of 2012 – 2017
- Matching Controls to Treatment
 - Tried to select four to five controls for each treatment based on matching construction year of home, lot size, and pre – coupon annual usage (99.9% match on average).
 - 126 treatment properties matched with 634 controls.

Treatment vs. Control Results

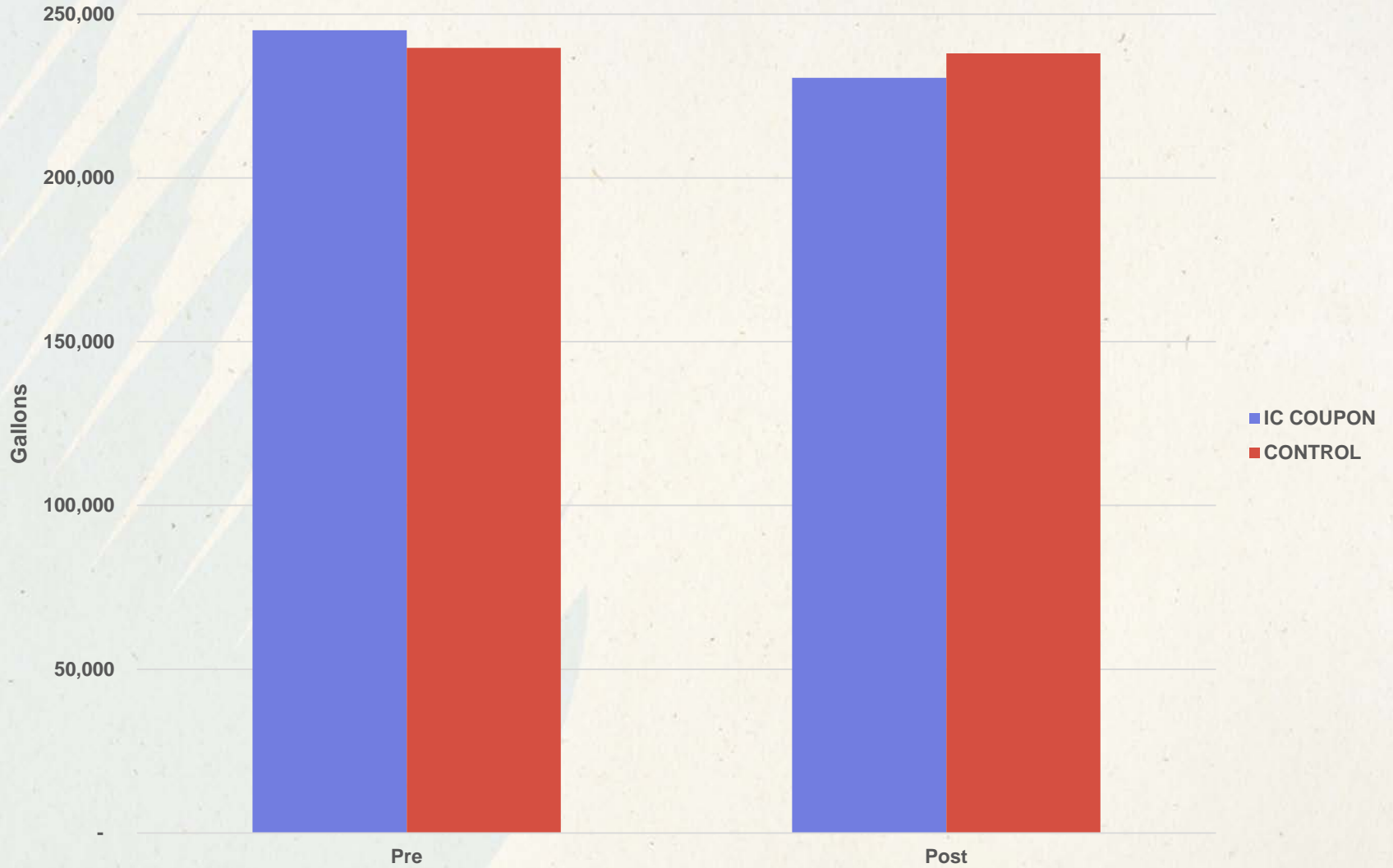
- Control pre-coupon average annual use: 239,702 gallons
- Control post-coupon average annual use: 238,068 gallons
- Difference: 1,634 gallons, .7%
- T-test treatment group vs. control pre-coupon annual use: $p > .41$
- T-test treatment group vs. control post-coupon annual use: $p > .62$

Conclusion:

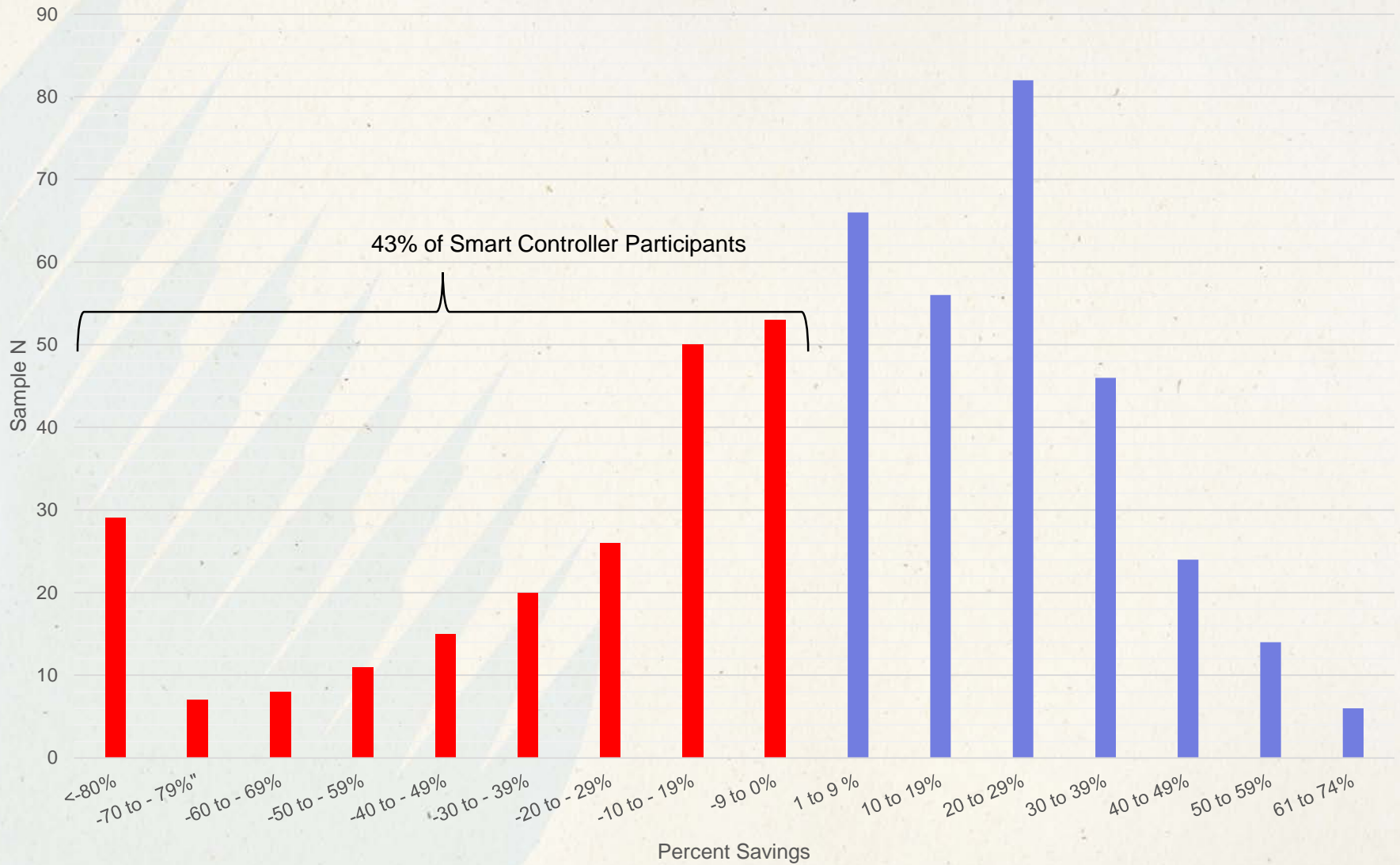
- Average annual program savings per household: between 8,000 to 13,000 gallons (about 5%).

Comparison Graph – Blue Set

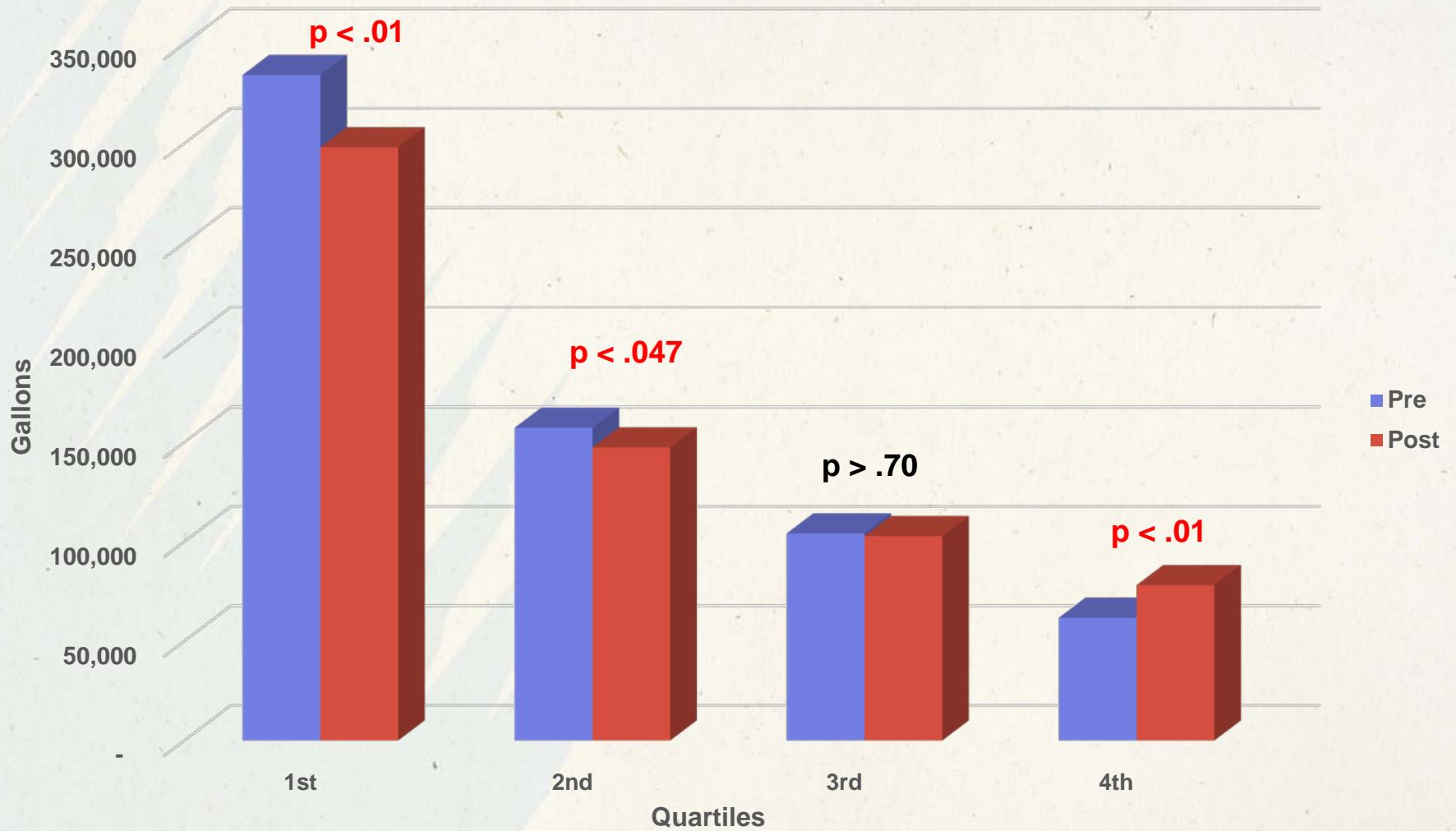
Pre-coupon vs. Post-coupon



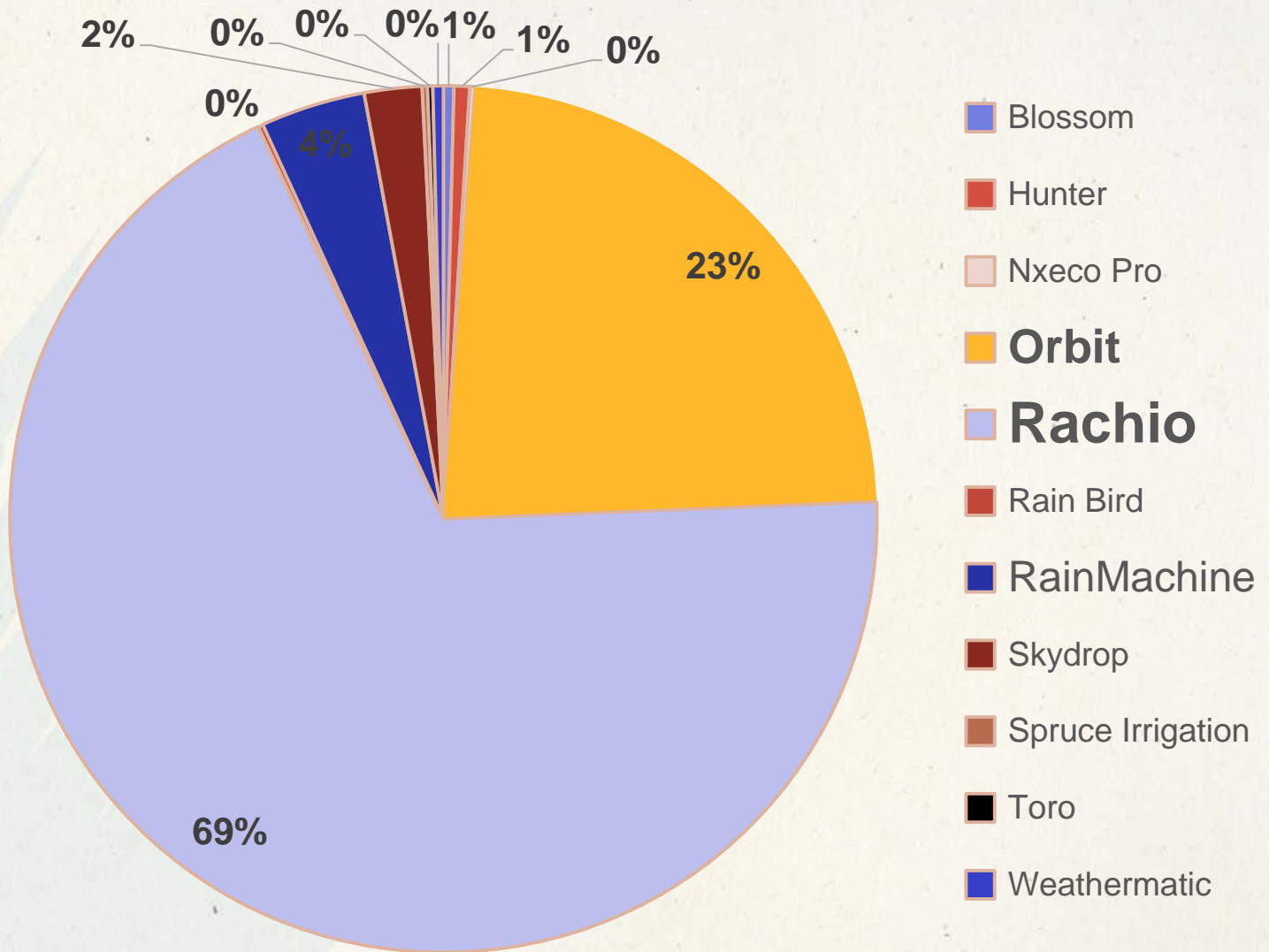
Percent Savings Histogram – Green Set



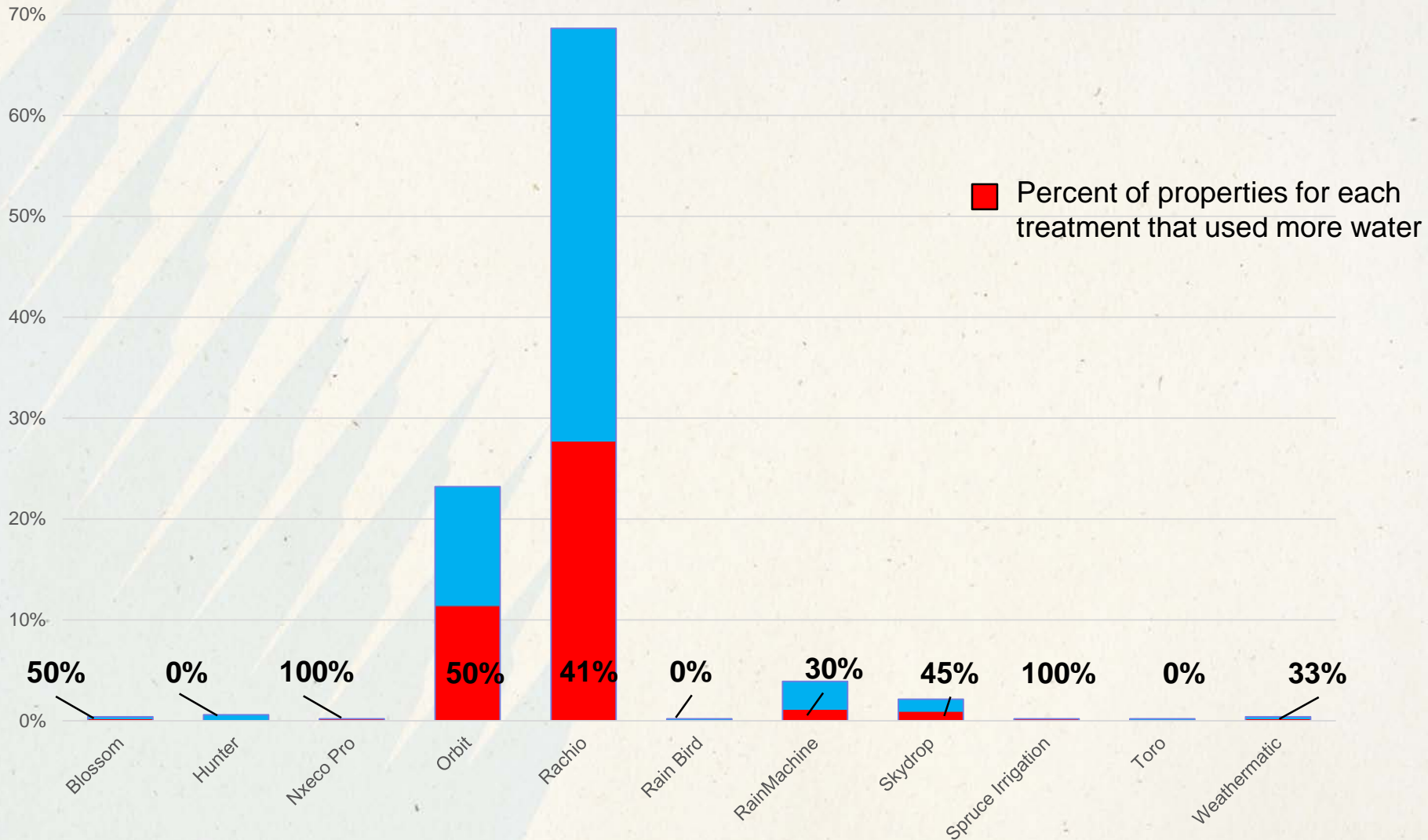
Quartiles – Green Group Only



Percent of Irrigation Clocks by Manufacturer



Savings Performance of Irrigation Clocks by Manufacturer



Conclusions

- On the whole the smart irrigation controller coupons are saving water at about the same rate as the pool cover program (~9,200 gallons vs. ~9,500)
 - About 5% savings per property
 - Saving about 7% of outdoor use: $180,620 \text{ gallons} \times 70\% \text{ to outdoor} = 126,434 \text{ gallons}$.
- Top users realized the best saving rates whereas the lowest actually use more suggesting they regularly under-irrigate their landscapes.
 - Program would probably benefit from more targeted marketing efforts.
 - Smart controllers might make a good incentive for our upcoming Targeted Site Visit Study.
- Sample sizes are getting better but the pre / post timeframes are still short. More monitoring and analyses are necessary to reach firm conclusions, particularly in terms of brand performance.

Questions?