



Energy+Environmental Economics

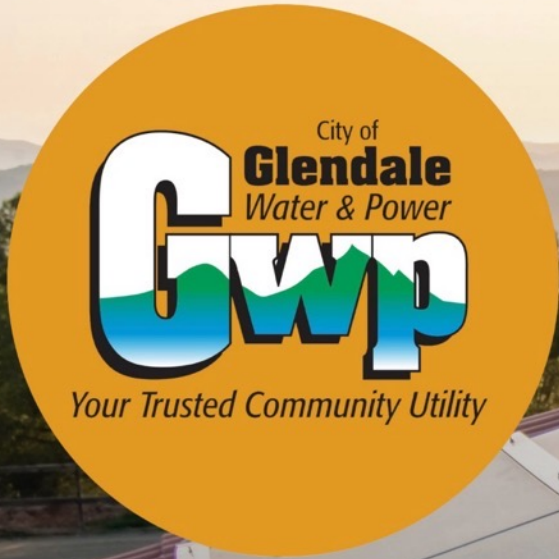


# Community Meeting

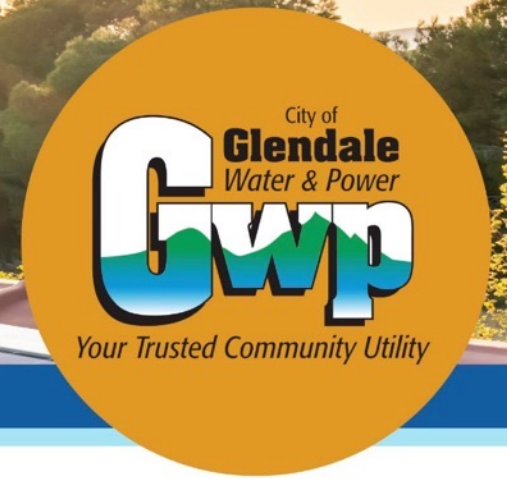
Plan to Increase Solar Adoption and Develop  
Additional Distributed Energy Resources



May 30<sup>th</sup>, 2024

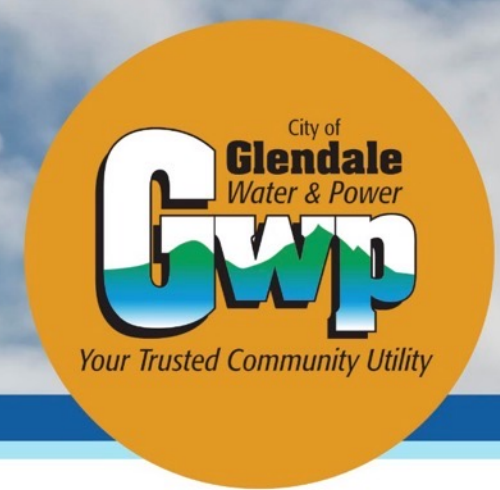


# Welcome & Introduction



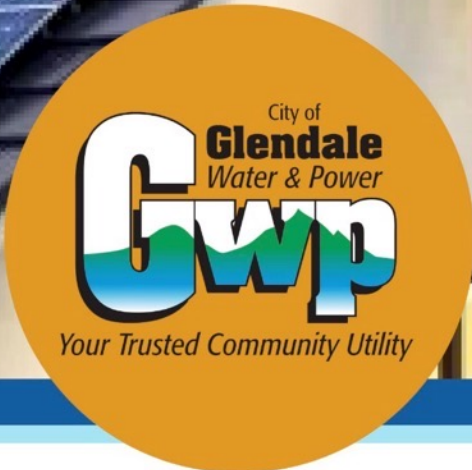
# Meeting Objectives

- Provide information and progress about the plan to the community
- Gather feedback
- Understand areas of concern



# Meeting Agenda

Agenda	Minutes
Welcome and Introduction	5
Plan Scope & Objectives	10
Community Inputs	5
Plan Analysis Insights	60
Q&A	30
Closing Remarks and Future Engagement	5



# Team Members



 Energy+Environmental Economics

**Eric Cutter**

*Partner & Project Lead - E3*  
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Primary Presenter



 WILLDAN

**Rosie Kang**

*Vice President - Willdan*  
[rkang@willdan.com](mailto:rkang@willdan.com)  
Presenter

## Community Outreach and Event Support

**DAKOTA**  
communications  
public affairs • public relations • marketing  
strategic communications • crisis management



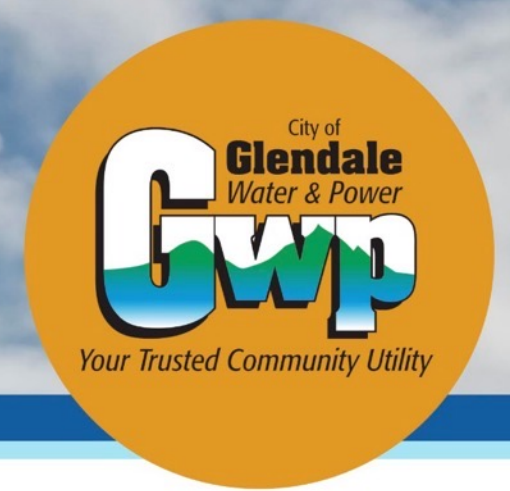
**Christian Bradley**

*Account Manager - Dakota Communications*  
[christian@dakcomm.com](mailto:christian@dakcomm.com)  
Facilitator



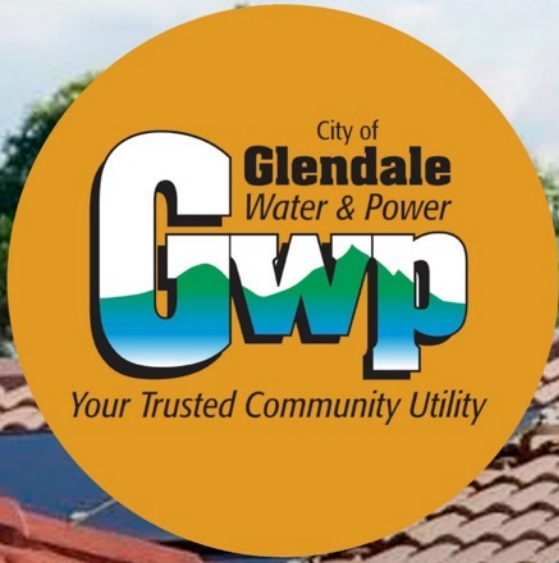
**Emily Reyes**

*Account Manager - Dakota Communications*  
[emily@dakcomm.com](mailto:emily@dakcomm.com)  
Event Support

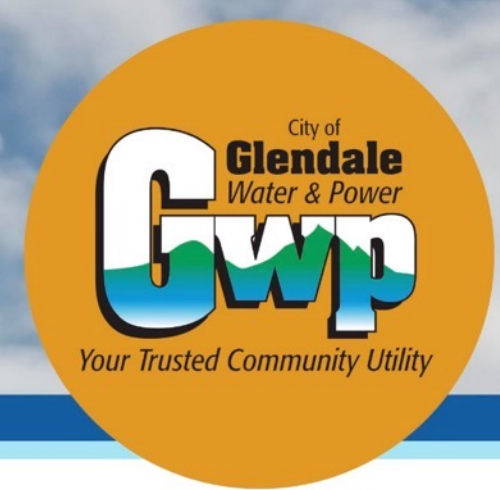


# Important Notes

- Plan in mid-design phase
- Sharing plan progress
- Seeking your feedback
- Results are subject to further refinement



# Plan Scope & Objectives



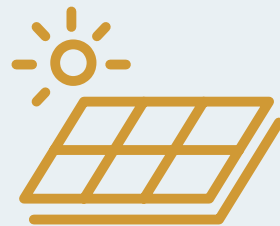
# Types of DERs *(Distributed Energy Resources)*



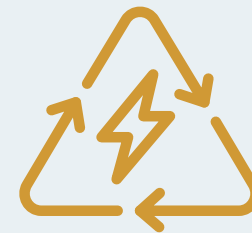
**Energy Efficiency**



**Electric Vehicles**



**Customer-Sited Solar**



**Flexible Loads**

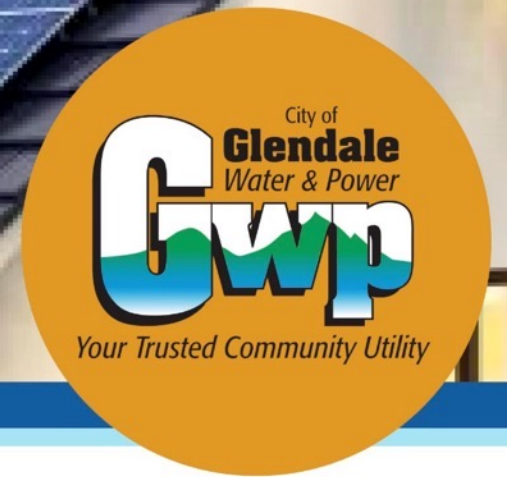


**Energy Storage**



**Demand Response**





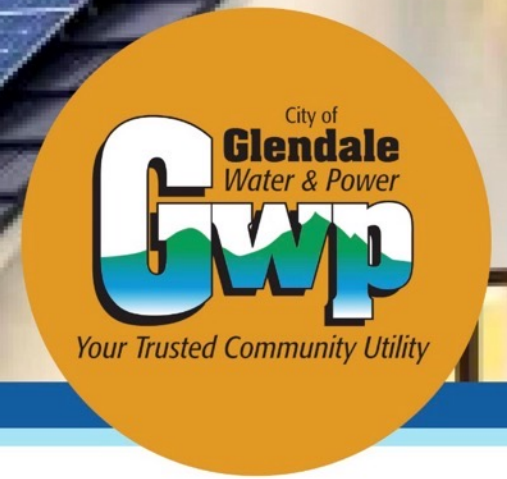
# Today's Coverage and Exclusions

## What we will cover today

1. DERs, including solar and storage
2. Preliminary quantitative analysis results

## What we will not cover today

1. Other DERs (EV, EE, DR, etc.)
2. Improved avoided costs
3. Deep dive of program design proposals

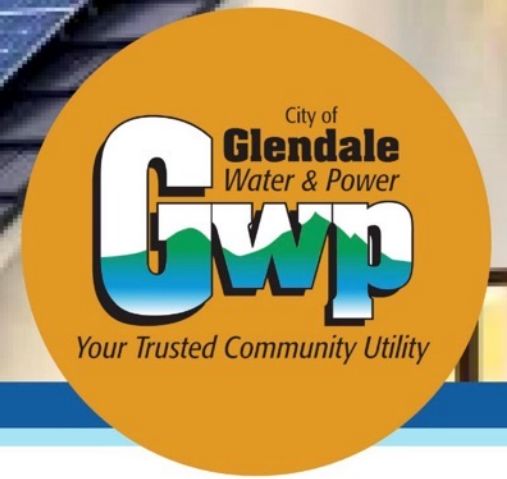


# Plan Scope

City Council Resolution of August, 2022:

**10% of GWP customer solar and energy storage adoption by 2027**

**Dispatchable and peak load reduction capacity of 100 MW**



# Plan Objectives



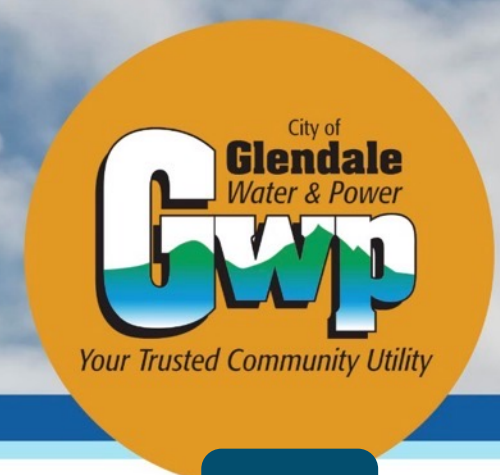
**Encourage customer adoption of solar and storage**



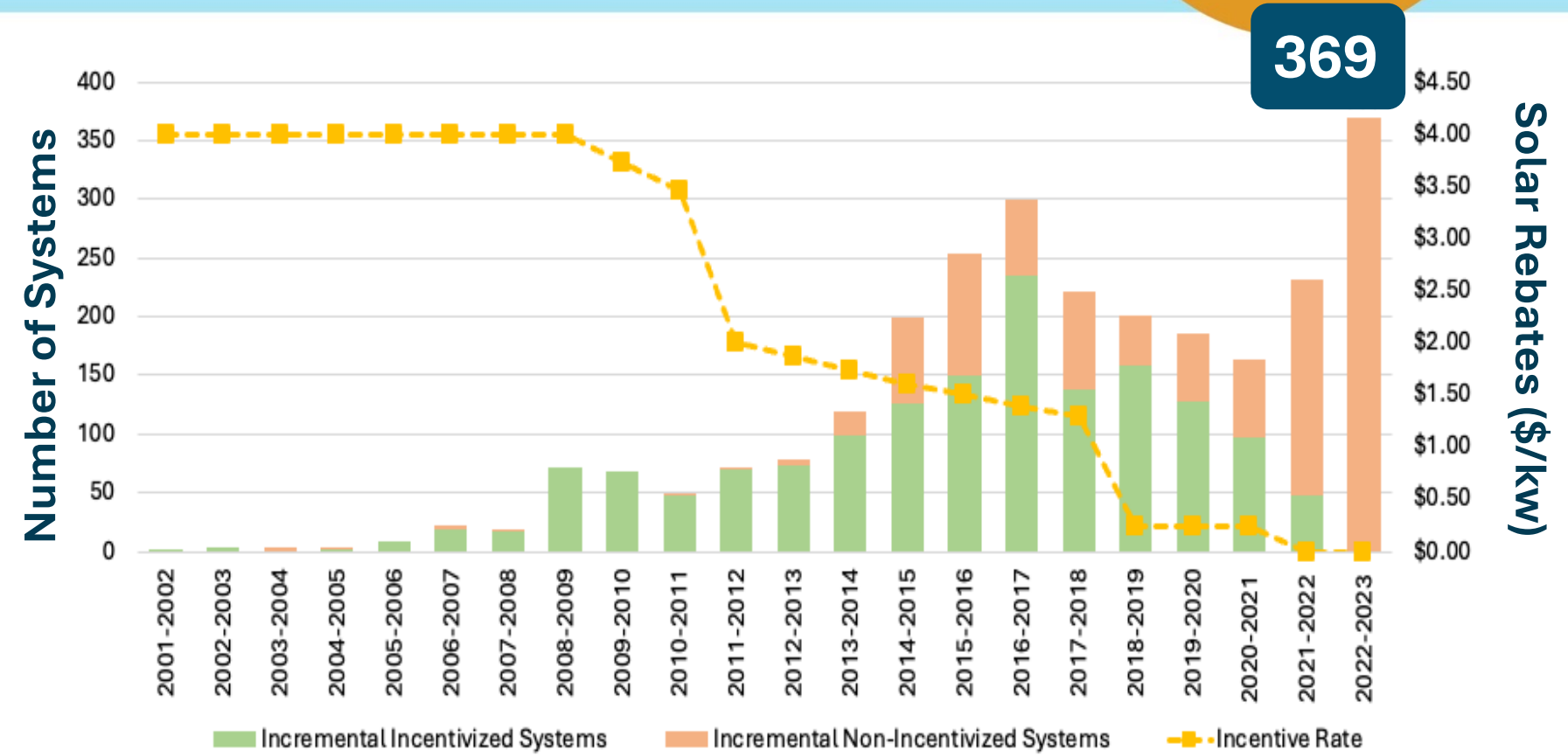
**Manage cost-shifts to ensure affordability**

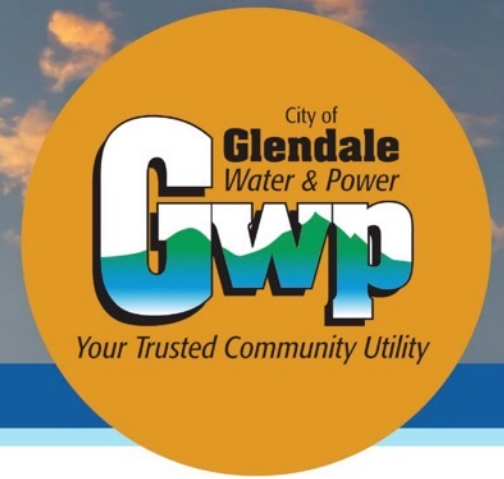


**Deliver grid and community benefits at a reasonable cost**



- **2,921 solar systems installed since 2001 (28 MW)**
- **3.25% of customers have solar**





# Plan Timeline

**We're Here!**

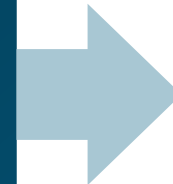
**May 2024**

This is the 5<sup>th</sup> community meeting



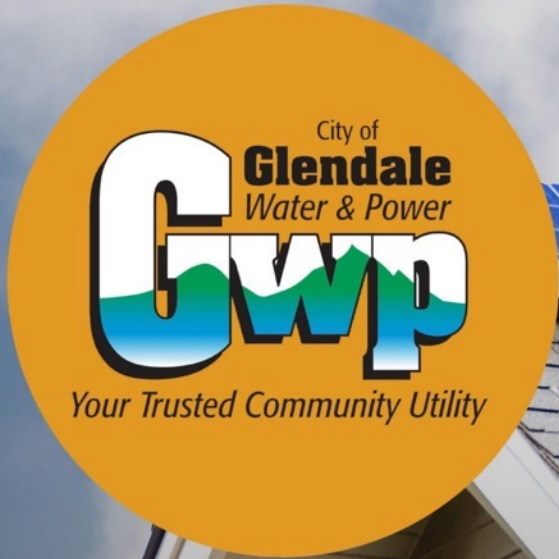
**Aug – Sept 2024**

E3 delivers plan analysis and recommendations to GWP for review

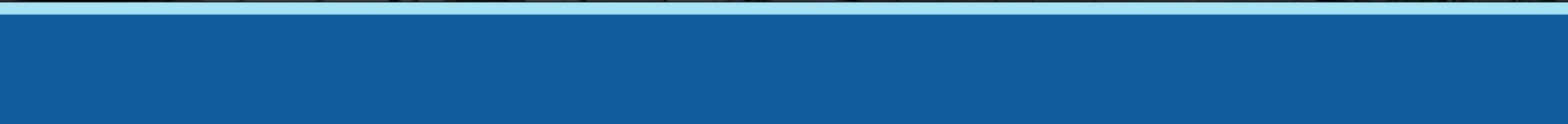


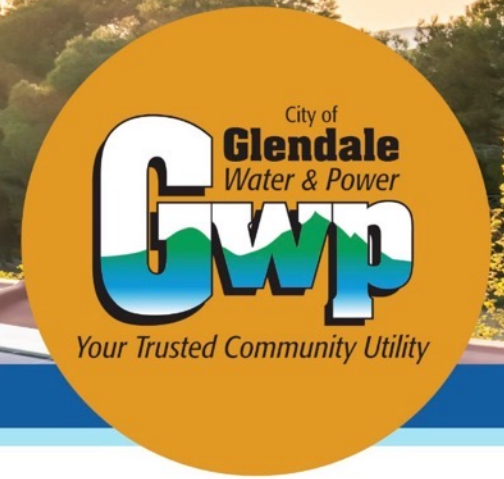
**Shortly Thereafter**

GWP and E3 will present the final report to Commission and City Council



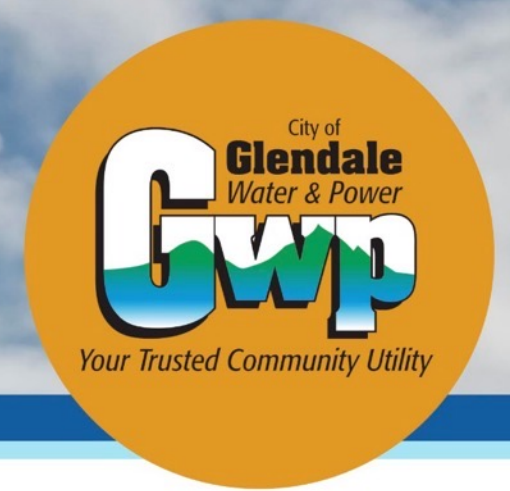
# Community Inputs





# Collecting Community Inputs

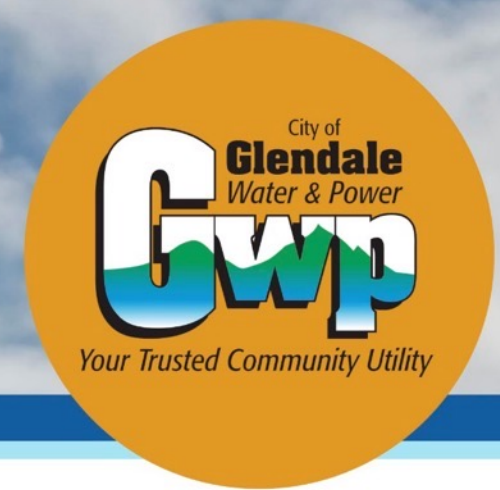
- **Comment Cards**
  - **Emails**
  - **In-Person Notes**
- + Upfront rebates for mitigating initial costs
  - + Net metering for solar and storage
  - + Expedited and streamlined approval process
  - + More guidance on federal and state resources
  - + More guidance and support in solar and DER adoption process



# Collecting Community Inputs

- **40,000** customers surveyed
- **100+** unique responses received
- **Survey respondent priorities:**
  - + Affordability and reliability
  - + Community solar projects to assist renters and low-income households
  - + Rebates, net metering, and bill transparency
  - + More education and outreach
  - + Regulatory and approval process clarity





# Addressing Community Inputs

- Solar & Battery Storage Contractors on GWP website
- Number of installations completed

[www.glendaleca.gov/SolarContractors](http://www.glendaleca.gov/SolarContractors)



KNOW BEFORE YOU BUY



CALIFORNIA SOLAR CONSUMER PROTECTION



CONSIDER YOUR PURCHASE OPTIONS



SOLAR & ENERGY STORAGE CONTRACTORS



SOLAR ENERGY SYSTEMS TAX CREDIT



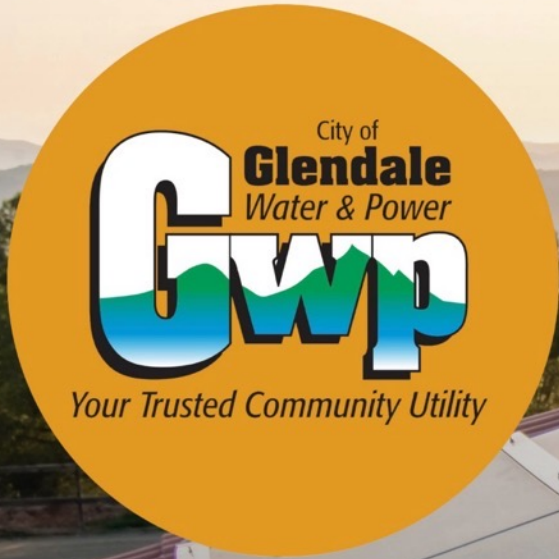
LEARN SOLAR TECHNOLOGY BASICS



NET ENERGY METERING (NEM) PROGRAM



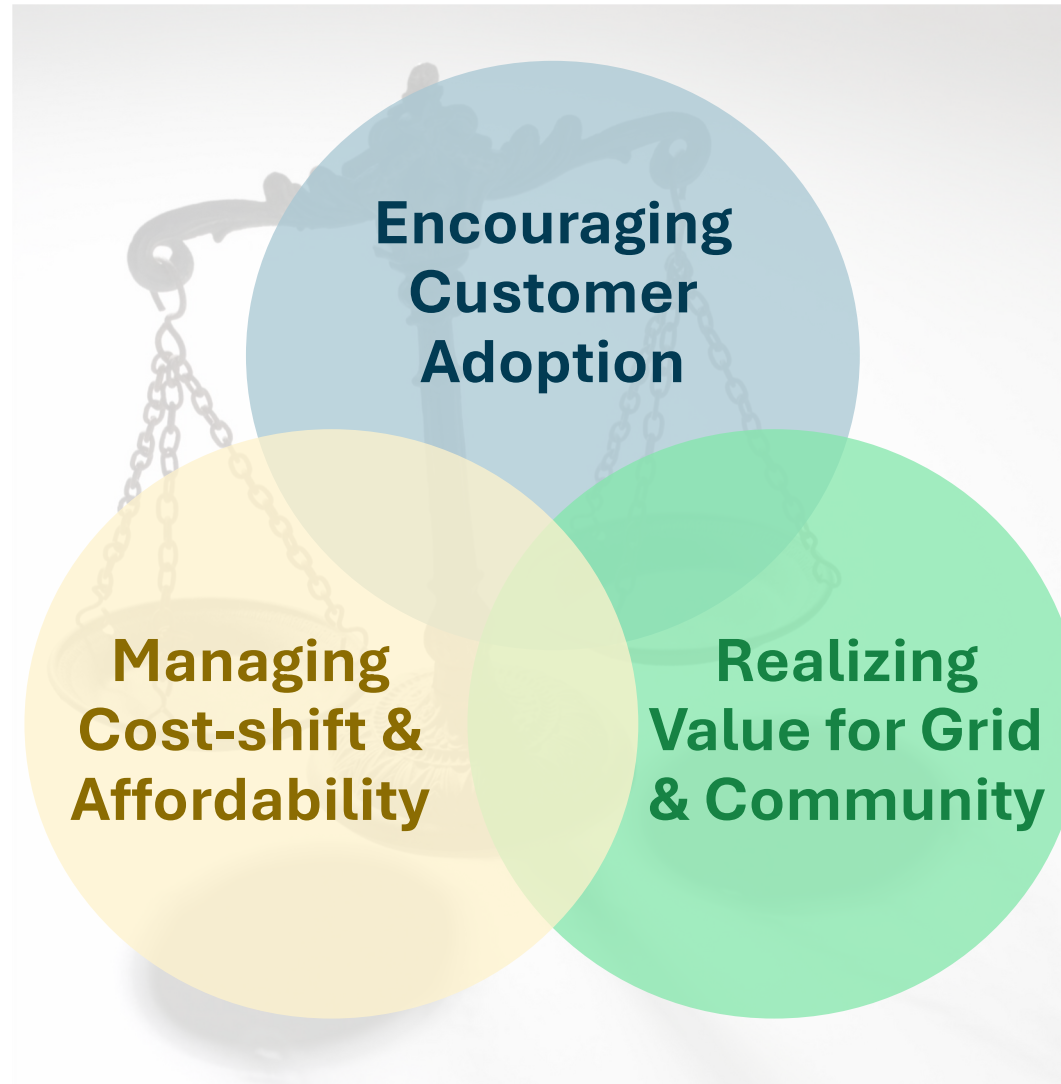
METERING, MONITORING, & MAINTENANCE



# Analysis Insights

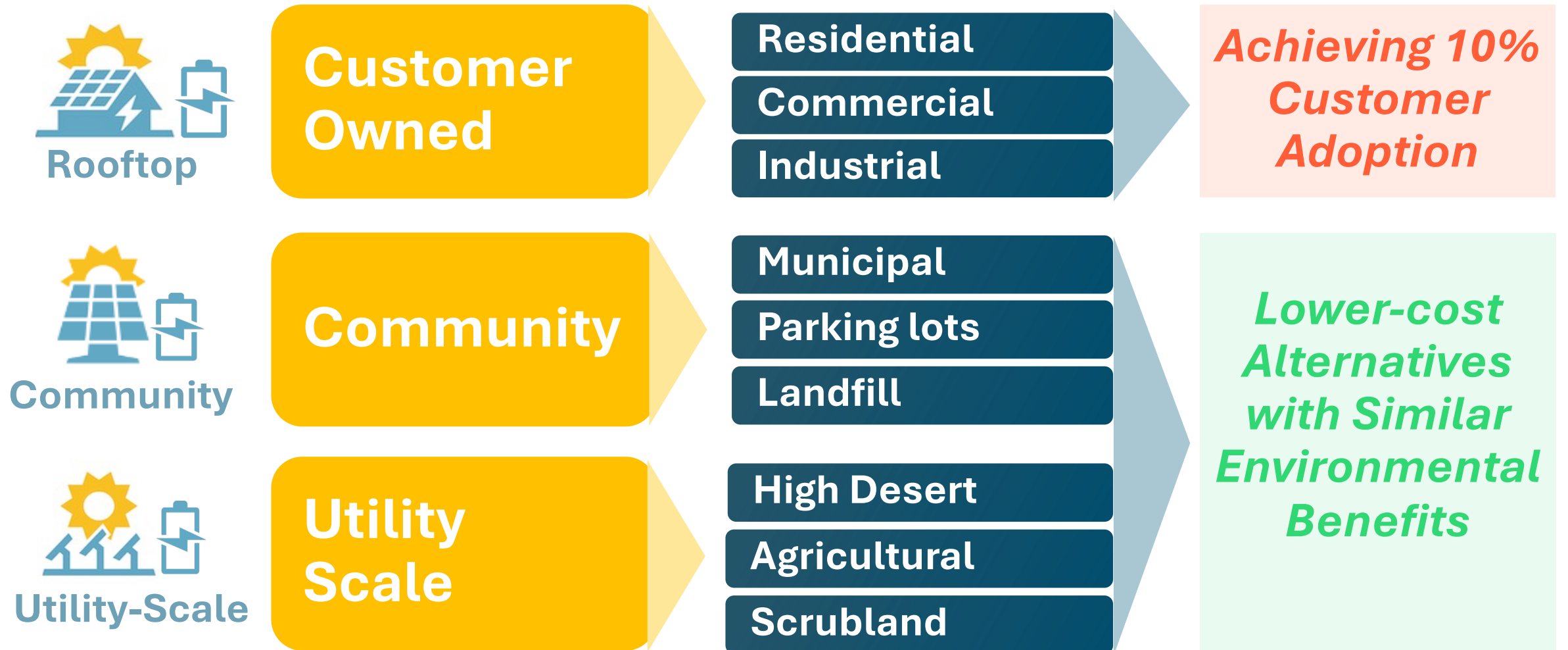
# Carefully Balancing Multiple Objectives

**Incentives for  
encouraging  
solar  
adoption**

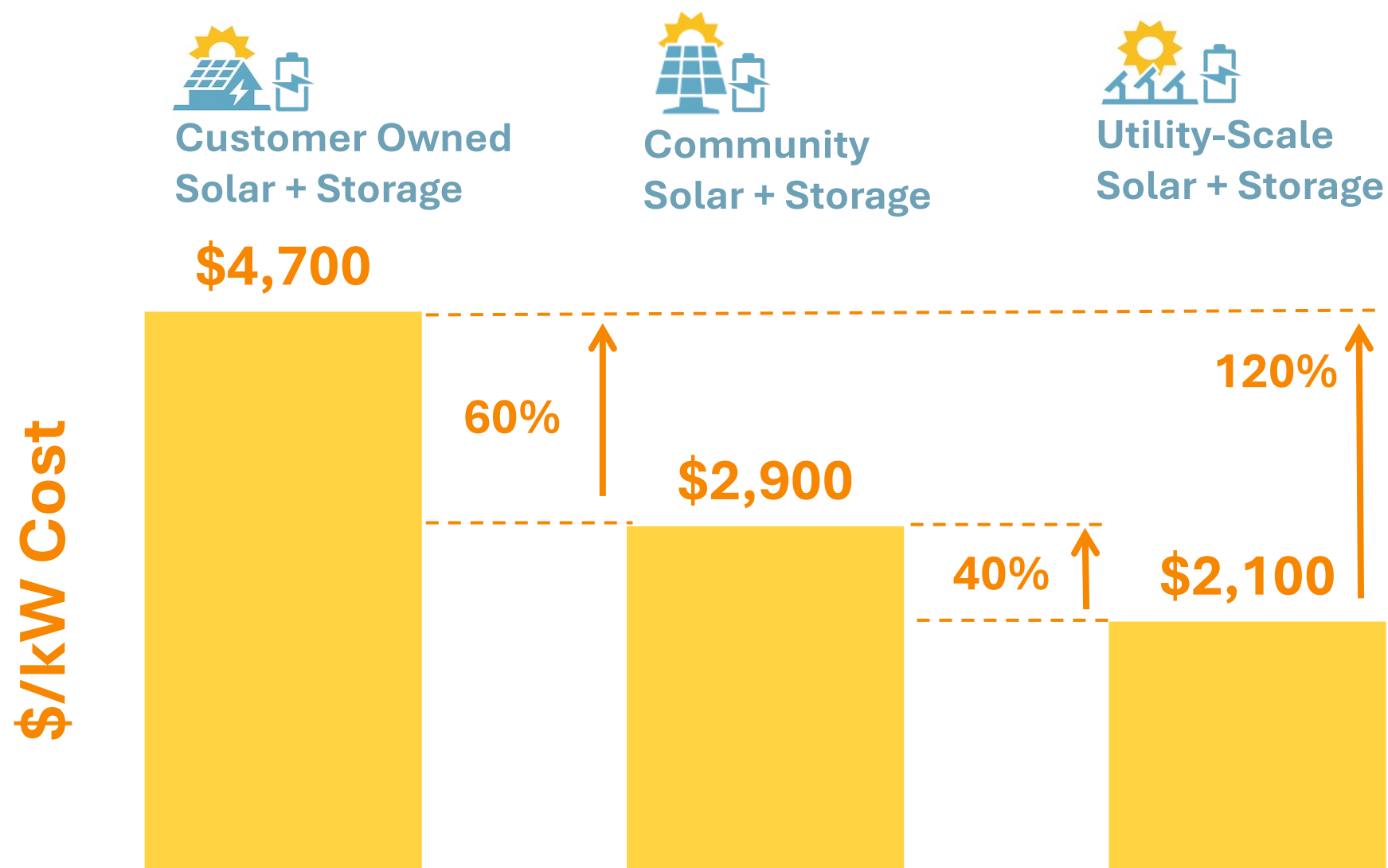


**Manage  
cost-shift &  
ensure  
social equity**

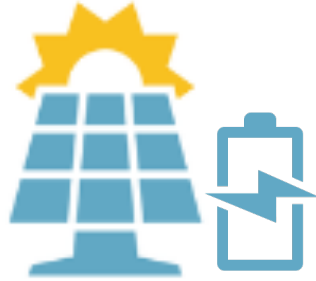
# Different Types of Solar and Storage Installations



# Customer Owned Solar And Storage Is More Expensive



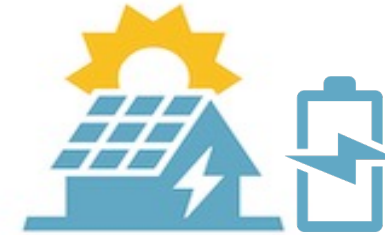
# Additional Benefits of Community and Customer Owned over Utility Scale Solar and Storage



## Community

### + Community Solar

- Transmission & Distribution (T&D) Investment Reduction
- T&D Line Loss Reduction
- Reduced Land Use Impacts
- Local Reliability, Resilience
- Local Jobs



## Customer Owned

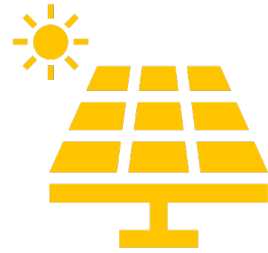
### + Rooftop Solar

- All Benefits of Community Solar
- Plus**
- Customer Reliability
  - Energy Use Awareness
  - Increased Home Value

# NEM Compensation for Rooftop Solar Increases Rates for All Customers

## Solar Benefits

## NEM Bill Savings



**Not Utility Costs**

**Avoided by Customer Solar**

**Avoided by Utility Scale Solar**

Environmental & Societal

Some Transmission & Distribution

Energy, GHG, Some Capacity

Utility Costs Not Avoided by Solar

Utility Costs Avoided by Solar

**NEM Cost Shift**



**Rate Increase**

# GWP has been exploring city-owned solar!

## + GWP has identified 10-15 large city-owned sites for developing solar projects

- Large rooftops, parking lots, landfill, etc.
- Collectively 10 MW of solar capacity
- 6 projects approved for construction (5 MW)

## + Cooperation between GWP and the community is essential

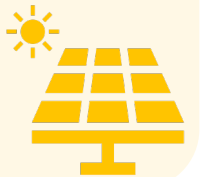




# Can we reach 10% customer solar adoption by 2027?

- Theoretically feasible only with significant utility investment
- Net impact of **\$60-\$140 million** in 2024-2030 to Glendale ratepayers
  - + Bill Savings
  - + Utility Incentives
  - - Benefits
- Electric rates increased by **8%-16%** by 2030

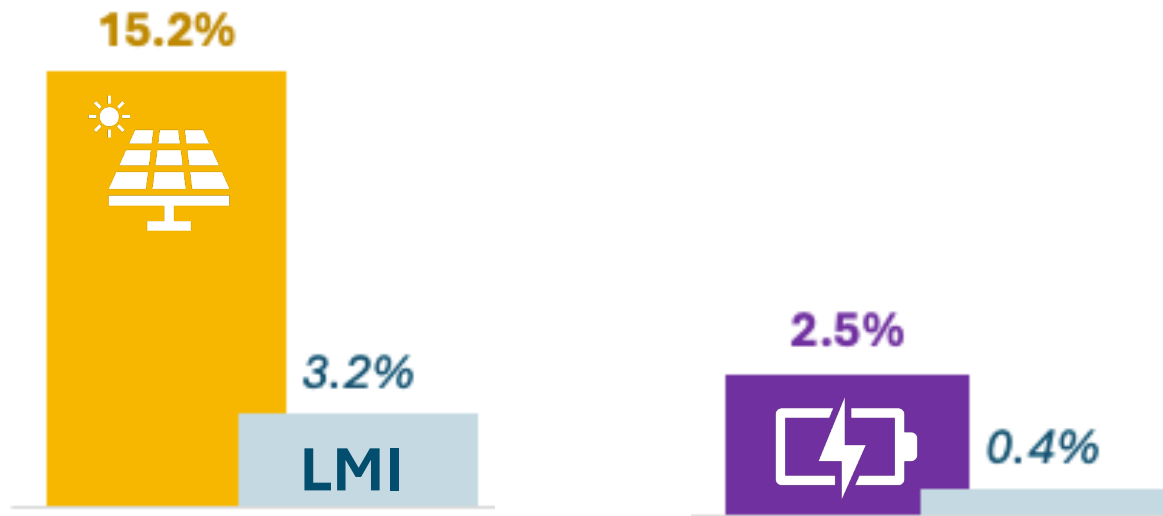
- Prerequisites needed by early 2025:
  1. Robust community outreach & support
  2. Improved permitting processes
  3. Available solutions to address tenant-owner split incentives



- 2027 goal is technically feasible, but expensive
- 2030 would be more realistic, and could potentially reduce program costs

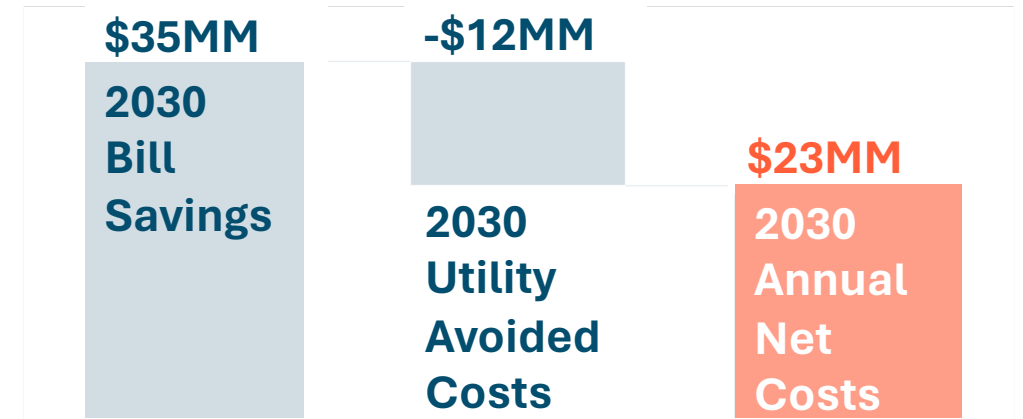
# Adoption and Cost Implications of Continuing Current NEM

## 2030 Adoption



## 2030 Cost

- **\$80 Million** net ratepayer costs in 2024-2030
- **\$23 Million** net ratepayer costs in 2030
- **~ 9%** rate increase in 2030
- **~ \$6-7/mo** bill impact on LMI customer in 2030



- Continuing the current NEM program will result in an annual net cost to ratepayers of \$23 million in 2030 and increase rates by 9%

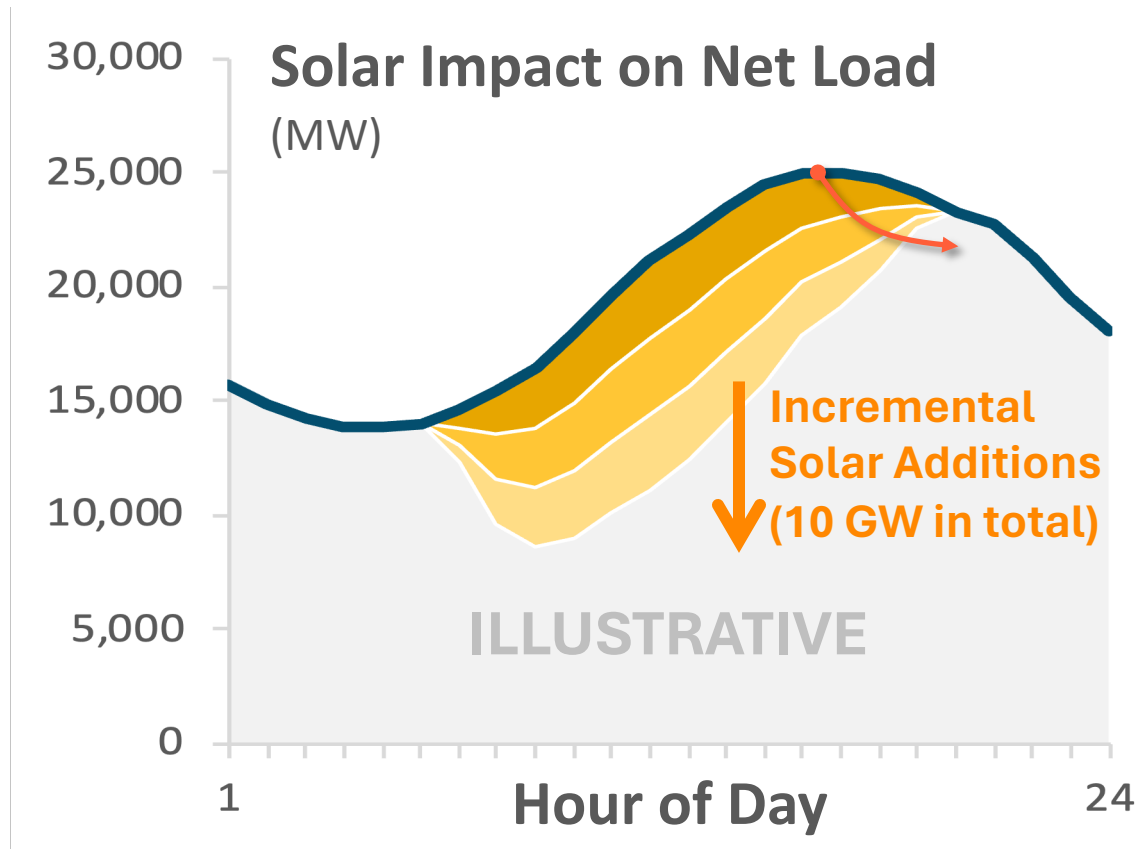
# Can we reach 10% customer storage adoption by 2027?

- + Most customer owned storage is paired with solar
- + Only 7% of existing customer solar systems in Glendale have attached with battery storage
- + Not theoretically feasible, even by 2030, without significant utility investment through full direct install programs

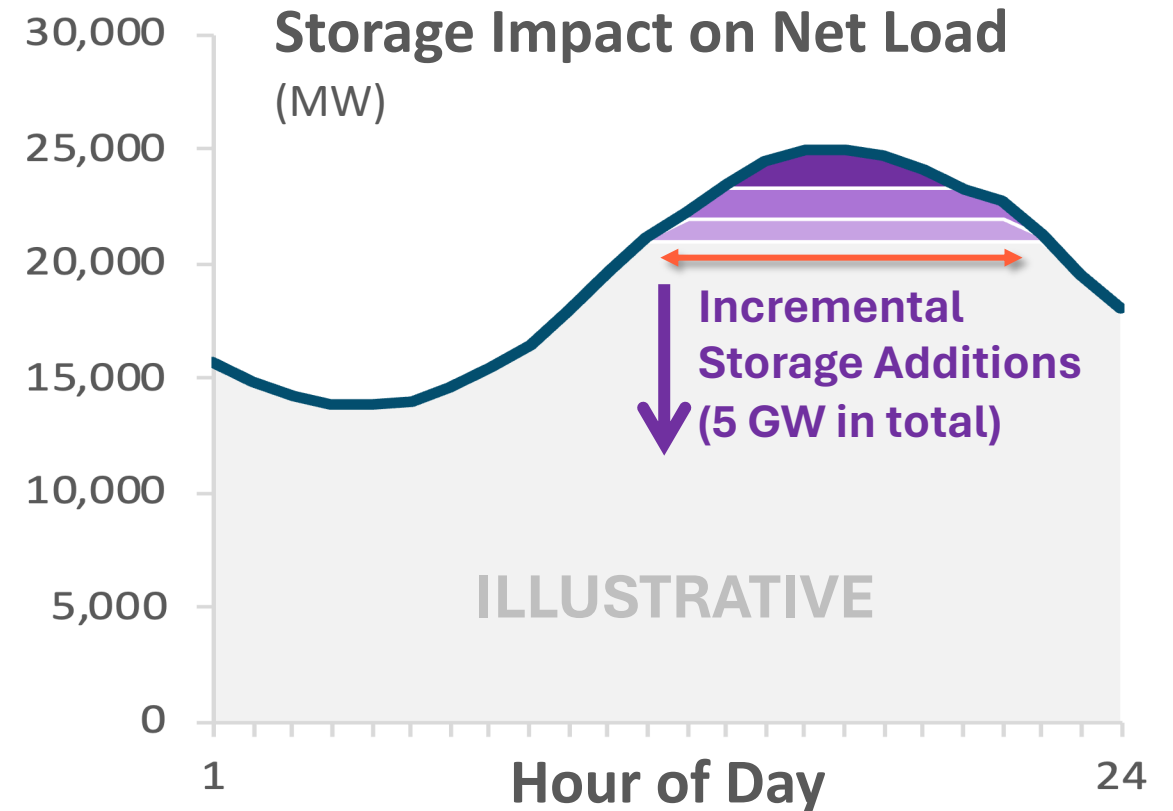


- It would be more realistic to target 10% total solar adoption and 2% solar + storage adoption by 2030

# Peak Load Reductions Decline with Increasing Adoption

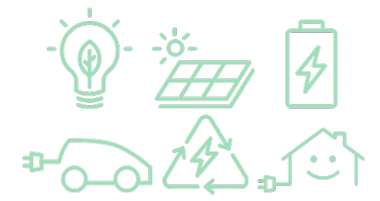


- Net peak load shifts to after sunset



- Effective capacity per MW of storage declines

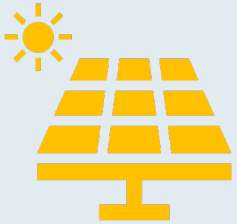
# Can we reach 100 MW dispatchable and peak load reduction capacity by 2027?



- + Plan requires further study in next phase
- + **Effective Capacity:** requires 200-300 MW customer solar, 40-60 MW customer storage, and other DERs
- + **Nameplate Capacity:** theoretically feasible with significant utility investment: suggested target year between 2030 and 2035

- **100 MW effective capacity would require at least 300 MW of DER additions by 2027**

# Customer Solar and Storage Economics



## + Economic case for customer solar is already strong

- Solar payback in 6-9 years
- Faster payback with 30% federal tax credits



Initial  
Costs



Available  
Incentives



## + Economics for customer storage is poor

- Provides reliability, but pricier than fossil fuel alternatives
- Minor bill savings with full NEM compensation and flat (non-TOU) retail rates



Net Metering  
Bill Savings

# 4 program scenarios to show trade-offs in adoption, equity and costs

**Scenario 1: Continue NEM**

**Scenario 2: Targeted Low and Moderate Income (LMI) & Multi-family (MF) Adoption**

**Scenario 3: Balanced**

**Scenario 4: High Adoption**

**Program & Incentive Design**

**Bill Savings**

**Additional Incentives**

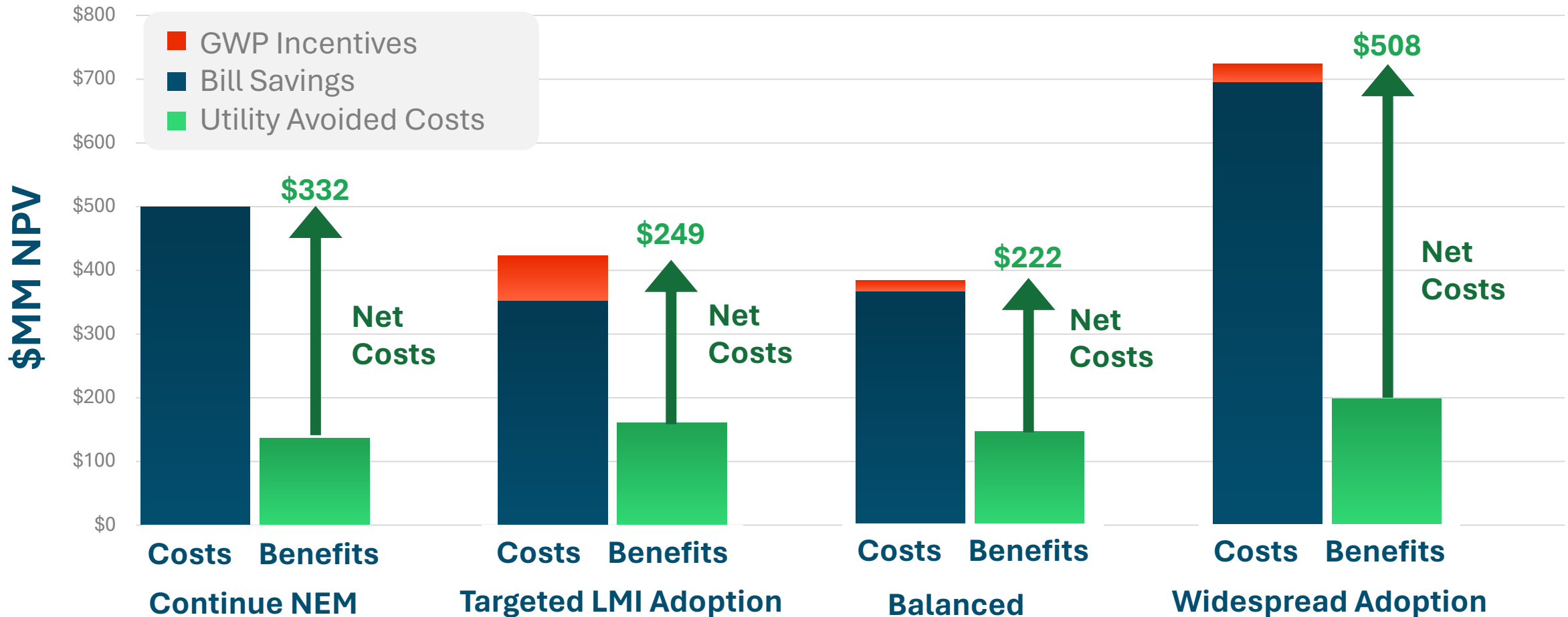
**Address Additional Barriers**

**Resolve Split Incentives**

**Provide More Utility Support**

# All Scenarios have net ratepayer costs that increase GWP rates

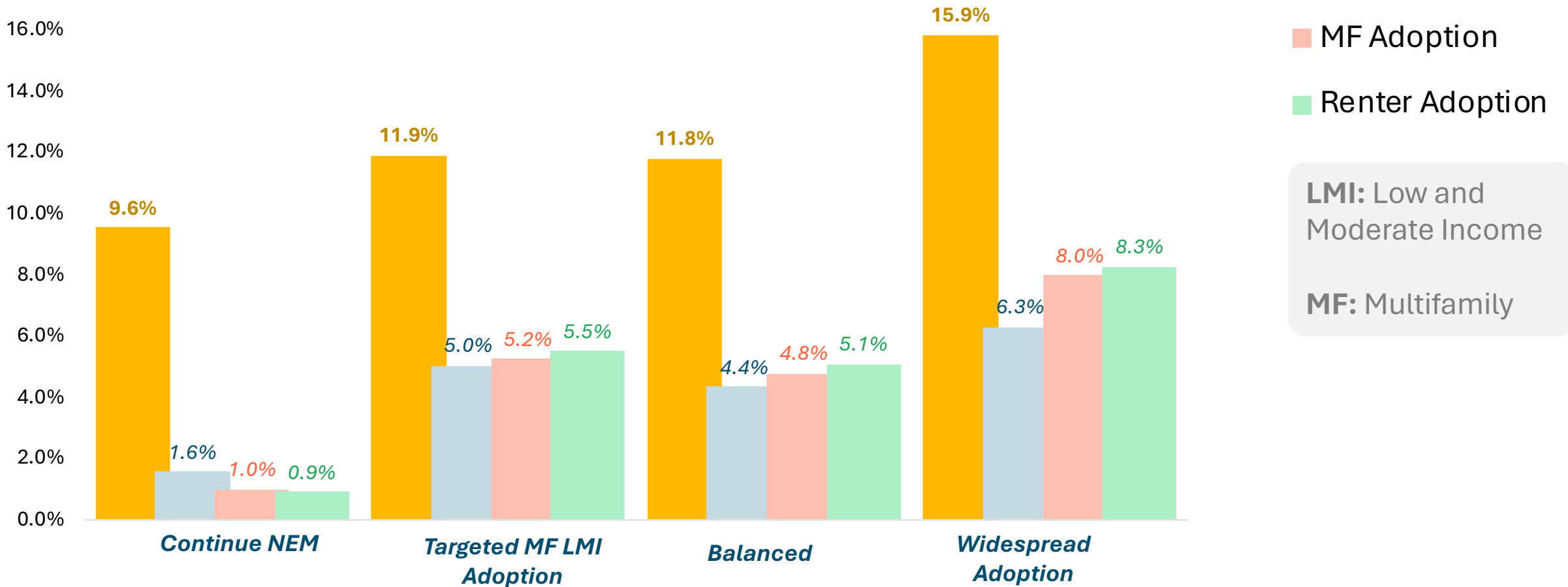
**Total Glendale Ratepayer Costs and Benefits**  
*For Solar and Solar+Storage Systems Adopted in 2024-2030*





# 2027 Adoption Rates

## Solar Adoption (% of Total GWP Electric Customers)

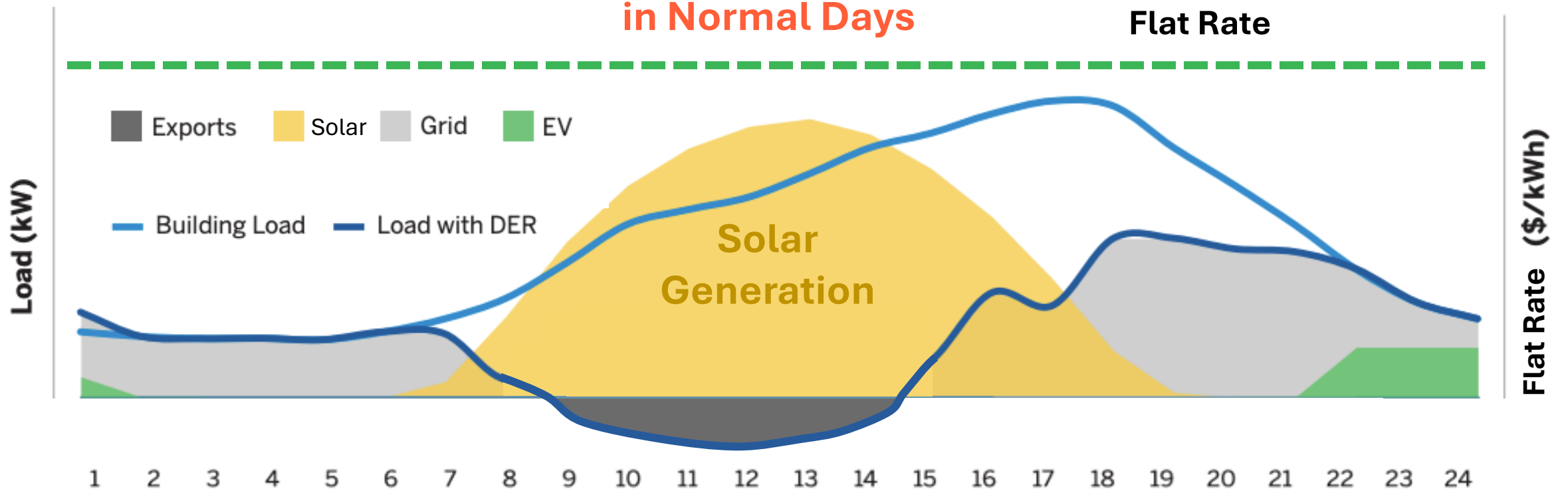


# Maximizing Community Benefits

ILLUSTRATIVE

## + Customer storage for back-up power

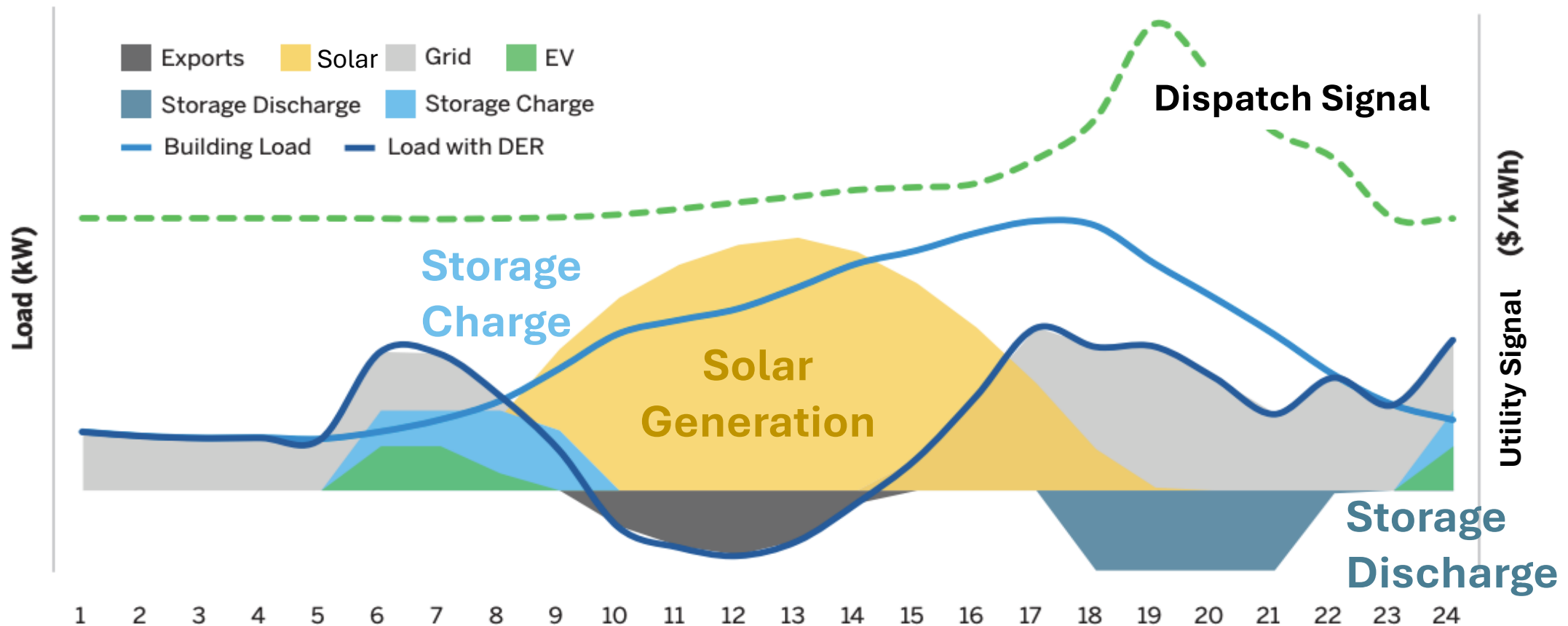
No Storage  
Charge/Discharge  
in Normal Days



# Maximizing Community Benefits

ILLUSTRATIVE

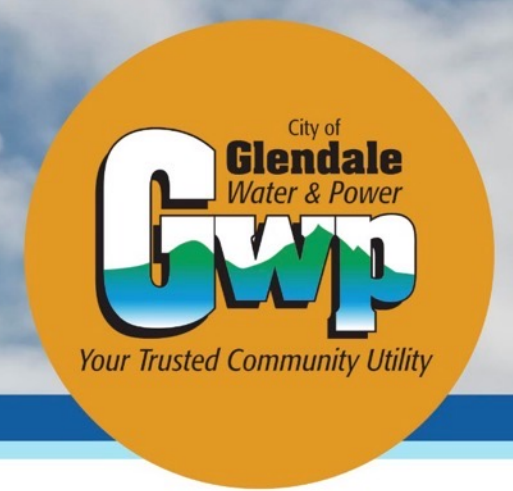
+ Provide dispatch signals to customer storage



# Key Takeaways

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- + 10% adoption by 2027 is theoretically achievable but expensive for solar (pg. 25)
- + 10% adoption is not achievable for storage (pg. 27)
- + Delaying target to 2030 could reduce costs for GWP customers (pg. 25)
- + Higher adoption for rooftop solar increases rates and energy burden on LMI customers (pg. 19, 23, 26, 32, 33)
- + Utility scale and community solar and storage offers similar benefits with more equitable access at lower cost (pg. 20, 21, 22)
- + Encouraging customers to dispatch storage for grid needs increases benefits (pg. 34, 35)



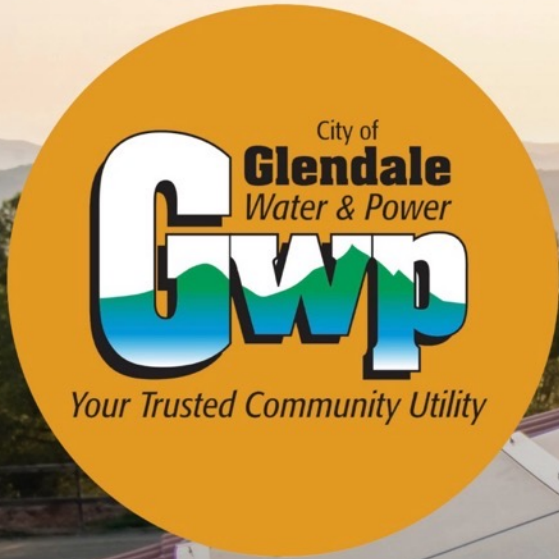
# Next Steps

## + Current Status

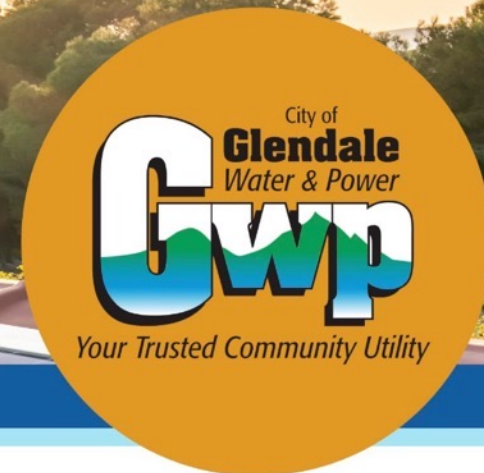
- Mid-plan design phase
- Sharing progress and analysis
- Seeking input and feedback

## + Next Steps

- Enhance avoided costs
- Analyze other DER technologies
- Evaluate effective program options



**Q&A (30 minutes)**



## Closing Remarks and Future Engagement



Thank you for attending! Learn more about the plan [www.GlendaleCA.gov/Solar-DER-Plan](http://www.GlendaleCA.gov/Solar-DER-Plan)



Share your thoughts!

Email GWP at [solar-der@glendaleca.gov](mailto:solar-der@glendaleca.gov)