



Simplifying Solar and Storage Procurement with SPURR – Part II

Presented by ForeFront Power + CASBO

Featuring



Brian Taylor

Director, Public Sector
ForeFront Power

- Best in Class Development Group
- California Public Sector Leader
- SPURR REAP Winner
- 'A' Rated Parent Company: Mitsui & Co



Kevin Flanagan

Program Manager,
SPURR

- Established 1989
- Joint Powers Authority (JPA) focused on reducing utility costs.
- Buying Consortium of 200+ USDs & CCDs
- Aggregated Procurement





Questions

- What utility territory are you in?
- Looking at Solar? Storage? Have either?
- Are you on Direct Access or a Community Choice Aggregator?
- Is increased sustainability a priority from your Board or greater community?

Incentive Outlook

2020+



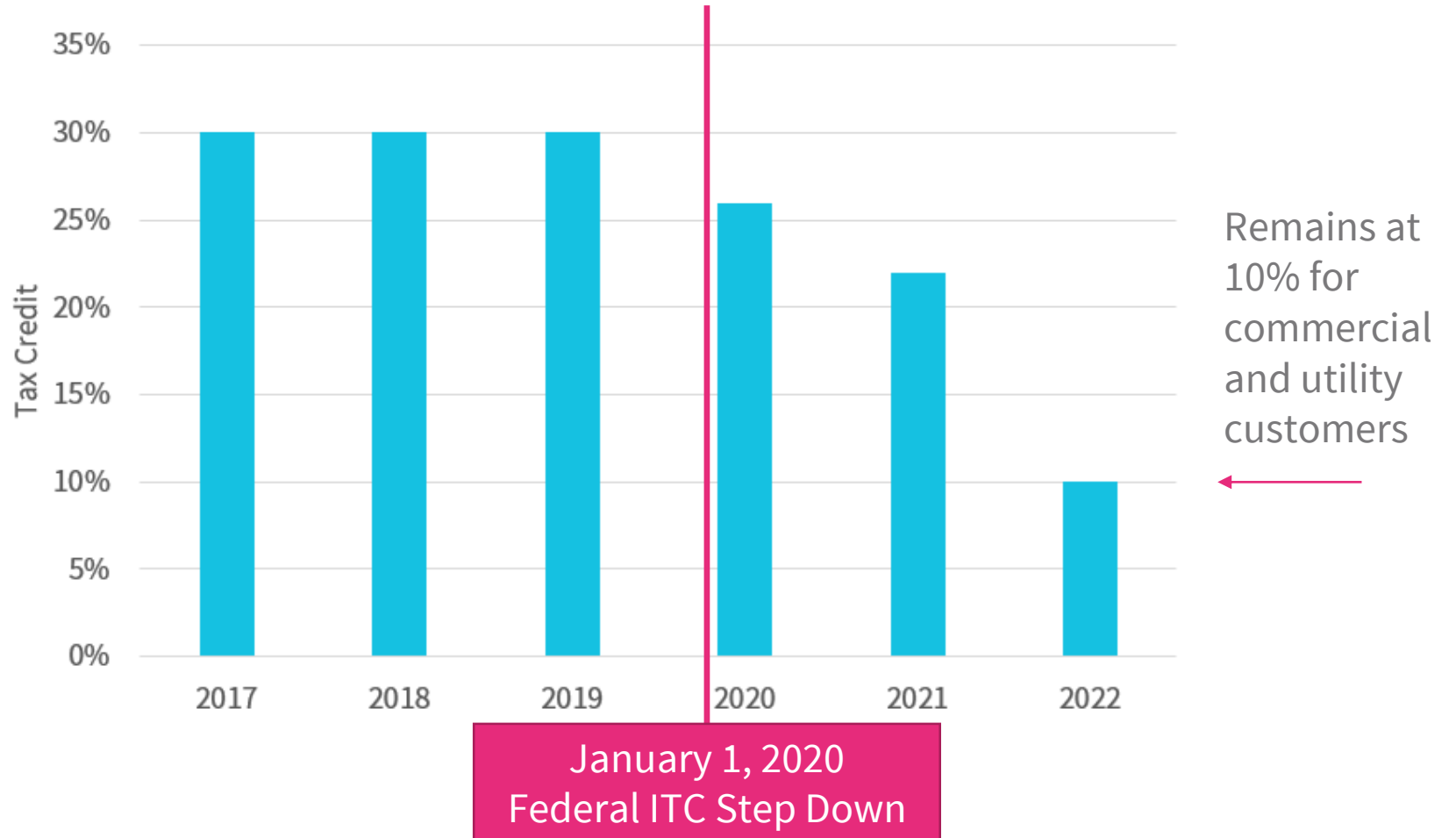
Federal ITC Stepdown Schedule

■ January 1, 2020

- ITC Step Down
- 4 months to go

■ “Procure/Secure”

- Safe harbor 30% ITC
- Construct System in 2020-2023



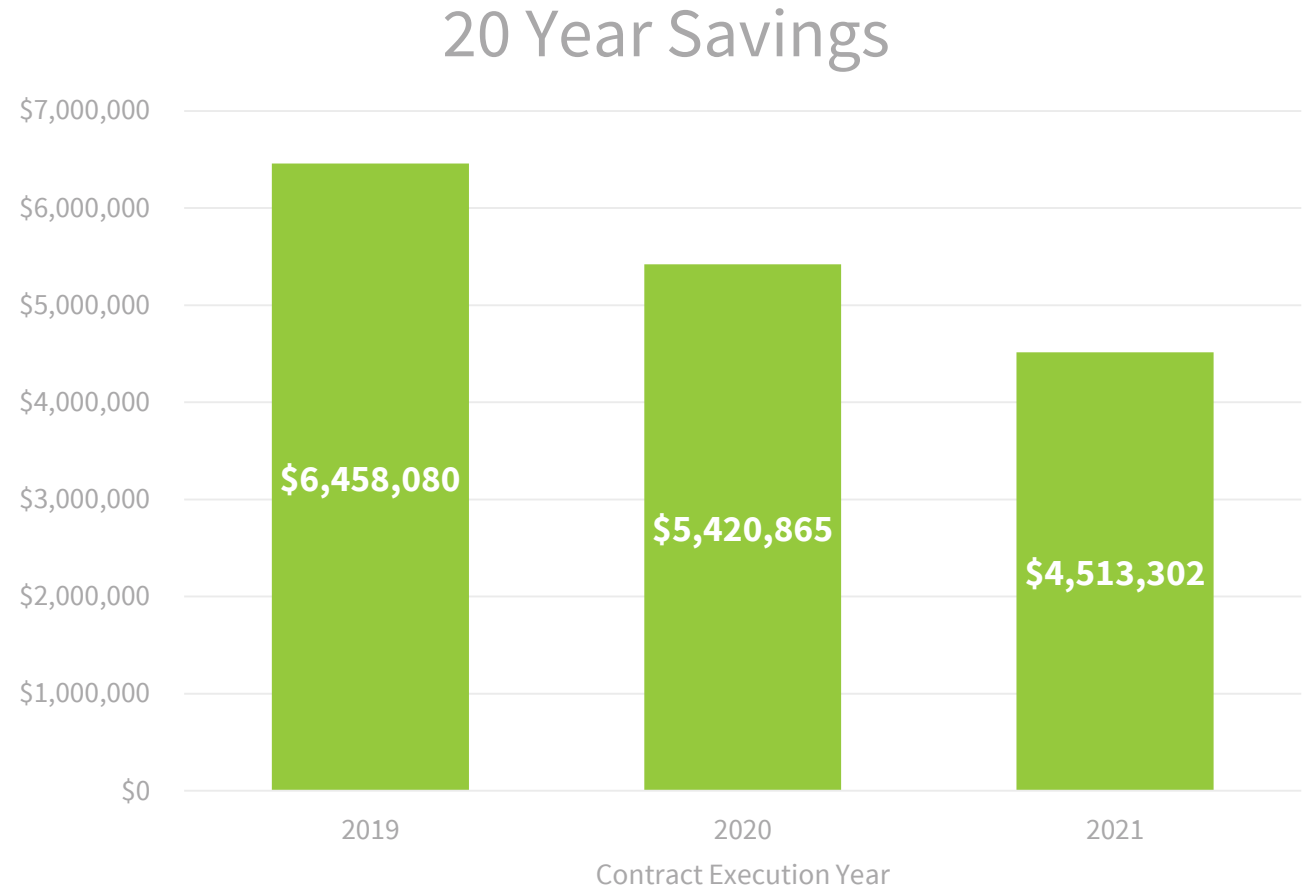
Tax Credit Impact on Savings

- **Sample Portfolio**

- 3MW of Solar
- 80% Solar Energy Offset

- **ITC Impact**

- \$6.4m savings in 2019
- 13% savings reduction by 2020
- 26% savings reduction by 2021



Net Energy Metering

- **NEM 1.0 - Past**

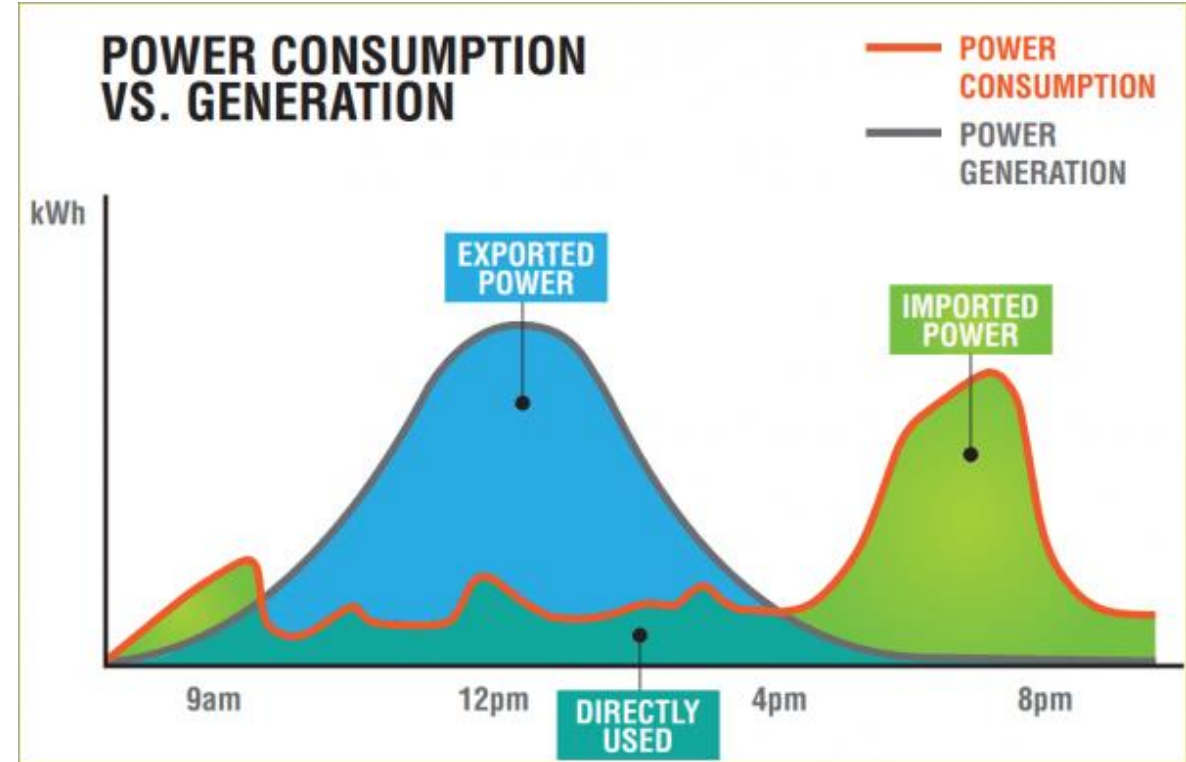
- Exported Energy Value: Full Retail Rate
- 2009 - 2016

- **NEM 2.0 - Current**

- Exported Energy: Full Retail \$0.02/kWh
- 2016 - 2021 (est)

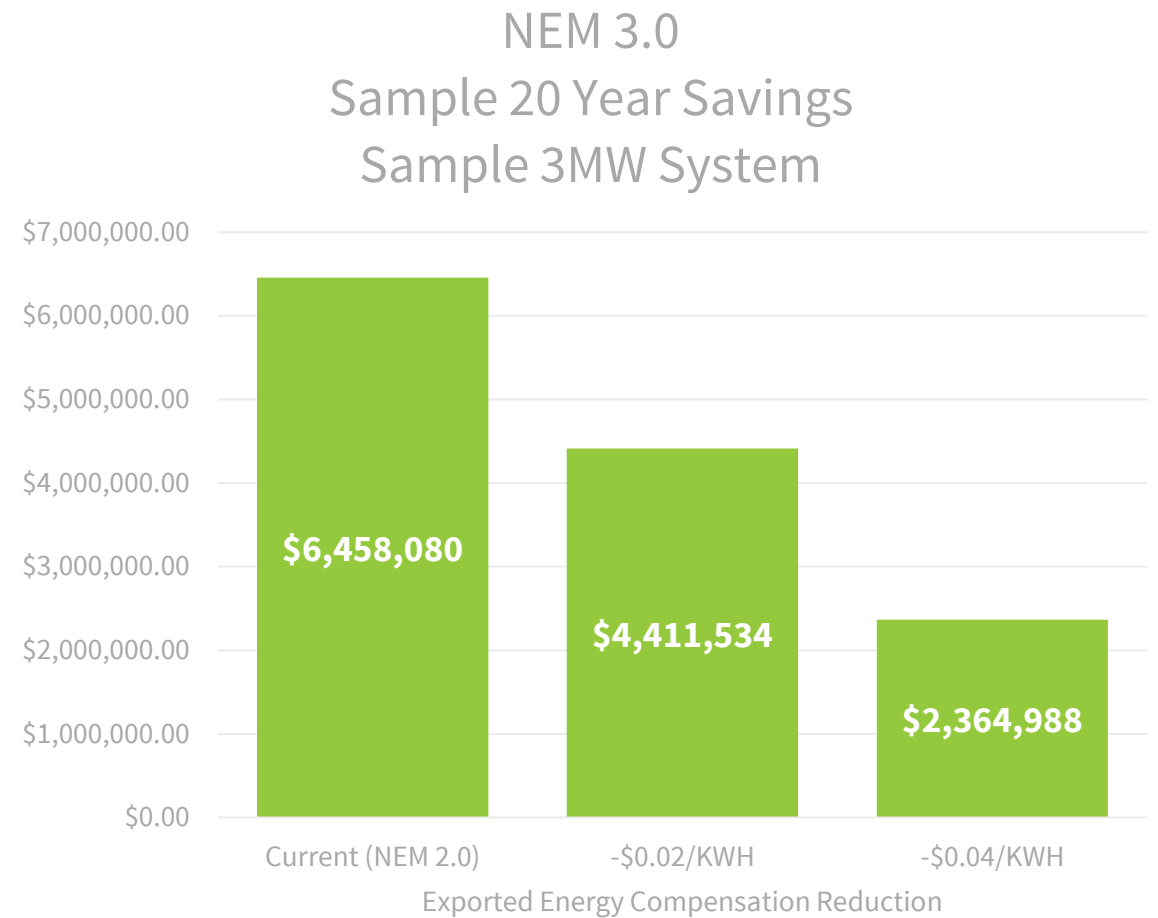
- **NEM 3.0 - Future**

- Exported Energy Value: ???
- Proceedings Open
- Starts ~2021 (est)



NEM 3.0 - What to Expect?

- **Exported Solar Energy**
 - “Energy Sent back to the grid”
- **NEM 2.0 – Current:**
 - Full Retail Rate - \$0.02/KWH
 - “Non-Bypassable Charges”
 - Save \$6.4 million
- **NEM 3.0 – Future ???**
 - Guesses for Exported Energy Compensation
 - -\$0.02/KWH
 - -\$0.04/KWH
 - 30%-65% Reduction in Savings



Solar Savings Analysis

What to consider when looking at solar opportunities



Utility Escalation Assumptions

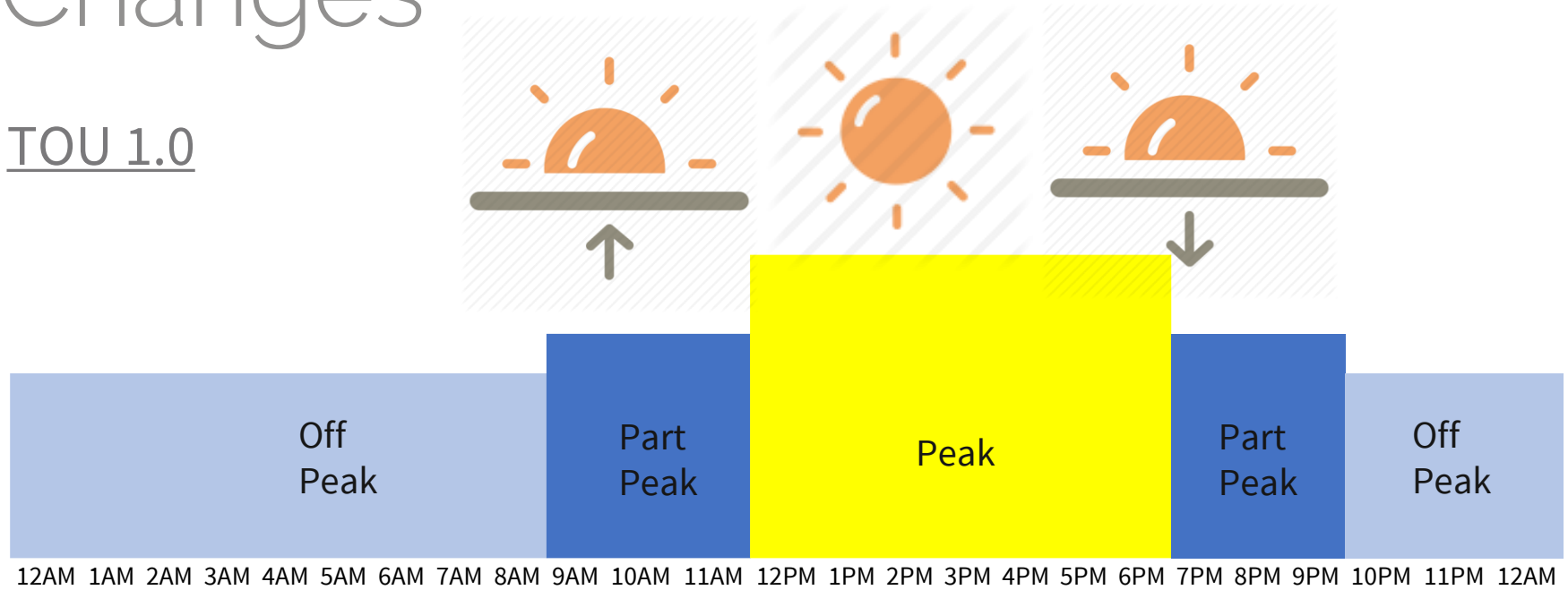
- **Most Significant Factor in Savings Analysis**
- **Conservative vs Aggressive**
 - SPURR / FFP: Conservative
- **2.5% - 3.0%**
 - Historically Validated
 - 30 Years of Data
- **4%-6%**
 - Less Conservative
 - 1.75x to 3x greater savings projected

Utility Escalation Assumptions
Sample 2MW Portfolio

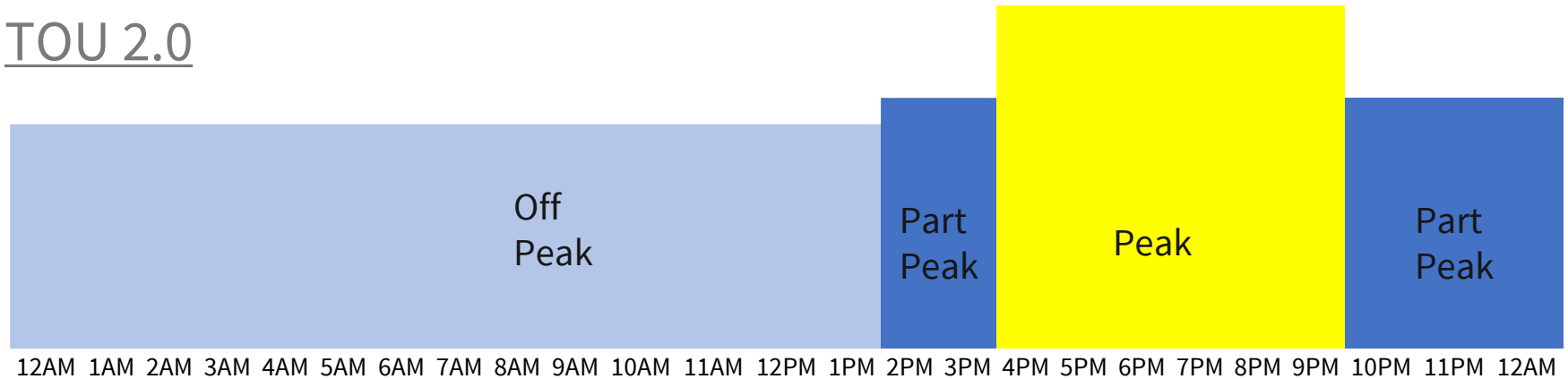


TOU Changes

TOU 1.0

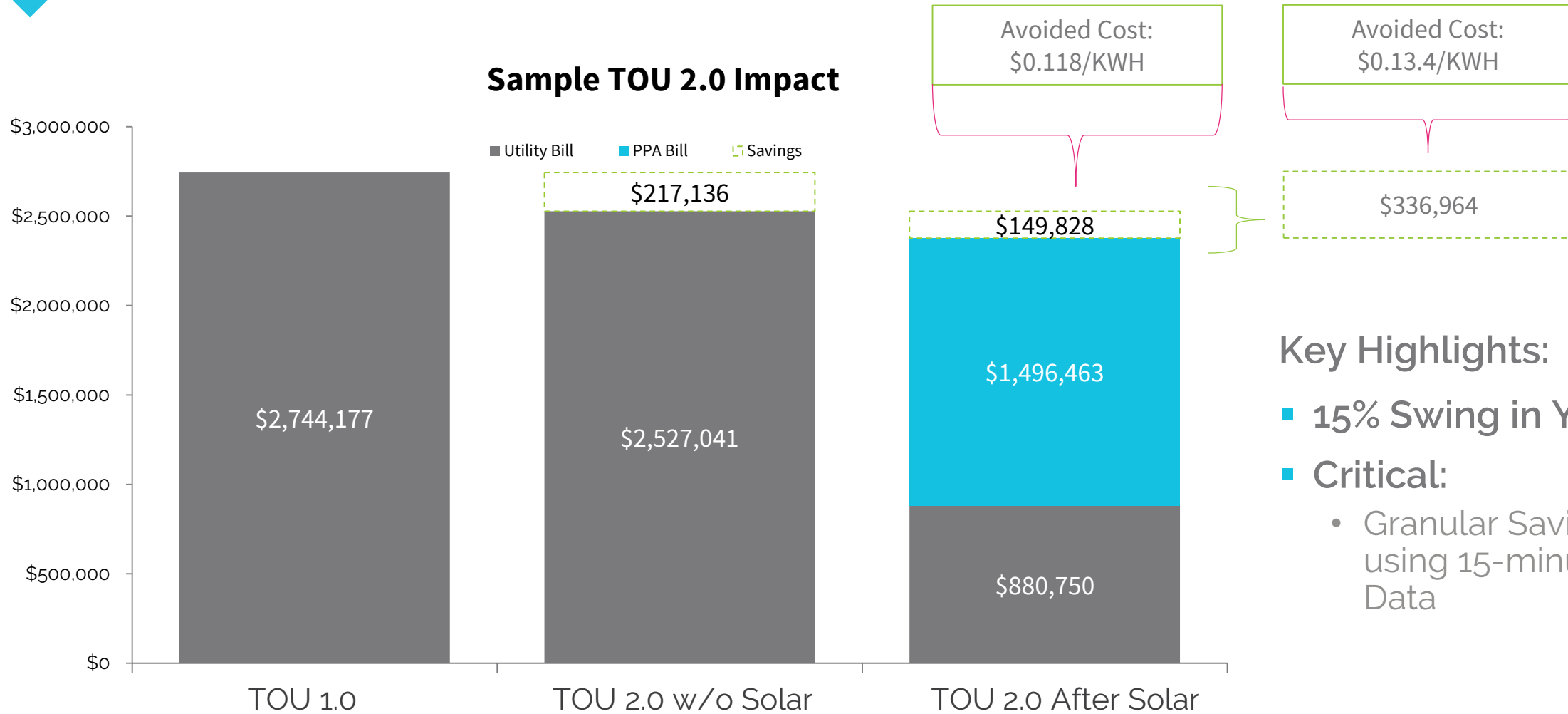


TOU 2.0





TOU 2.0 Savings Impact



Key Highlights:

- **15% Swing in Y1 Savings**
- **Critical:**
 - Granular Savings Analysis using 15-minute Interval Data

Solar Time Horizon

■ 20 Years

- CPUC – Net Energy Metering
- Full Retail Rate Compensation

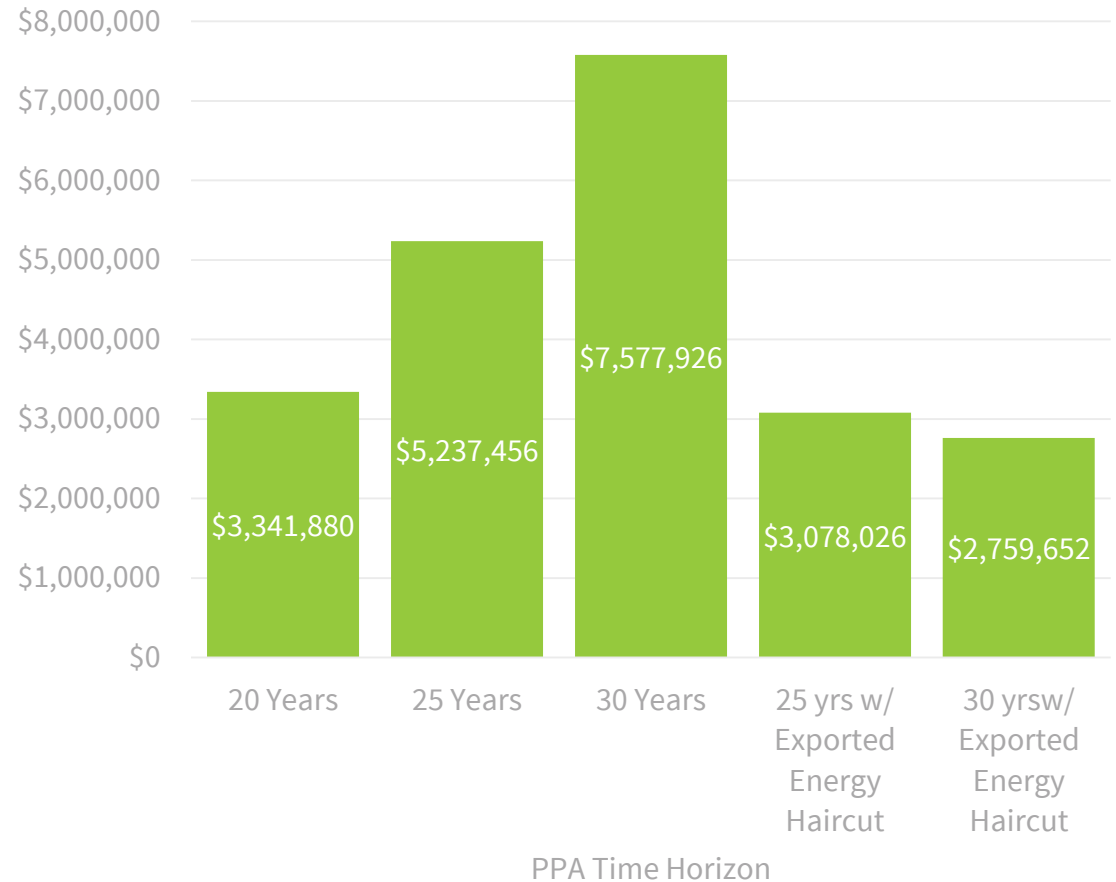
■ After Year 21 - ???

- Unknown Exported Energy Compensation

■ Conclusion

- Agreements longer than 20 years = Risk
- After Year 21 = Unknown

Time Horizon
Sample 2MW Portfolio



Energy Storage



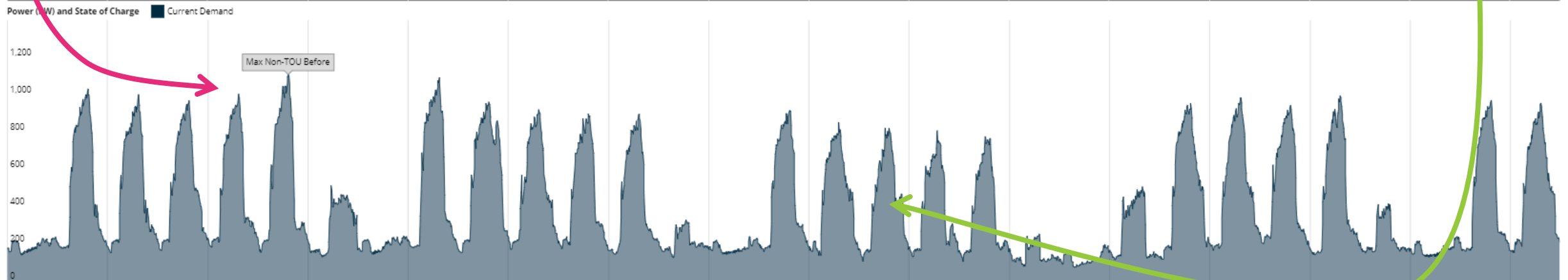
Demand Charges

■ Demand Charges:

- Measured in KW
- Peak usage during a billing period
- Cost of maintaining constant supply of electricity

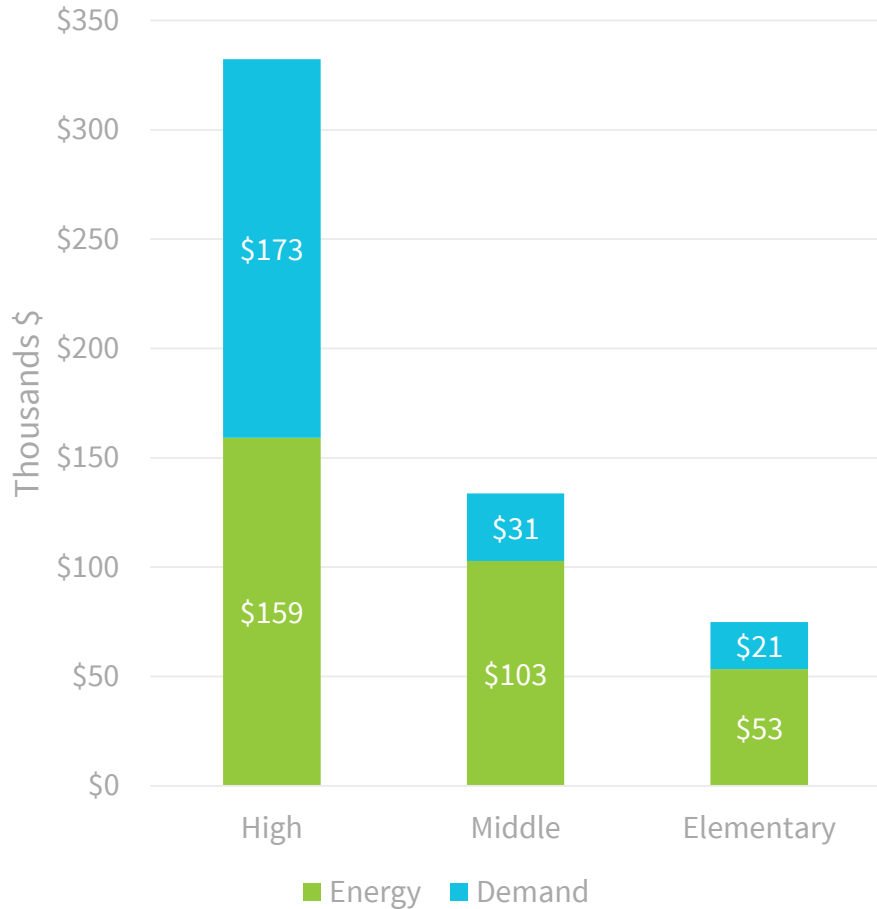
■ Energy Charges:

- Measured in kWh
- Total Electricity Consumed
- Cost of all kWh consumed

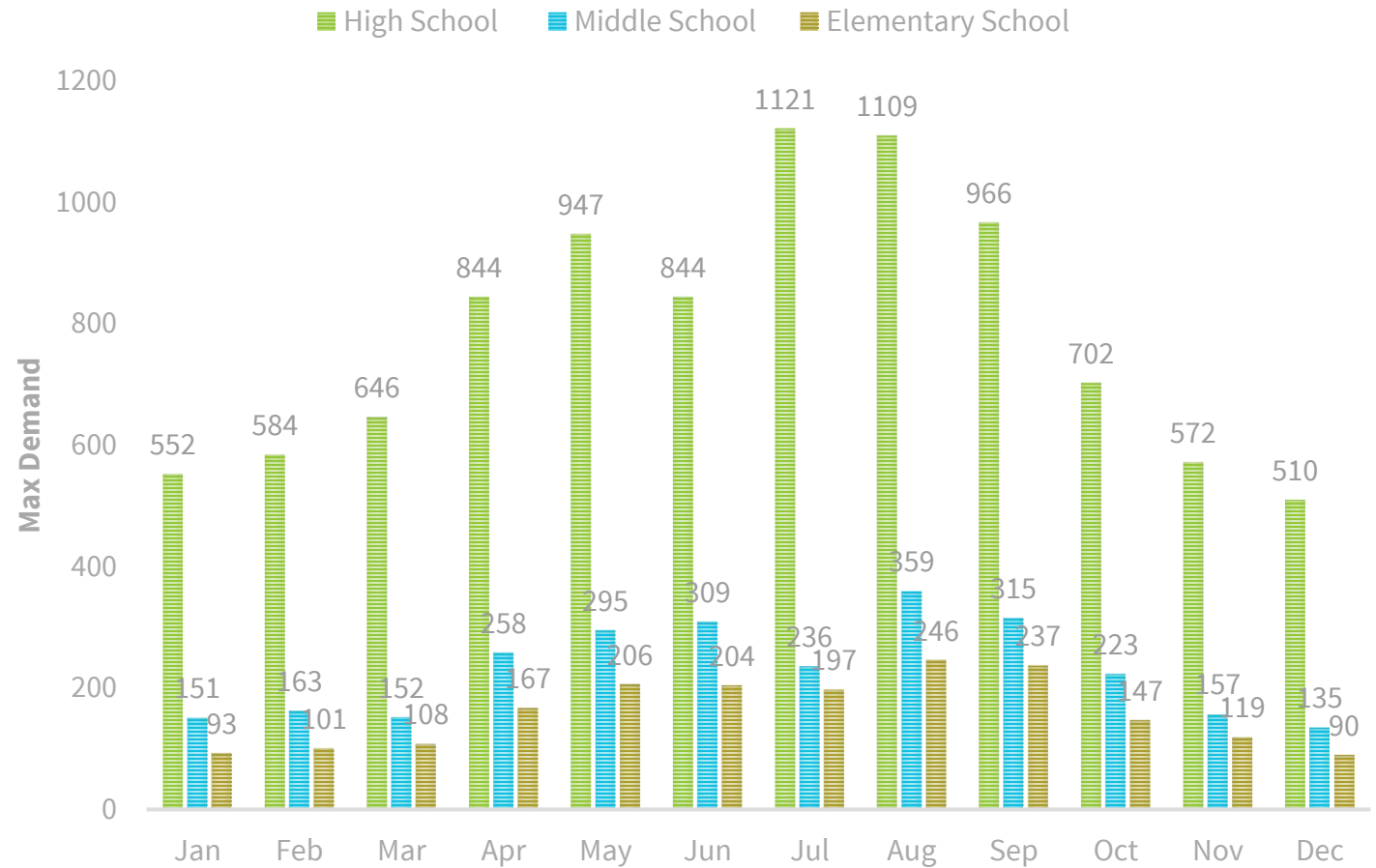


Demand Charges

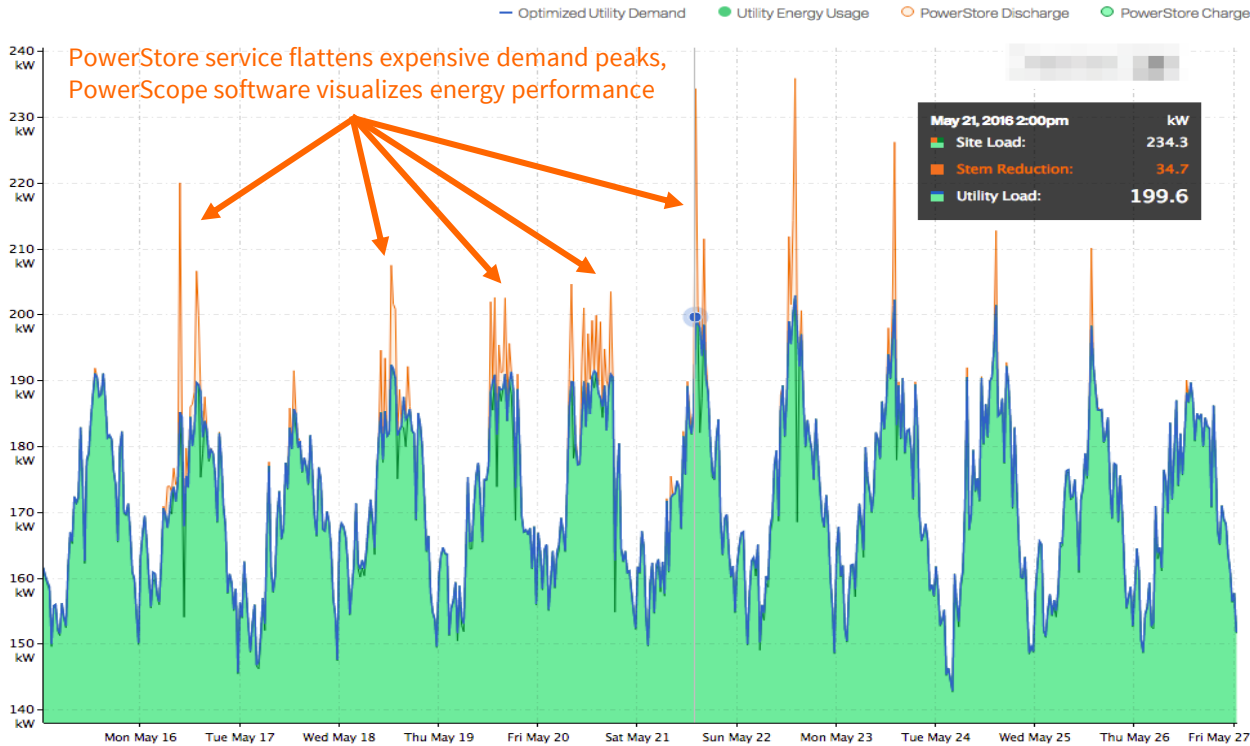
Sample School Usage Profiles



SAMPLE SCHOOL DEMAND PROFILES

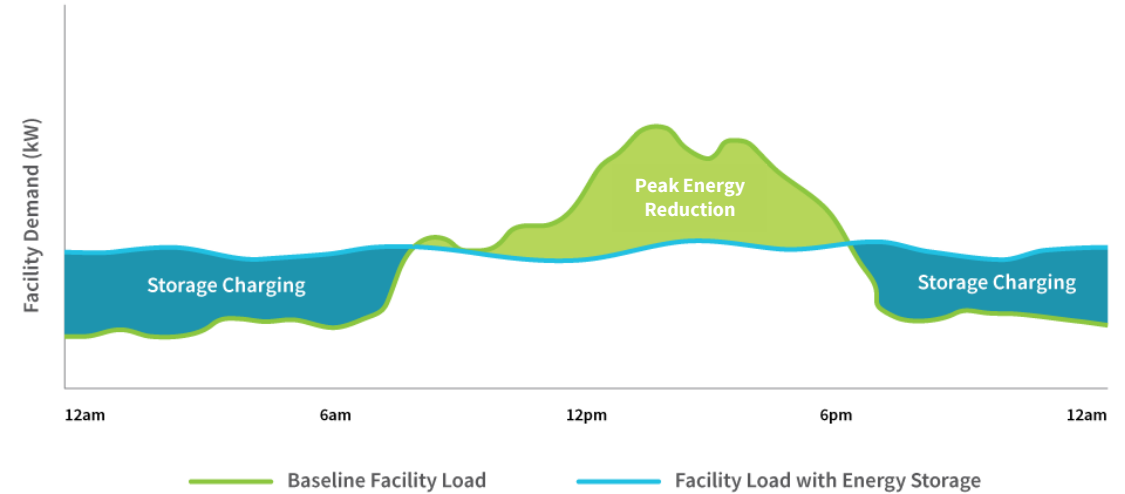


Energy Storage Solutions



Demand Charge Savings

Intelligently discharge the battery to shave demand charges.



Energy Arbitrage

Buy Low / Sell High

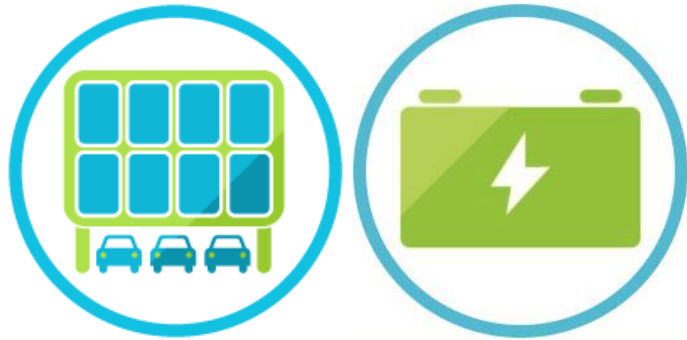
Microgrids

The image features a low-angle shot of multiple steel lattice transmission towers stretching into the distance. The sky is filled with large, billowing clouds that are illuminated from below by a low sun, creating a vibrant orange and yellow glow. The towers are silhouetted against this bright sky. A semi-transparent blue rectangular box is positioned on the left side of the image, serving as a background for the title text.

Normal Operations



Power Outage



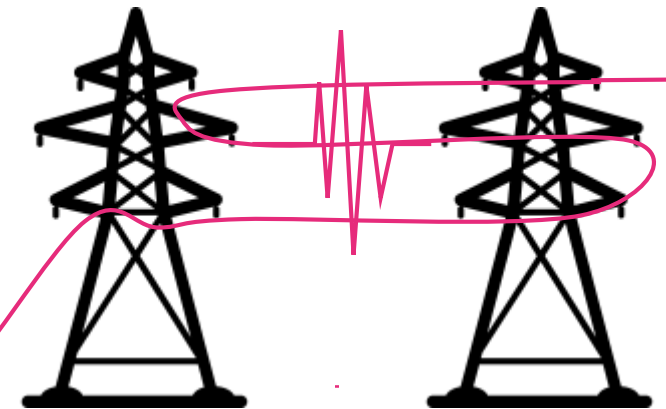
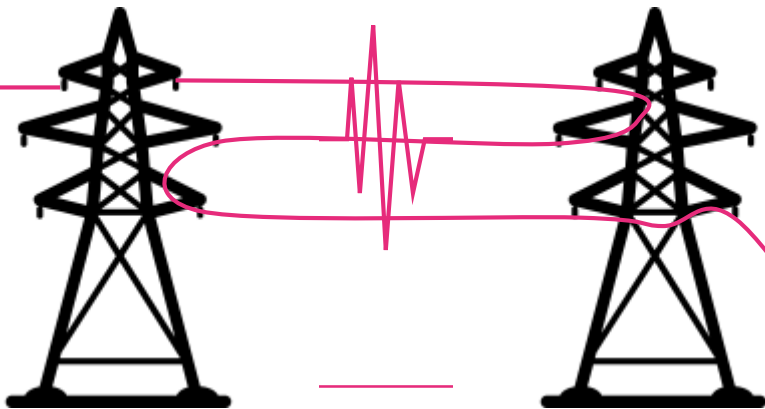
Solar + Storage

School Facility

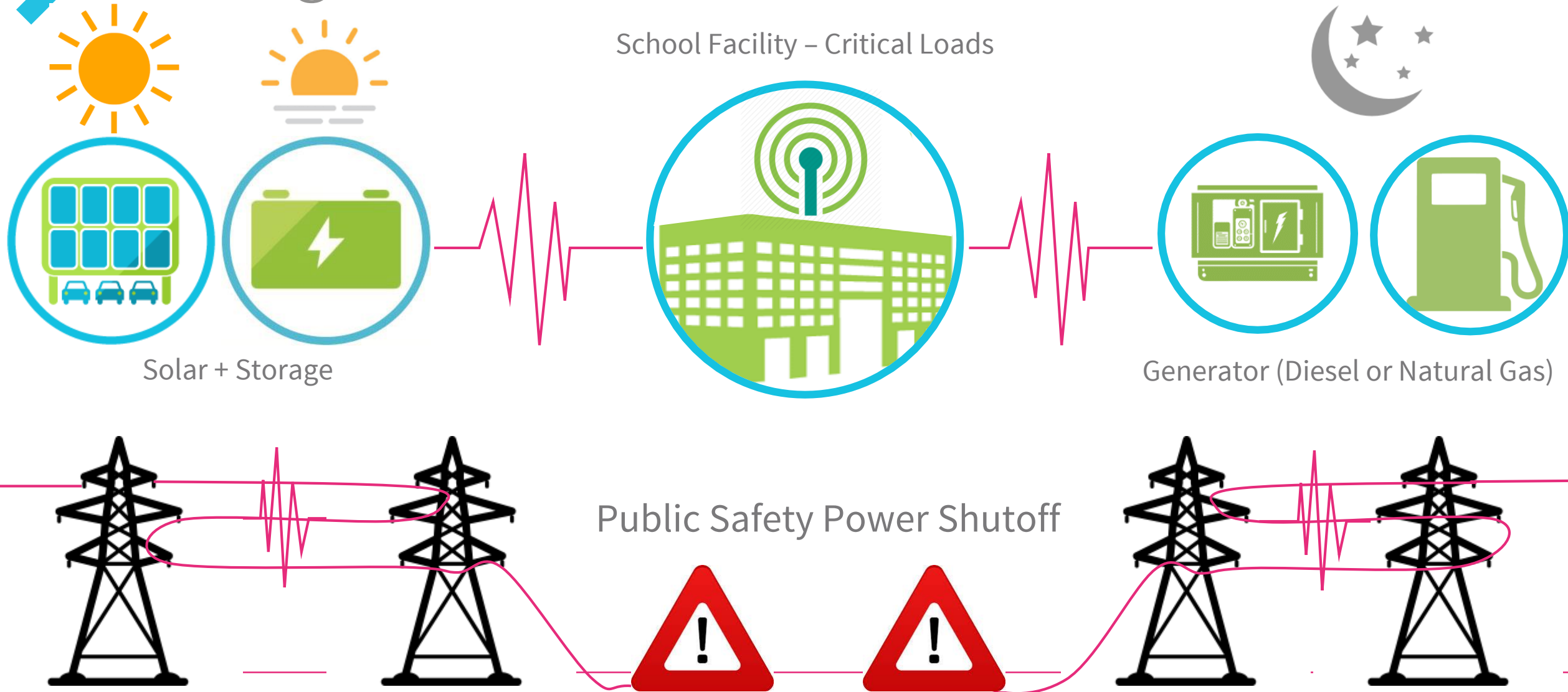


Solar shuts down
for safety in a
power outage

Public Safety Power Shutoff



Microgrid Mode



Microgrids

■ Opportunities

- Resiliency
- Reduce Operational Risk
- Energy Expense Savings
- Sustainability Leadership
- Islanding Controller Packages

■ Challenges

- Critical Load Analysis
 - Identify Critical Loads
 - Retrofit & Isolate Circuits
- Additional Solar Project Scope
 - On-Site Generator
 - Microgrid Technology



Solar + Storage

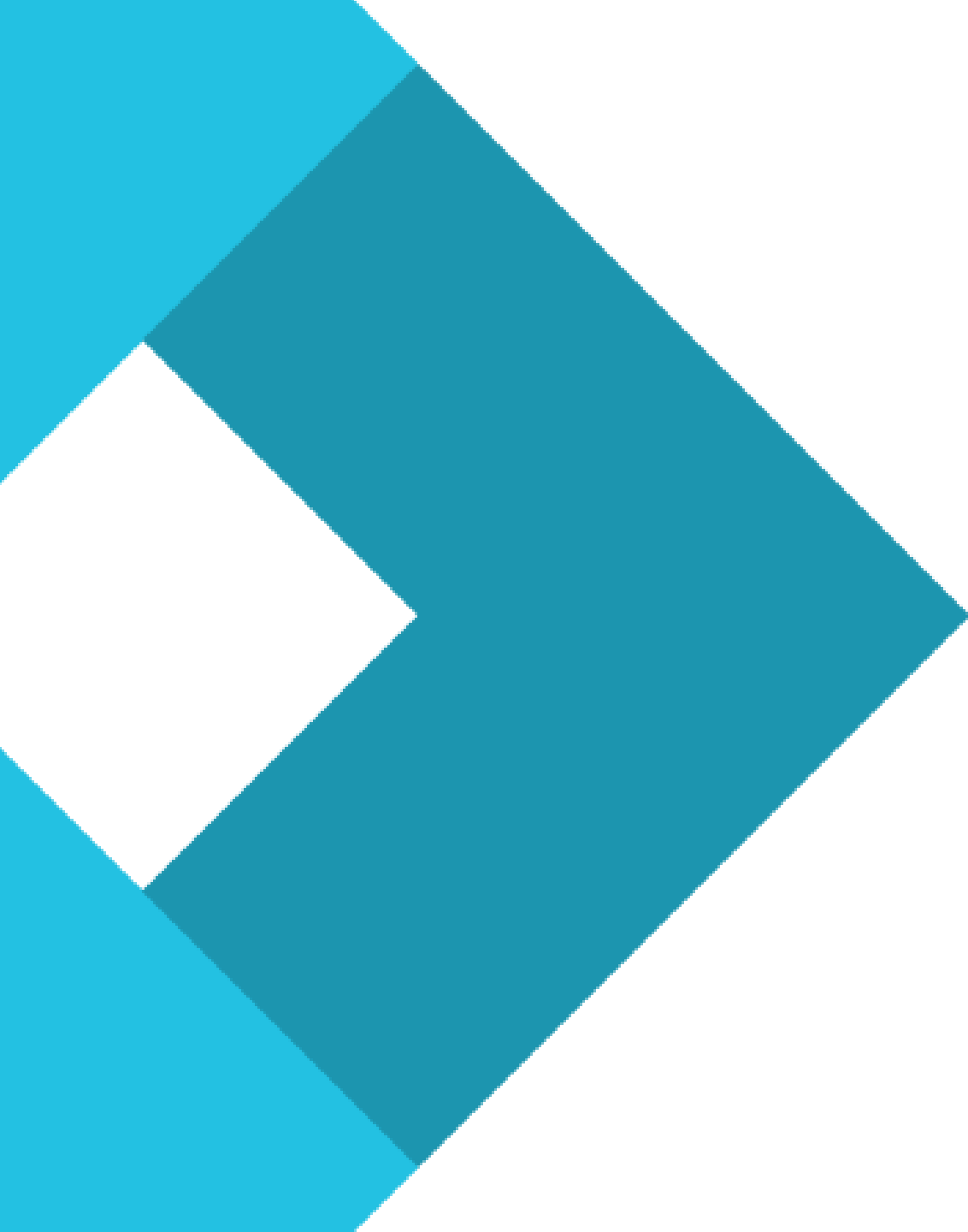


Generator (Diesel or Natural Gas)





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Q&A