



Sedona-Oak Creek Unified School District



# ENERGY UPDATE – FY20

September 3, 2020

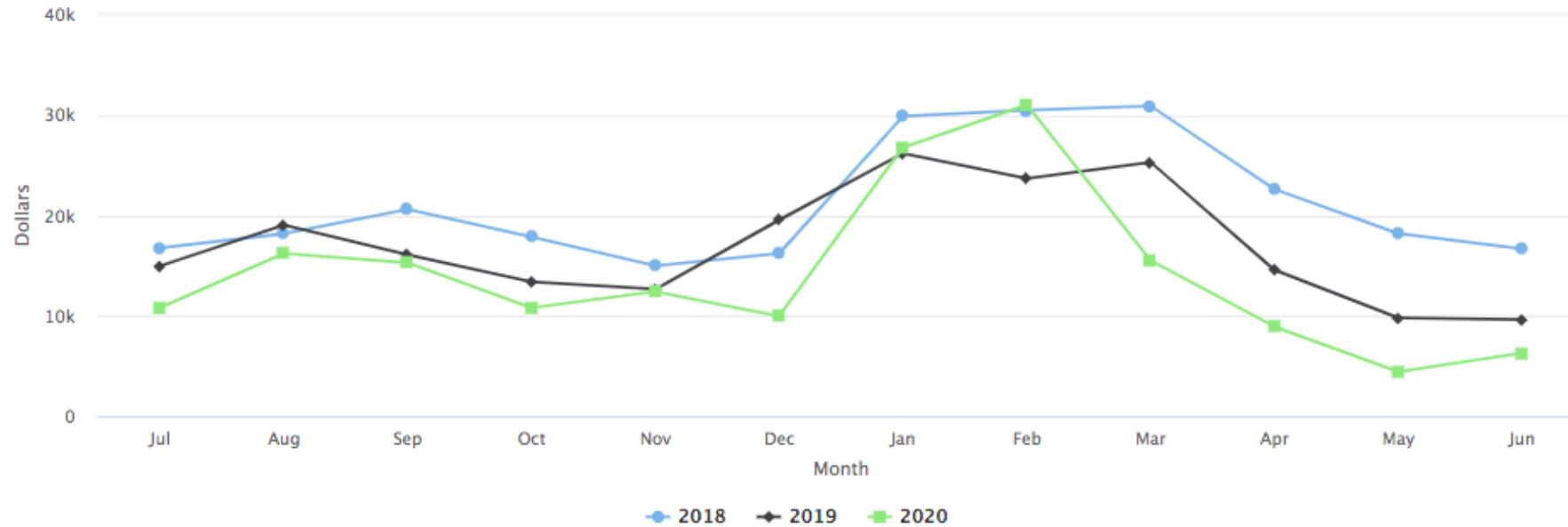
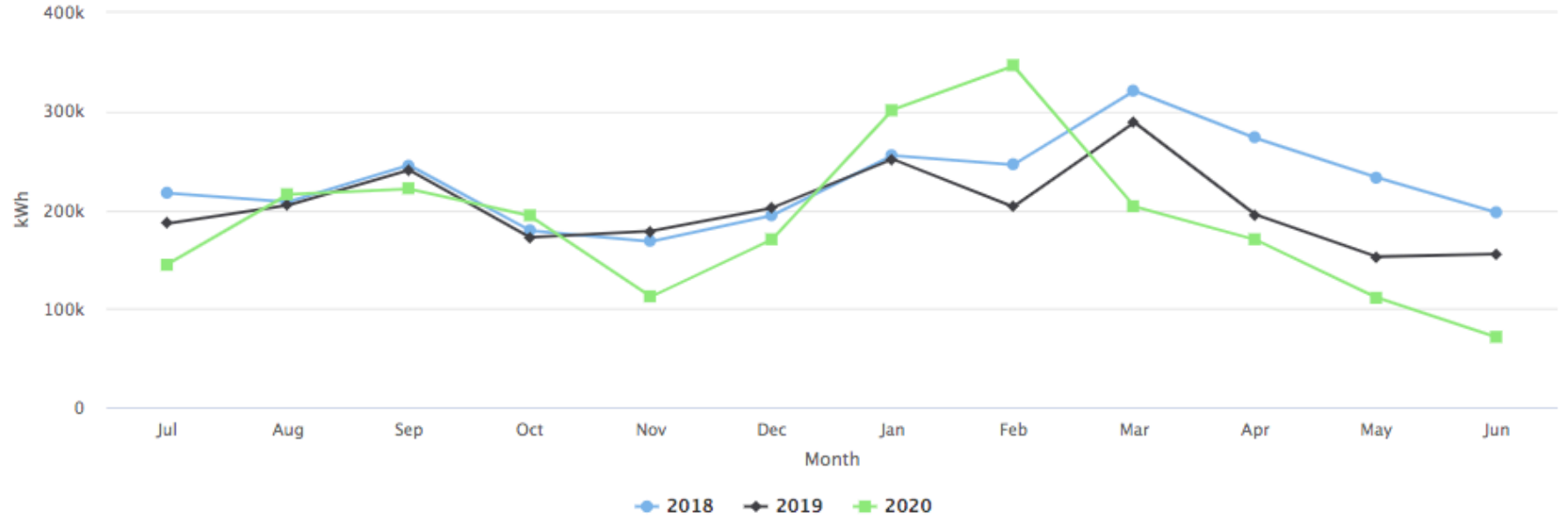
Auriane Koster, Ph.D. – Senior Sustainability Manager  
McCady Findley – Sustainability Manager  
Ari Schneider – Client Data Manager

# Summary of Electric



# Annual Electric (kWh) and Cost Compared

FY 18-20





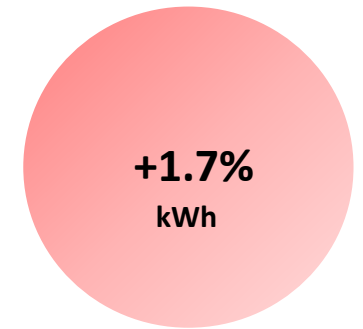
- SOCUSD increased 42,555 kWh (2%) and decreased \$36,420 (18%) in FY20 compared to FY19

# Electric Usage and Cost

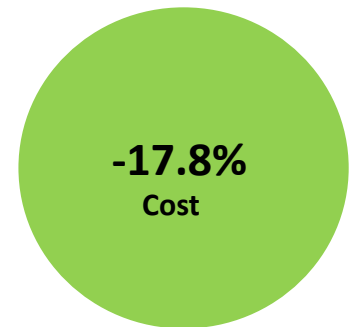
## FY20 vs. FY19

| Organizational YTD | 2020      | 2019      |
|--------------------|-----------|-----------|
| Total Usage (kWh)  | 2,539,777 | 2,497,222 |
| Total Cost         | \$168,519 | \$204,939 |
| % Change Usage     |           | 1.7% ↑    |
| % Change Cost      |           | -17.8% ↓  |

Percentage Change Usage



Percentage Change Cost



This snapshot shows total billed consumption.  
 Total Billed kWh: Billed kWh from utility + Solar Production kWh





# Electric Comparison

FY20 vs. FY19

| Click location to see accounts. | 2020        |           | 2019        |           | Percentage Change |          |
|---------------------------------|-------------|-----------|-------------|-----------|-------------------|----------|
|                                 | Usage (kWh) | Cost (\$) | Usage (kWh) | Cost (\$) | Usage             | Cost     |
| District Office                 | 75,820      | 6,366.96  | 115,214     | 12,186.73 | -34.19 ↓          | -47.75 ↓ |
| West Sedona School              | 547,306     | 76,227.47 | 586,641     | 95,196.45 | -6.71 ↓           | -19.93 ↓ |
| Sedona Red Rock High School     | 1,321,915   | 73,661.76 | 1,397,210   | 85,672.30 | -5.39 ↓           | -14.02 ↓ |
| Big Park Community School       | 317,006     | 12,262.44 | 332,993     | 11,883.91 | -4.80 ↓           | 3.19 ↑   |

This comparison shows total building consumption.

Total electric (building) consumption (kWh) = Total amount of electricity utilized by the building = Grid usage + Solar production – Solar Credit





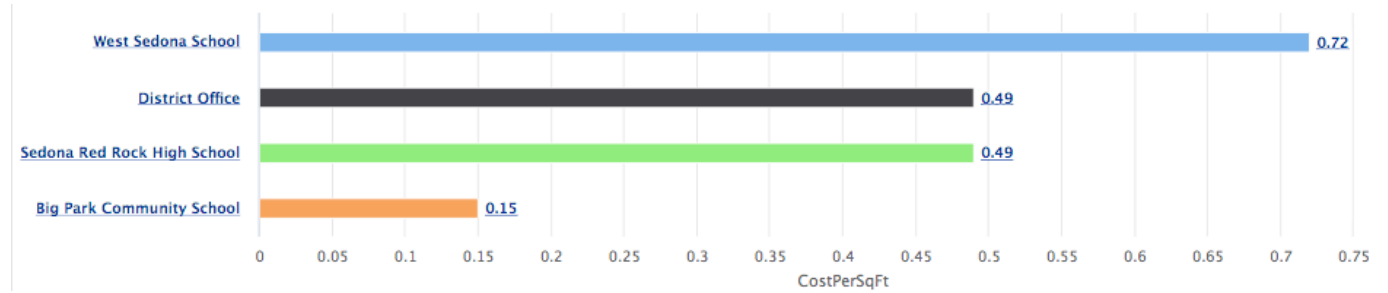
# Electric Comparison

## Cost/Sqft

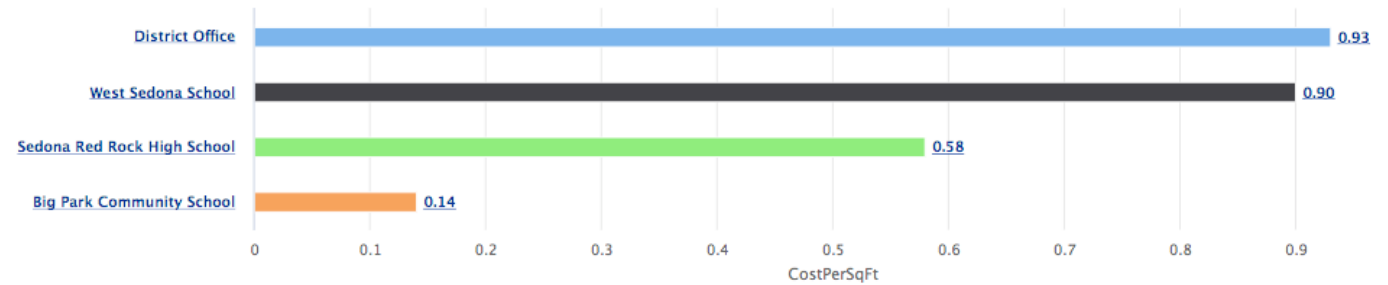
\$1.15 and \$1.40 is the PEP recommended cost/sq. ft. for elementary and high schools, respectively



July 2019 –  
June 2020  
Schools\* Average  
= \$0.61/sqft



July 2018 –  
June 2019  
Schools\* Average  
= \$0.74/sqft



\*Only includes West Sedona and Red Rock HS

# Maximum Monthly Demand

# Maximum Monthly Demand July – December

| Location  | Jul (KW) |            | Aug (KW) |            | Sep (KW) |            | Oct (KW) |            | Nov (KW) |            | Dec (KW) |            |
|---|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|
|   | 2018     | 2019       | 2018     | 2019       | 2018     | 2019       | 2018     | 2019       | 2018     | 2019       | 2018     | 2019       |
| District Office   | 25       | 22         | 27       | 23         | 23       | 18         | 23       | 15         | 23       | 20         | 39       | 23         |
| Big Park Community School                               | 84       | 58         | 118      | 79         | 108      | 75         | 50       | <b>51</b>  | 50       | <b>91</b>  | 87       | <b>98</b>  |
| Sedona RR HS (Meter T99785_1028518)                     | 144      | <b>159</b> | 189      | <b>225</b> | 306      | 234        | 246      | 216        | 246      | 246        | 252      | 243        |
| Sedona RR HS w/ Performaing Arts (Meter T99784_1028517) | 141      | 114        | 126      | 117        | 126      | 96         | 93       | <b>114</b> | 93       | <b>177</b> | 372      | 255        |
| West Sedona School                                      | 126      | 113        | 202      | 186        | 176      | <b>195</b> | 163      | 118        | 163      | <b>190</b> | 259      | <b>272</b> |

Caution > 350 KW

Demand over 400 KW

**KW higher than last year**



# Maximum Monthly Demand January – June

| Location  | Jan (KW) |      | Feb (KW) |      | Mar (KW) |      | Apr (KW) |      | May (KW) |      | June(KW) |      |
|---|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|
|   | 2019     | 2020 | 2019     | 2020 | 2019     | 2020 | 2019     | 2020 | 2019     | 2020 | 2019     | 2020 |
| District Office   | 44       | 42   | 43       | 51   | 45       | 22   | 49       | 20   | 32       | 6    | 25       | 7    |
| Big Park Community School                               | 157      | 163  | 95       | 146  | 156      | 166  | 221      | 74   | 146      | 42   | 115      | 32   |
| Sedona RR HS (Meter T99785_1028518)                     | 294      | 354  | 333      | 381  | 327      | 207  | 318      | 171  | 249      | 90   | 219      | 120  |
| Sedona RR HS w/ Performaing Arts (Meter T99784_1028517) | 297      | 348  | 300      | 423  | 324      | 150  | 273      | 117  | 168      | 117  | 129      | 21   |
| West Sedona School                                      | 286      | 273  | 287      | 280  | 292      | 240  | 216      | 84   | 147      | 34   | 147      | 35   |

Caution > 350 KW

Demand over 400 KW

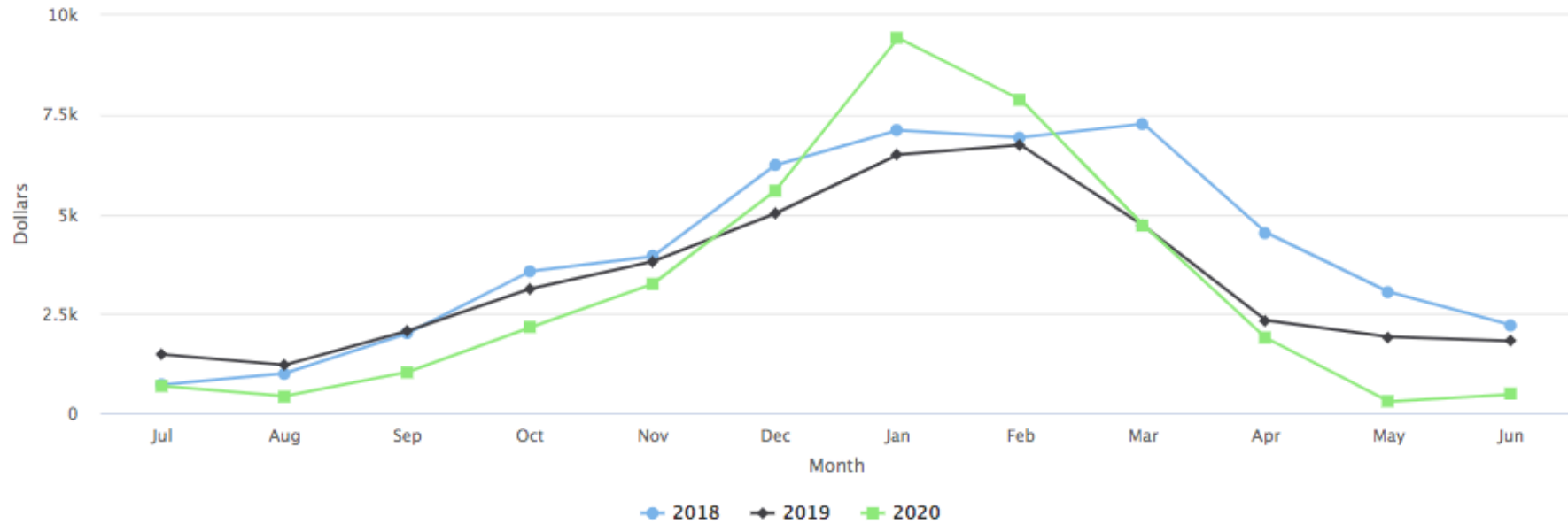
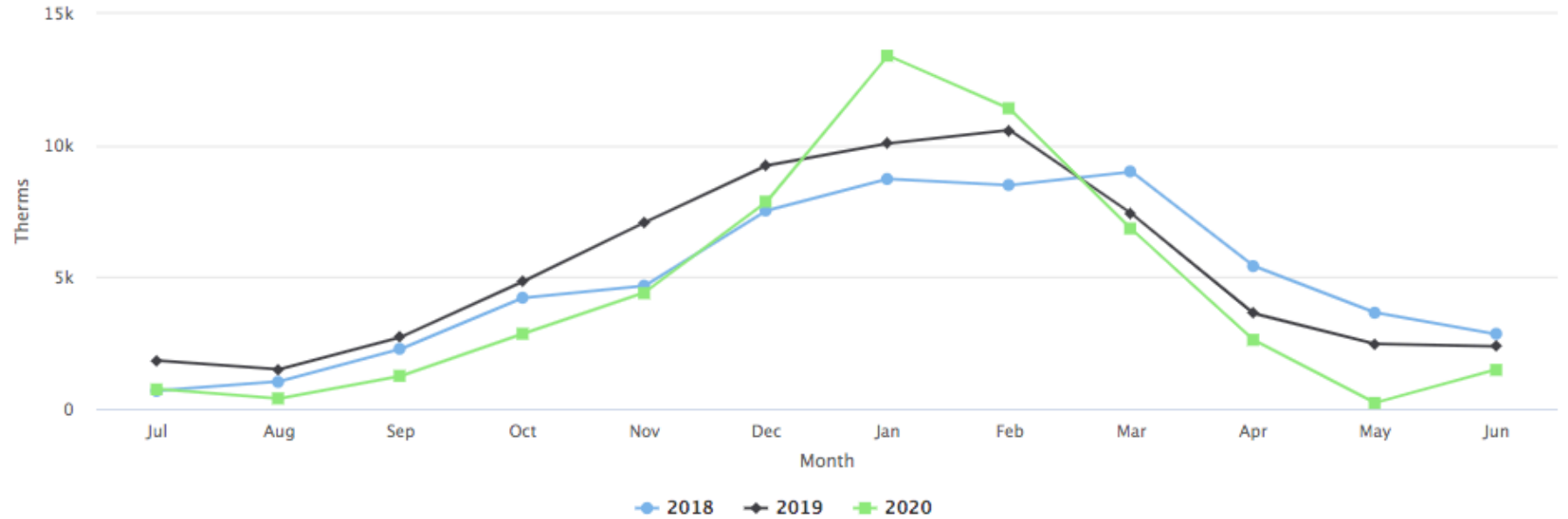
KW higher than last year

# Summary of Gas



# Annual Gas (therms) and Cost Compared

FY 18-20





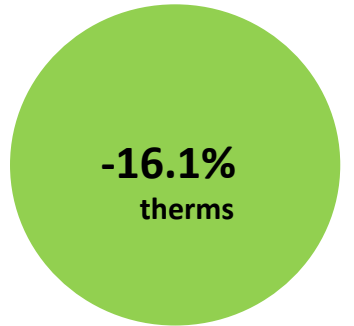
# Gas Usage and Cost

FY20 vs. FY19

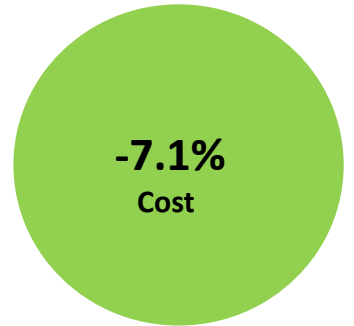
- In FY20 compared to FY19, SOCUSD used **10,245 (9%) less therms** and spent **\$2,894 (16%) less on gas**

| Organizational YTD | 2020     | 2019     |
|--------------------|----------|----------|
| Total Usage        | 53,499   | 63,744   |
| Total Cost         | \$37,845 | \$40,739 |
| % Change Usage     |          | -16.1% ↓ |
| % Change Cost      |          | -7.1% ↓  |

Percentage Change Usage



Percentage Change Cost





# Gas Comparison

FY20 vs. FY19



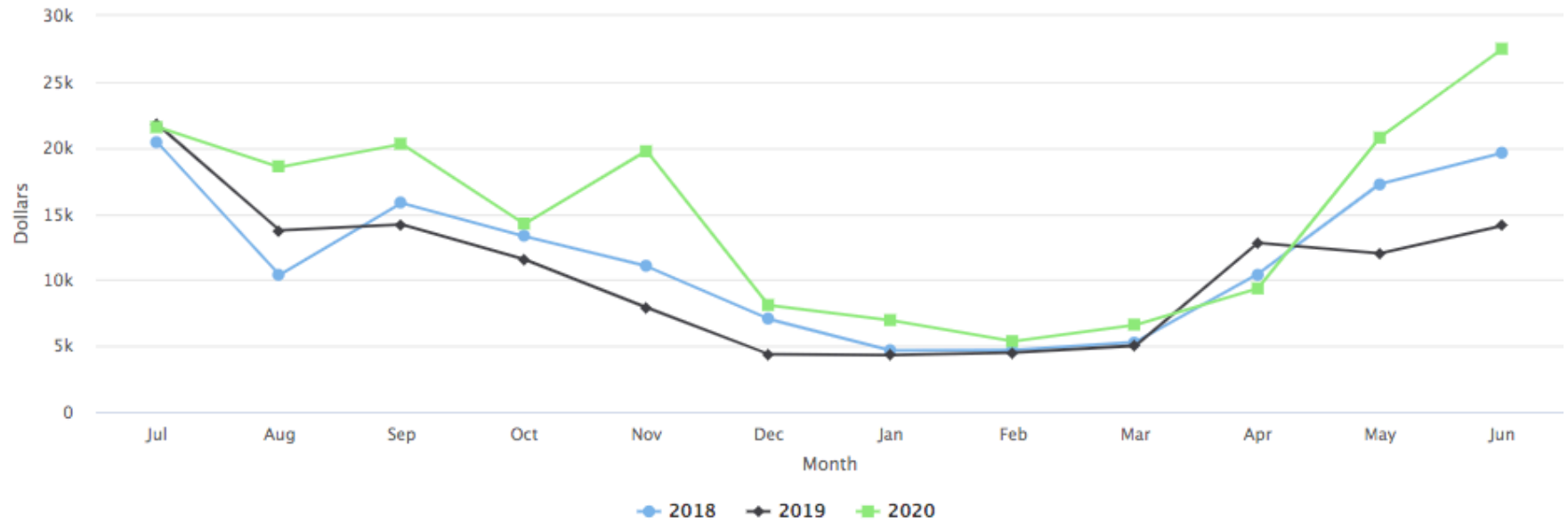
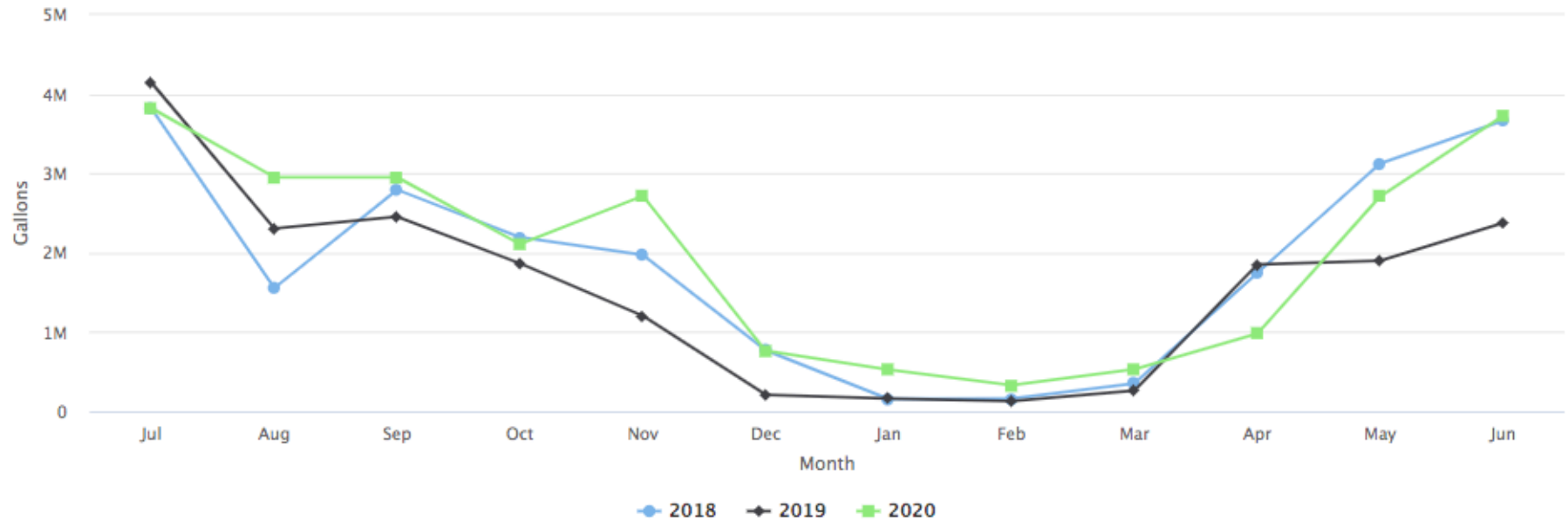
| Click location to see accounts. | 2020           |           | 2019           |           | Percentage Change |          |
|---------------------------------|----------------|-----------|----------------|-----------|-------------------|----------|
|                                 | Usage (therms) | Cost (\$) | Usage (therms) | Cost (\$) | Usage             | Cost     |
| West Sedona School              | 35,010         | 23,711.25 | 46,832         | 28,948.71 | -25.24 ↓          | -18.09 ↓ |
| Sedona Red Rock High School     | 14,161         | 11,017.30 | 13,746         | 9,609.70  | 3.02 ↑            | 14.65 ↑  |
| Big Park Community School       | 4,327          | 3,084.40  | 3,166          | 2,180.16  | 36.67 ↑           | 41.48 ↑  |

# Summary of Water



# Annual Water (gal) and Cost Compared

FY 18-20





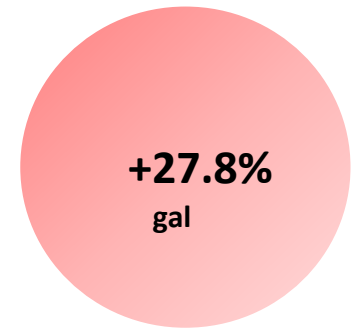
# Water Usage and Cost

## FY20 vs. FY19

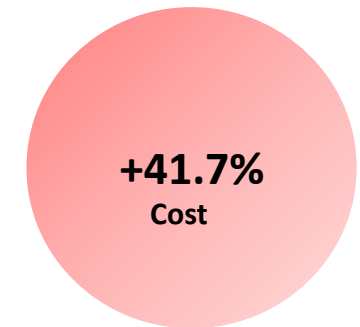
- In FY20 compared to FY19, SOCUSD used **5,245,513 (28%) more gallons** and spent **\$52,669 (42%) more on water**

| Organizational YTD | 2020       | 2019       |
|--------------------|------------|------------|
| Total Usage        | 24,125,414 | 18,879,901 |
| Total Cost         | \$178,941  | \$126,272  |
| % Change Usage     |            | 27.8% ↑    |
| % Change Cost      |            | 41.7% ↑    |

Percentage Change Usage



Percentage Change Cost







# Water Comparison

FY20 vs. FY19

| Click location to see accounts. | 2020         |           | 2019         |           | Percentage Change |         |
|---------------------------------|--------------|-----------|--------------|-----------|-------------------|---------|
|                                 | Usage (gals) | Cost (\$) | Usage (gals) | Cost (\$) | Usage             | Cost    |
| Sedona Red Rock High School     | 7,737,914    | 65,309.17 | 7,280,700    | 55,868.57 | 6.28 ↑            | 16.90 ↑ |
| District Office                 | 904,300      | 7,229.22  | 783,000      | 6,010.57  | 15.49 ↑           | 20.28 ↑ |
| West Sedona School              | 8,122,300    | 59,226.12 | 5,742,701    | 37,308.80 | 41.44 ↑           | 58.75 ↑ |
| Big Park Community School       | 7,360,900    | 47,176.10 | 5,073,500    | 27,083.56 | 45.09 ↑           | 74.19 ↑ |



# Interval Demand Data

# FY20 Accomplishments



## Accomplishments

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- Monthly & Quarterly Data Reports
- Break Checklists Sent to SOCUSD
- EMS Review
- Weekly Interval Demand Reports, as appropriate
- Helped with Orchestrate implementation
- Fusebox included within Orchestrate
- Identified solar issues
- Identified water increases





# FY20 COVID-19 Early Building Closure Avoided Costs



|              | 2019      | 2020      | Estimated<br>kWh<br>Avoidance | Estimated<br>Cost<br>Avoidance |
|--------------|-----------|-----------|-------------------------------|--------------------------------|
| Week 1       | 3/18-3/24 | 3/16-3/22 | (13,145)                      | \$ 1,417.31                    |
| Week 2       | 3/25-3/31 | 3/23-3/29 | (5,057)                       | \$ 674.05                      |
| Week 3       | 4/1-4/7   | 3/30-4/5  | (5,825)                       | \$ 735.27                      |
| Week 4       | 4/8-4/14  | 4/6-4/12  | (4,508)                       | \$ 527.26                      |
| Week 5       | 4/15-4/21 | 4/13-4/19 | (8,458)                       | \$ 949.87                      |
| Week 6       | 4/22-4/28 | 4/20-4/26 | (7,907)                       | \$ 902.09                      |
| Week 7       | 4/29-5/5  | 4/27-5/3  | (6,971)                       | \$ 788.33                      |
| Week 8       | 5/6-5/12  | 5/4-5/10  | (7,711)                       | \$ 862.60                      |
| Week 9       | 5/13-5/19 | 5/11-5/17 | (7,536)                       | \$ 861.87                      |
| Week 10      | 5/20-5/26 | 5/18-5/24 | (8,881)                       | \$ 1,025.75                    |
| Week 11      | 5/27-6/2  | 5/25-5/31 | (3,598)                       | \$ 388.81                      |
| Week 12      | 6/3-6/9   | 6/1-6/7   | (3,412)                       | \$ 307.72                      |
| Week 13      | 6/10-6/16 | 6/8-6/14  | (6,247)                       | \$ 653.27                      |
| Week 14      | 6/17-6/23 | 6/15-6/21 | (8,444)                       | \$ 849.31                      |
| Week 15      | 6/24-6/30 | 6/22-6/28 | (3,339)                       | \$ 471.16                      |
| <b>Total</b> |           |           | <b>(101,040)</b>              | <b>\$ 11,414.65</b>            |

# FY21 Opportunities



## Energy Saving

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## Opportunities

- Enforce setpoints
- Adjust setpoints for optimal savings
- Ensure occupied and unoccupied setpoints are set
- Train staff on energy-saving opportunities
- Support Green Teams at all schools
- Support Orchestrate use
  - How is this going?
  - Do you need help with anything?
- Upload Fusebox documents within Orchestrate





# Budget Analysis Tool

## Opportunities

- The Department of Education requires districts to budget for and report on annual utility expenses
- Fusebox compiled your historical data and created a utility projection tool
- Fusebox wants to proactively monitor utility spending versus the budgeted amounts for FY21
- Help ensure the district is spending the same or less than originally allotted for
- Please provide us with your FY21 utility budget per utility type
- Fusebox will track your utility expenditure and provide an analysis quarterly

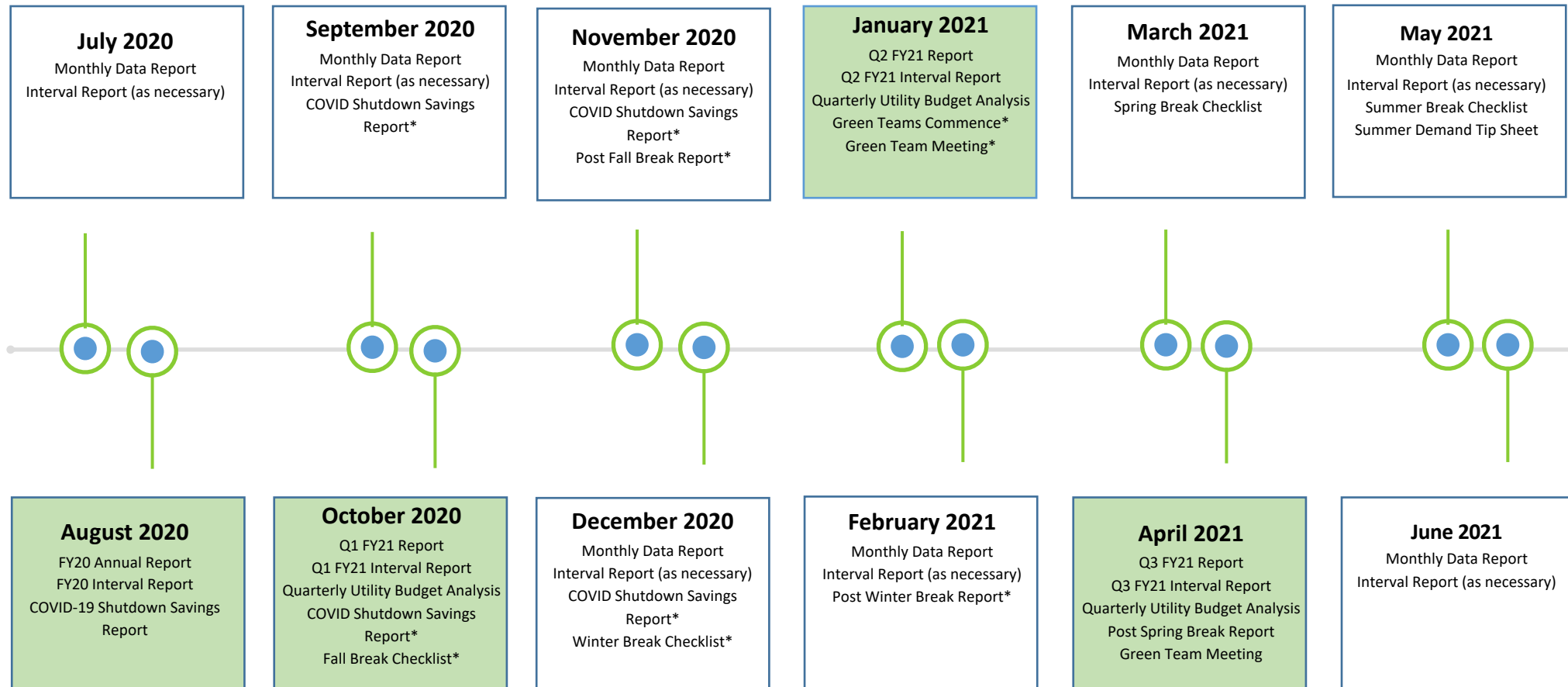
| Sedona Oak Creek School District Grid Electric Budgeting Model FY2021 |                     |                        |                         |                           |                   |                       |   |
|---|---------------------|------------------------|-------------------------|---------------------------|-------------------|-----------------------|---|
| Month   | Model Cost by Month | Model % Spent by Month | Apportioned FY21 Budget | Actual Cost by Month FY21 | Variance by Month | Cumulative % Variance | Actual % by Month (fill out at end of year) |
| July  | \$ 16,453           | 7%                     |                         |                           |                   |                       |   |
| August  | \$ 19,917           | 8%                     |                         |                           |                   |                       |   |
| September   | \$ 19,509           | 8%                     |                         |                           |                   |                       |   |
| October   | \$ 15,937           | 6%                     |                         |                           |                   |                       |   |
| November  | \$ 14,618           | 6%                     |                         |                           |                   |                       |   |
| December  | \$ 16,330           | 7%                     |                         |                           |                   |                       |   |
| January   | \$ 29,782           | 12%                    |                         |                           |                   |                       |   |
| February  | \$ 29,402           | 12%                    |                         |                           |                   |                       |   |
| March   | \$ 28,920           | 12%                    |                         |                           |                   |                       |   |
| April   | \$ 20,387           | 8%                     |                         |                           |                   |                       |   |
| May   | \$ 16,856           | 7%                     |                         |                           |                   |                       |   |
| June  | \$ 17,214           | 7%                     |                         |                           |                   |                       |   |
|   | \$245,325           | 100%                   |                         |                           |                   |                       |   |





# Sedona-Oak Creek Unified School District

## Deliverable Roadmap\*



**\*Notes:**

This roadmap will evolve to reflect a possible COVID-19 shutdown.  
Assume that schools will be back in session face-to-face no later than January 2021.



## Project Team

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## Contact Information



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