

Table S1. Extended feeder summary table showing Solar and EV installation penetration within the bounding ZCTA for each feeder. This table provides additional information to the information presented within report Table 1.

| Feeder | Location (ZCTA) | Census Tracts | Number of PV installs and rated capacity (2020) ¹ | PHEV + BEV total (2017) ² |
|-------------|-------------------------------|------------------------------------|--|--------------------------------------|
| A (primary) | Watts (90059) | 2426, 2427, 2409, 2410.01, 2410.02 | 130, 536 kW | 18 (0.20%) |
| B (primary) | Southeast LA (90037) | 2318, 2284.2, 2285 | 238, 991 kW | 53 (0.26%) |
| C (primary) | Toluca Lake (91602) | 1255.02 | 159, 1090 kW | 332 (4.5%) |
| D (primary) | Burbank (91601) | 1243, 1253.1, 1242.04 | 254, 1392 kW | 682 (2.1%) |
| E (example) | Central Wilshire (90036) | 2145.01, 2145.03 | 216, 1761 kW | 455 (4.6%) |
| F (example) | Downtown (90014) (commercial) | 2077.1 | 238, 991 kW | N/A |

Los Angeles-Long Beach Census tract codes presented. ¹ Sourced from 2019 LADWP data. ² Total number of plug-in hybrid electric vehicles and battery electric vehicles, drawn from 2017 DMV data within the bounding ZCTA for each feeder. Percentages are representative of PHEV + BEV population within total vehicle population within the bounding ZCTA.

Table S1. Energy use for 2020 (COVID-19 period) and 2018-2019 comparison baseline (calendar year period) showing absolute change in energy usage by communities. Values show unnormalized energy use.

| Time Period | (A) Watts | | (B) Southeast LA | | (C) Toluca Lake | | (D) Burbank | |
|--------------|-----------|------|------------------|------|-----------------|-------|-------------|------|
| | 2018-19 | 2020 | 2018-19 | 2020 | 2018-19 | 2020 | 2018-19 | 2020 |
| All Days | 5.8% | 9.6% | 3.6% | 6.6% | 10.3% | 14.6% | 8.1% | 9.4% |
| Weekend Days | 5.6% | 9.3% | 2.6% | 5.5% | 9.0% | 13.1% | 8.8% | 9.9% |
| Weekdays | 6.1% | 9.9% | 4.1% | 7.1% | 11.0% | 15.6% | 7.9% | 9.2% |

Table S3. Summary of regression segments (80% CI) and temperature change point values for Figure S2.

| 2018+2019 Temp. Sensitivity (°F, 80%CI) | | | | | | 2020 Temp Sensitivity (°F, 80%CI) | | | | | |
|---|------------|---------|---------|----------|--------------|-----------------------------------|------------|---------|---------|----------|--|
| Weekend | Temp Range | 65.32 | 66.44 | 67.57 | | Weekend | Temp Range | 61.16 | 63.93 | 66.70 | |
| Model Constants | Offset | 3149.19 | 1348.75 | -3565.43 | A | Model Constants | Offset | 4067.98 | 1416.21 | -3567.62 | |
| | Gain | -27.56 | 0.00 | 72.73 | Watts | | Gain | -43.36 | 0.00 | 74.72 | |
| Weekday | Temp Range | 62.42 | 64.89 | 67.36 | | Weekday | Temp Range | 65.00 | 65.32 | 65.64 | |
| Model Constants | Offset | 3543.78 | 1352.25 | -3163.39 | | Model Constants | Offset | 2915.45 | 1369.34 | -2756.02 | |
| | Gain | -35.11 | 0.00 | 67.04 | | | Gain | -23.79 | 0.00 | 62.85 | |
| | | | | | | | | | | | |
| Weekend | Temp Range | 60.33 | 64.52 | 68.72 | | Weekend | Temp Range | 60.09 | 63.96 | 67.82 | |
| Model Constants | Offset | 3226.26 | 1045.22 | -2777.69 | B | Model Constants | Offset | 3662.25 | 1038.14 | -2488.52 | |
| | Gain | -36.15 | 0.00 | 55.63 | Southeast LA | | Gain | -43.67 | 0.00 | 52.00 | |
| Weekday | Temp Range | 61.89 | 64.49 | 67.08 | | Weekday | Temp Range | 62.09 | 63.91 | 65.73 | |
| Model Constants | Offset | 2976.24 | 1026.20 | -2157.17 | | Model Constants | Offset | 3114.77 | 1019.76 | -1637.24 | |
| | Gain | -31.51 | 0.00 | 47.46 | | | Gain | -33.74 | 0.00 | 40.42 | |
| | | | | | | | | | | | |
| Weekend | Temp Range | 58.18 | 62.82 | 67.46 | C | Weekend | Temp Range | 60.01 | 62.30 | 64.58 | |
| Model Constants | Offset | 1824.01 | 642.72 | -2886.86 | Toluca Lake | Model Constants | Offset | 1331.83 | 641.65 | -2165.94 | |
| | Gain | -20.30 | 0.00 | 52.32 | | | Gain | -11.50 | 0.00 | 43.47 | |
| Weekday | Temp Range | 58.90 | 62.58 | 66.26 | | Weekday | Temp Range | 58.44 | 61.63 | 64.83 | |
| Model Constants | Offset | 1844.38 | 624.00 | -2351.17 | | Model Constants | Offset | 1541.05 | 648.80 | -1868.95 | |
| | Gain | -20.72 | 0.00 | 44.90 | | | Gain | -15.27 | 0.00 | 38.84 | |
| | | | | | | | | | | | |
| Weekend | Temp Range | 58.00 | 62.10 | 66.20 | D | Weekend | Temp Range | 63.34 | 63.35 | 63.35 | |
| Model Constants | Offset | 3184.67 | 1221.90 | -3720.41 | Burbank | Model Constants | Offset | 2534.55 | 0.00 | -2706.80 | |
| | Gain | -33.84 | 0.00 | 74.66 | | | Gain | -21.11 | 0.00 | 61.64 | |
| Weekday | Temp Range | 59.62 | 62.31 | 65.00 | | Weekday | Temp Range | 62.74 | 63.12 | 63.50 | |
| Model Constants | Offset | 3254.05 | 1272.51 | -3260.55 | | Model Constants | Offset | 2537.17 | 1296.19 | -2083.77 | |
| | Gain | -33.24 | 0.00 | 69.74 | | | Gain | -19.78 | 0.00 | 53.23 | |

Table S4. Specific dates for the ISO weeks for 2018, 2019, and 2020

| Week Number | Start Date (2018) | Start Date (2019) | Start Date (2020) |
|-------------|-------------------|-------------------|-------------------|
| 1 | 1/1/2018 | 1/7/2019 | 1/4/2020 |
| 2 | 1/8/2018 | 1/14/2019 | 1/11/2020 |
| 3 | 1/15/2018 | 1/21/2019 | 1/18/2020 |
| 4 | 1/22/2018 | 1/28/2019 | 1/25/2020 |
| 5 | 1/29/2018 | 2/4/2019 | 2/1/2020 |
| 6 | 2/5/2018 | 2/11/2019 | 2/8/2020 |
| 7 | 2/12/2018 | 2/18/2019 | 2/15/2020 |
| 8 | 2/19/2018 | 2/25/2019 | 2/22/2020 |
| 9 | 2/26/2018 | 3/4/2019 | 2/29/2020 |
| 10 | 3/5/2018 | 3/11/2019 | 3/7/2020 |
| 11 | 3/12/2018 | 3/18/2019 | 3/14/2020 |
| 12 | 3/19/2018 | 3/25/2019 | 3/21/2020 |
| 13 | 3/26/2018 | 4/1/2019 | 3/28/2020 |
| 14 | 4/2/2018 | 4/8/2019 | 4/4/2020 |
| 15 | 4/9/2018 | 4/15/2019 | 4/11/2020 |
| 16 | 4/16/2018 | 4/22/2019 | 4/18/2020 |
| 17 | 4/23/2018 | 4/29/2019 | 4/25/2020 |
| 18 | 4/30/2018 | 5/6/2019 | 5/2/2020 |
| 19 | 5/7/2018 | 5/13/2019 | 5/9/2020 |
| 20 | 5/14/2018 | 5/20/2019 | 5/16/2020 |
| 21 | 5/21/2018 | 5/27/2019 | 5/23/2020 |
| 22 | 5/28/2018 | 6/3/2019 | 5/30/2020 |
| 23 | 6/4/2018 | 6/10/2019 | 6/6/2020 |
| 24 | 6/11/2018 | 6/17/2019 | 6/13/2020 |
| 25 | 6/18/2018 | 6/24/2019 | 6/20/2020 |
| 26 | 6/25/2018 | 7/1/2019 | 6/27/2020 |

| | | | |
|----|------------|------------|------------|
| 27 | 7/2/2018 | 7/8/2019 | 7/4/2020 |
| 28 | 7/9/2018 | 7/15/2019 | 7/11/2020 |
| 29 | 7/16/2018 | 7/22/2019 | 7/18/2020 |
| 30 | 7/23/2018 | 7/29/2019 | 7/25/2020 |
| 31 | 7/30/2018 | 8/5/2019 | 8/1/2020 |
| 32 | 8/6/2018 | 8/12/2019 | 8/8/2020 |
| 33 | 8/13/2018 | 8/19/2019 | 8/15/2020 |
| 34 | 8/20/2018 | 8/26/2019 | 8/22/2020 |
| 35 | 8/27/2018 | 9/2/2019 | 8/29/2020 |
| 36 | 9/3/2018 | 9/9/2019 | 9/5/2020 |
| 37 | 9/10/2018 | 9/16/2019 | 9/12/2020 |
| 38 | 9/17/2018 | 9/23/2019 | 9/19/2020 |
| 39 | 9/24/2018 | 9/30/2019 | 9/26/2020 |
| 40 | 10/1/2018 | 10/7/2019 | 10/3/2020 |
| 41 | 10/8/2018 | 10/14/2019 | 10/10/2020 |
| 42 | 10/15/2018 | 10/21/2019 | 10/17/2020 |
| 43 | 10/22/2018 | 10/28/2019 | 10/24/2020 |
| 44 | 10/29/2018 | 11/4/2019 | 10/31/2020 |
| 45 | 11/5/2018 | 11/11/2019 | 11/7/2020 |
| 46 | 11/12/2018 | 11/18/2019 | 11/14/2020 |
| 47 | 11/19/2018 | 11/25/2019 | 11/21/2020 |
| 48 | 11/26/2018 | 12/2/2019 | 11/28/2020 |
| 49 | 12/3/2018 | 12/9/2019 | 12/5/2020 |
| 50 | 12/10/2018 | 12/16/2019 | 12/12/2020 |
| 51 | 12/17/2018 | 12/23/2019 | 12/19/2020 |
| 52 | 12/24/2018 | 12/30/2019 | 12/26/2020 |

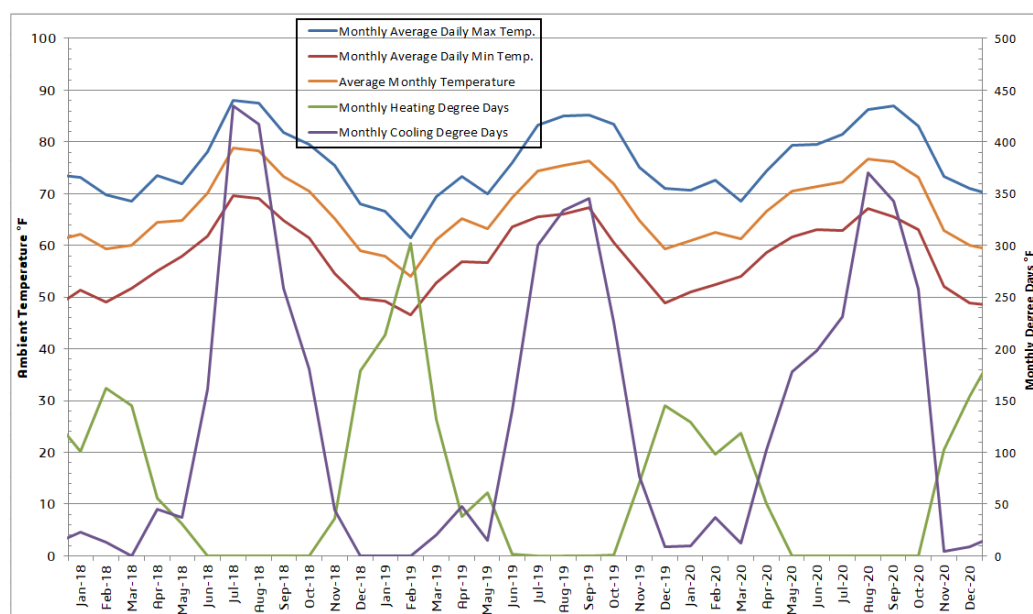
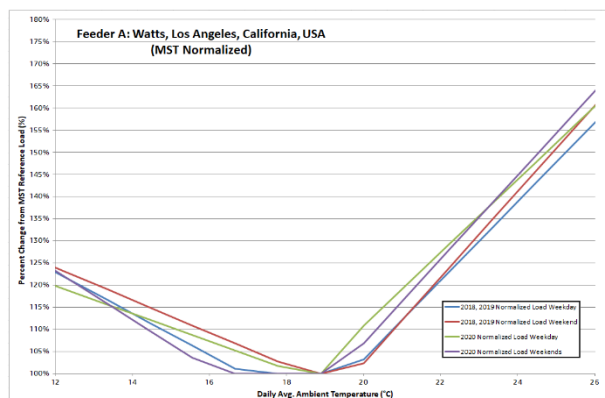
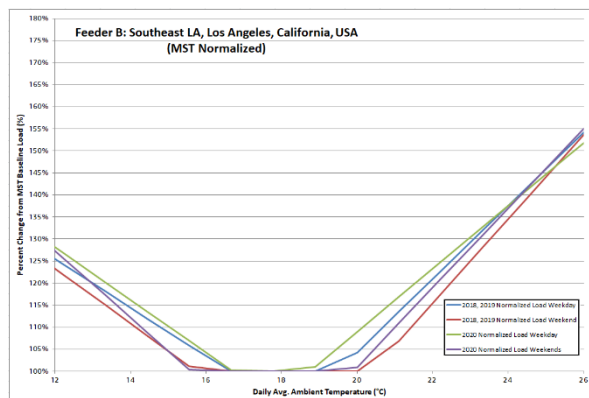


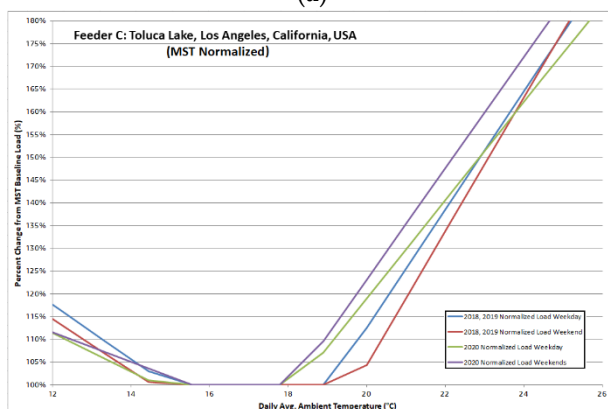
Figure S1. Monthly temperature summary for Los Angeles across all periods used for analysis. Data sourced from KCQT (Downtown LA), NWS.



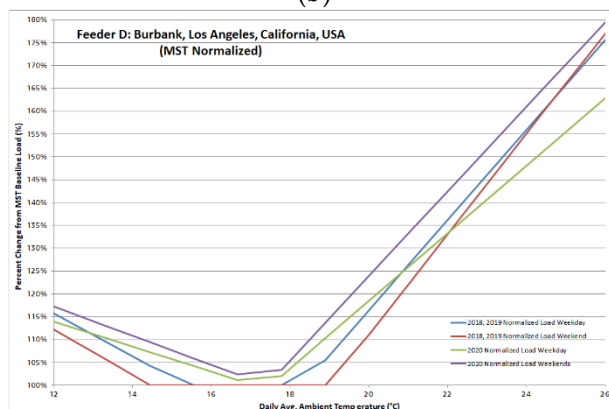
(a)



(b)

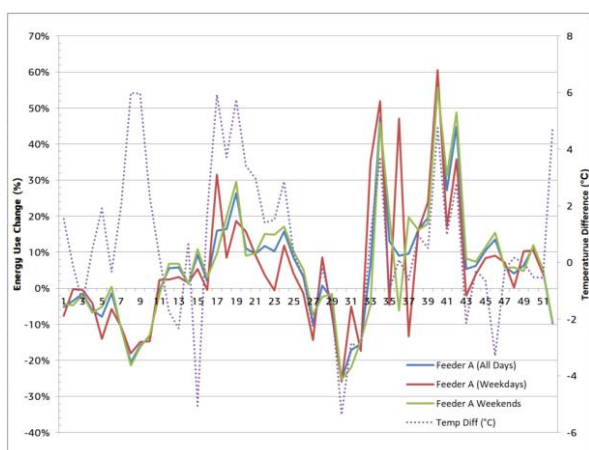


(c)

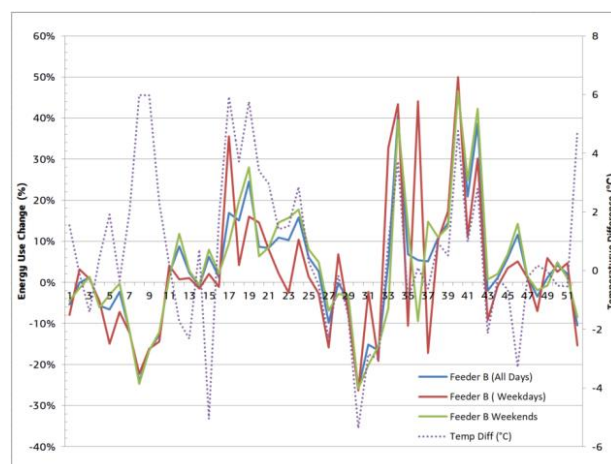


(d)

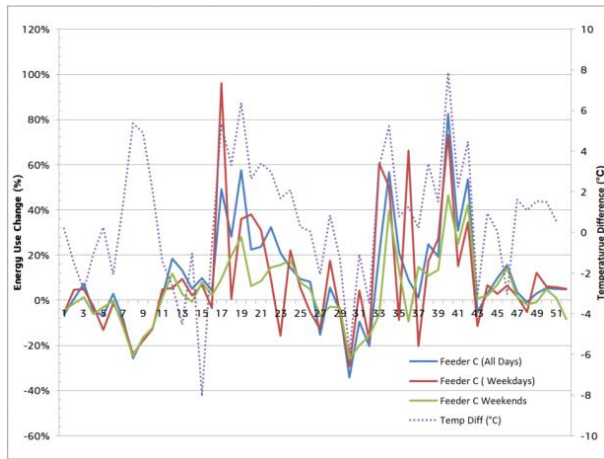
Figure S2. Comparison model of the effect of ambient temperature on feeder energy use - MST normalized to 100%.



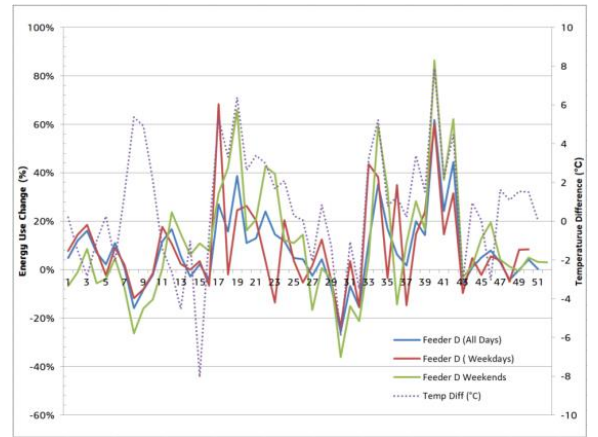
(a)



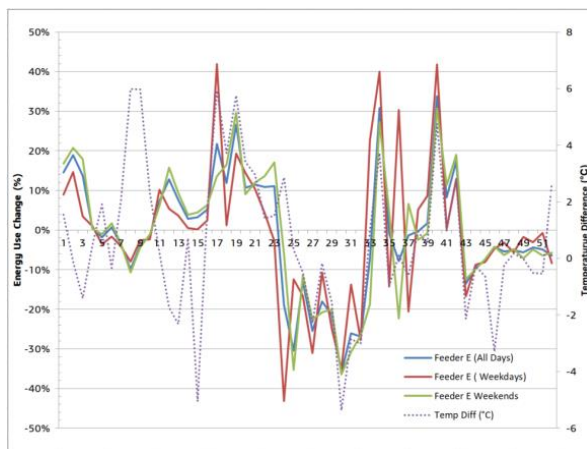
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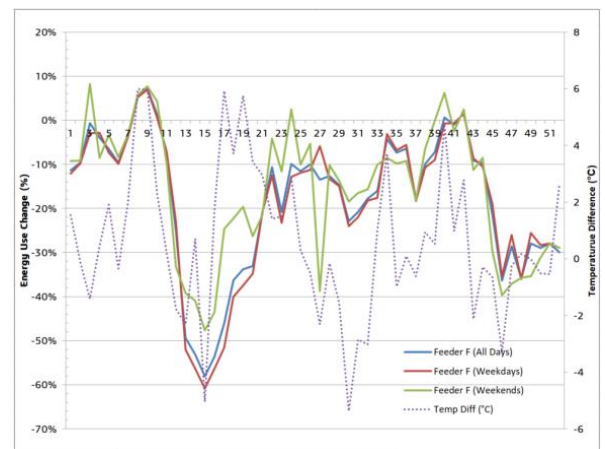
(c)



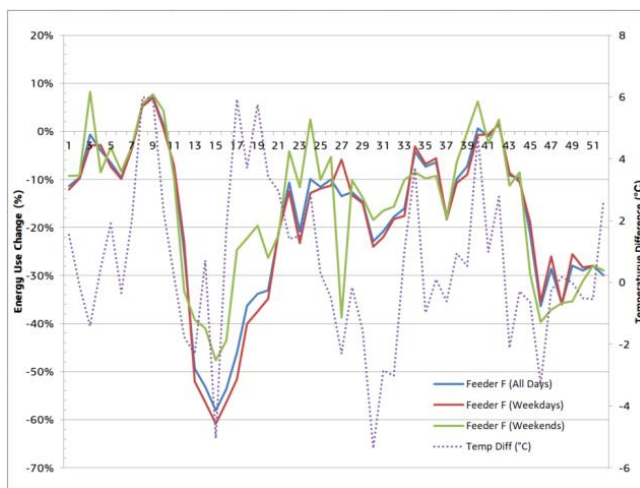
(d)



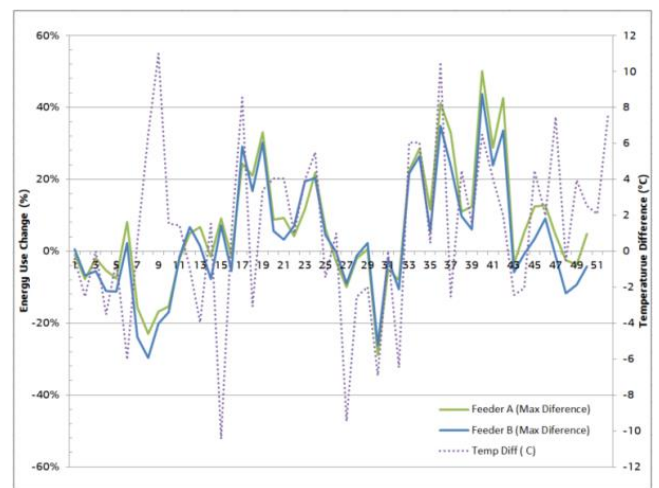
(e)



(f)



(g)



(h)

Figure S3. Non-temperature normalized energy use for all feeders presented on a weekly basis.

Table S5. Report abbreviation and acronym list

| | |
|-------|--|
| CDD | Cooling degree day |
| CI | Confidence interval |
| CP | Change Point (temperature) |
| CZ | Climate zone |
| ECAM | Energy Charting and Metrics calculator |
| EM&V | [Energy] Evaluation, Measurement and Verification |
| HDD | Heating degree day |
| ICAO | International Civil Aviation Organization (airport/ weather station designation code) |
| LADWP | Los Angeles Department of Water and Power |
| MST | Mean static temperature |
| NPL | Net power load (system-wide) |
| NWS | National Weather Service, a child agency of the US National Oceanic and Atmospheric Administration |
| SIP | Shelter in place (order) |
| ZCTA | Zip code tabulation area |