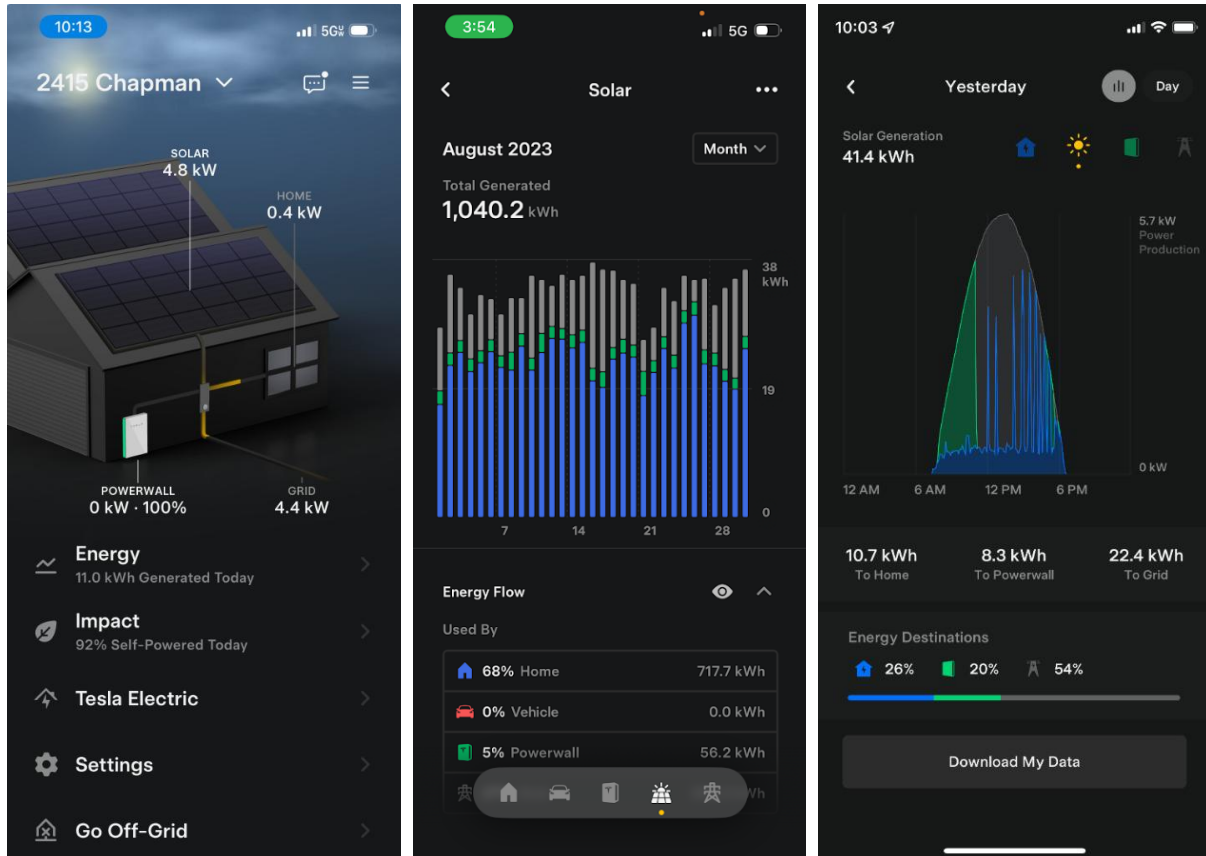


# 2415 Chapman Microgrid

*Rooftop solar and home battery will drastically lower your energy bill while providing full energy independence during a grid outage!*



Energy is complicated, so here is a summary of how it all works.

- Rooftop solar combined with Tesla PowerWall battery makes the home a fully functional microgrid
  - Rooftop solar powers the home and charges the battery during the day, battery discharges to power home at night
  - Ability to generate, store, and discharge energy 24/7 eliminates reliance on ERCOT and Centerpoint Energy in times of crisis (e.g. hurricane, winter storm)
  - Soft starter kit installed on the AC unit so the solar panels or PowerWall can turn it on without issue
  - If smart with energy usage, this can power the home indefinitely

- Amount of solar produced depends on weather and time of year, but is usually 500-1000kWh per month
  - Solar energy will power your home and battery first, then excess energy is sold back to the grid
  - **Assuming 15¢/kWh pricing, this will save you \$75-150 per month**
- Solar production, home consumption, and battery charge are monitored in the Tesla App
  - Clear insight into how much energy you're producing and consuming
- Tesla PowerWall can store ~14kWh and the discharge settings are adjusted based on your goals
  - If energy resiliency is your goal, keep the battery fully charged in case of an outage (this is what I did)
  - If a lower energy bill is your goal, have the battery discharge to power your home when the sun goes down and save about another \$50 per month (assuming 15¢/kWh pricing)
- Your utility bill will depend on three things: retail energy provider (REP) plan, your energy consumption, and weather
  - Some REP plans allow you to buy and sell solar at the same rate (1:1 match) or lower fixed rate
    - 1:1 match is much less common now
  - Other REP plans allow you to sell solar at the wholesale energy market price, which varies widely from ¢1/kWh to 500¢/kWh
    - When ERCOT doesn't properly forecast a hot summer day or winter storm, prices spike and you make more money selling energy
    - When ERCOT has better forecasts (as they have since Winter 2023) and there's excess energy on the grid, the price is usually 1-7¢/kWh
    - I had a wholesale price plan via Tesla REP for the last three years **but do not recommend it**
  - A very popular choice for solar owners in Texas are plans offering free electricity at night
    - Most of your energy consumption during the day will be covered by solar panels, so you will have to draw very little from the grid
    - Battery can be charged at night for free and discharged during the day to further lower the kWh billed
    - You won't make money selling back to the grid but can get your bill near \$0 with solar and the battery
    - I always meant to switch to this plan but was too lazy!

## Real Example Utility Bills

Below are two example utility bills with Tesla REP, which sells my energy back at the wholesale energy price and changes the cost of electricity month-to-month. I always charged my Tesla Model Y at night, consuming an average of 400 kWh per month. Note: the amount of solar sold back to the grid is the **excess** solar that was not consumed by the home!

- August 2023 bill was \$118 at an average price of 5.8¢/kWh
  - Wholesale prices spiked, sold 297kWh for \$91.88
  - Charging my car cost about \$25
- May 2025 bill was \$144 at an average price of 15¢/kWh
  - Low wholesale prices, sold 218kWh for \$7.11
  - Charging my car cost about \$60

Since solar panels provided most of my energy during the day, the bulk of kWh billed came at night. That's why I recommend a plan offering free electricity at night, even if it doesn't pay you for excess solar. With wholesale electricity prices expected to remain low, you will derive MUCH more value from powering your home during the day than selling excess credits back to the grid.



ELECTRIC

Tesla Energy Ventures, LLC REP #10296  
13101 Harold Green Dr.  
Austin TX, 78725, United States  
PUCT Certificate #10296

Invoice Number 3018TE0000005924  
Invoice Date Aug 28, 2023  
Bill Period Jul 27, 2023 - Aug 25, 2023  
Payment Due By Sep 13, 2023

Sold To

2415 Chapman St  
Houston, TX 77009

Account Number  
ESI ID Number  
Meter ID  
Contract Exp. Date

Month-to-Month

Monthly Statement


Your average cost of electricity: \$0.058 / kWh

Current Charges	Qty	Rate	Amount
<b>Tesla Electric Charges</b>			<b>\$118.08</b>
Peak	136.462 kWh	\$0.124 / kWh	\$16.92
Off-Peak	1313.769 kWh	\$0.077 / kWh	\$101.16
<b>Tesla Electric Sellback Credits</b>			<b>-\$91.88</b>
Real-time Energy Sold	297.312 kWh	Market Price (See Rate Table)	-\$91.88
<b>TDSP Charges</b>			<b>\$58.44</b>
Base Charge	1	\$4.39	\$4.39
Home Energy Delivery Charge	1450.231 kWh	\$0.0373 / kWh	\$54.05
<b>Taxes</b>			<b>\$5.62</b>
City Sales/Use			\$1.76
MGRT			\$3.53
MGRT: City Sales/Use			\$0.03
PUCA			\$0.30
<b>Total Current Charges</b>			<b>\$90.26</b>
Balance Forward			\$0.00
<b>Total Amount Due</b>			<b>\$90.26</b>

# T E S L A E L E C T R I C

Tesla Energy Ventures, LLC REP #10296  
 13101 Harold Green Dr.  
 Austin TX, 78725, United States  
 PUCT Certificate #10296

Invoice Number 3018TE0000142778  
 Invoice Date Jun 2, 2025  
 Bill Period Apr 30, 2025 - May 30, 2025  
 Payment Due By Jun 18, 2025

**Sold To**  
  
 2415 Chapman St  
 Houston, TX 77009

Account Number   
 ESI ID Number   
 Meter ID   
 Contract Exp. Date Month-to-Month

## Monthly Statement

Your average cost of electricity: \$0.150 / kWh

Current Charges	Qty	Rate	Amount
<b>Tesla Electric Charges</b>			<b>\$144.92</b>
Base Home Energy Usage	1037.715 kWh	\$0.112 / kWh	\$116.22
Peak Home Energy Usage (06 PM - 09 PM)	196.572 kWh	\$0.146 / kWh	\$28.70
<b>Tesla Electric Sellback Credits</b>			<b>-\$7.11</b>
Energy Sold	218.265 kWh	Market Price (See Rate Table)	-\$7.11
<b>Tesla Virtual Power Plant</b>			<b>-\$10.00</b>
VPP Credits			-\$10.00
<b>TDSP Charges</b>			<b>\$57.22</b>
Base Charge	1	\$4.90	\$4.90
Home Energy Delivery Charge	1234.287 kWh	\$0.0424 / kWh	\$52.32
<b>Taxes</b>			<b>\$6.44</b>
MGRT			\$4.03
PUCA			\$0.34
State Sales/Use			\$2.07
<b>Total Current Charges</b>			<b>\$191.47</b>
Last Period Balance Forward			\$0.00
<b>Total Amount Due</b>			<b>\$191.47</b>