LPEA's Guide to Optimizing your Tesla Battery System

Overview: This guide is intended to support LPEA members who own Tesla battery systems and want to operate the system to maximize their financial savings. *These recommendations are specific to LPEA's General Service residential rate. If you are on the residential Time-Of-Use (TOU) rate or another rate, please reach out to communitypower@lpea.coop for personalized guidance.*

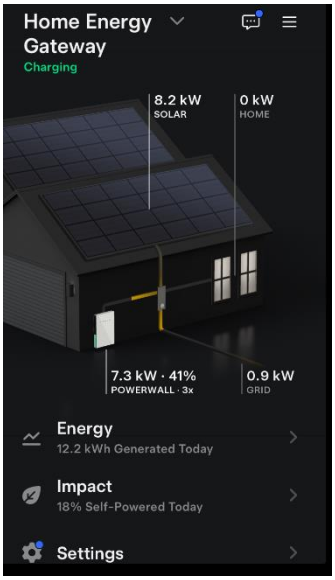
The required settings for the **LPEA Battery Rebate** are explicitly shown in this guide with a icon. If proof of the setting is required in the Battery Rebate application, you will see a icon. Additionally, there are several steps in this guide that have a icon. This icon identifies situations where you need to choose how to operate the system based on your goals.

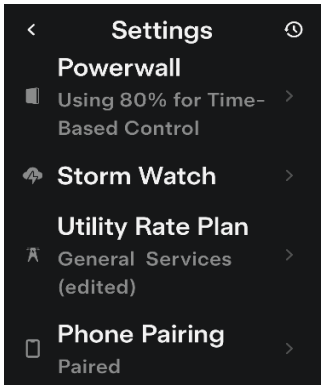
If you are also applying for the **LPEA Bonus Battery Rebate** you will skip **Step 5** and instead follow **Step 6**.

Step-by-Step Instructions

1. Log into the Tesla App

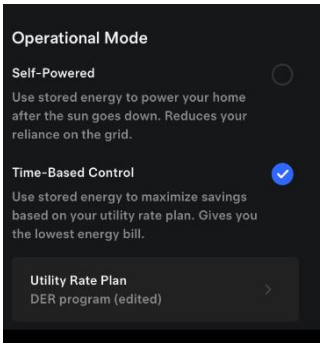
1. Open your app and log in with your credentials.



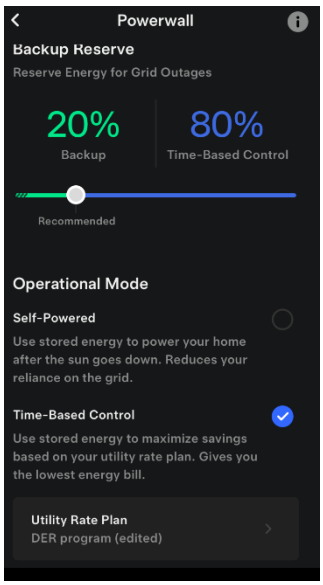


2. Select Operational Mode and Backup Reserve

1. Click on the **Settings** menu on the bottom of the page. Once on the Settings screen, select **Powerwall.**
2. On the Powerwall screen you will need to select the Operational Mode which best achieves your goals. The **Time-Based Control** operational mode is what will likely be the most financially beneficial to you and to LPEA. This mode must be selected to receive LPEA's Battery Rebate. Check the circle to select this mode.



3. Above the Operational Mode options is the control to set a **Backup Reserve** percent. This is the minimum charge your battery will reach in its daily use cycle and the battery charge that you maintain all the time in case of an unexpected outage.

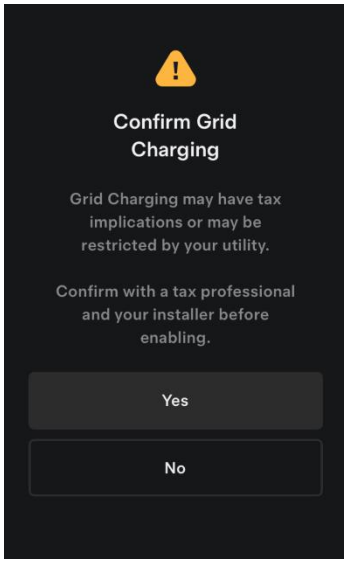


*The lower the reserve, the more you can power your home self-generated electricity and the more you can reduce your electric bill, but the less backup power you are guaranteed to have. The risk of not having enough backup power can be somewhat mitigated with the **Storm Watch** feature described in Step 4.*

To be eligible for LPEA's Battery Rebate your Backup Reserve must be 30% or less. Once you've set the Backup Reserve, take a screenshot.

3. Enable Grid Charging

This is an optional but recommended step. If you want to minimize your potential Peak Demand charges and support the grid you should complete this step. The schedules described in Steps 5 and 6 are designed so that your system will only charge from the grid if it is unlikely to achieve a full charge from onsite solar prior to the Peak Demand window. However, if you want to minimize your reliance on the grid you can skip this step.

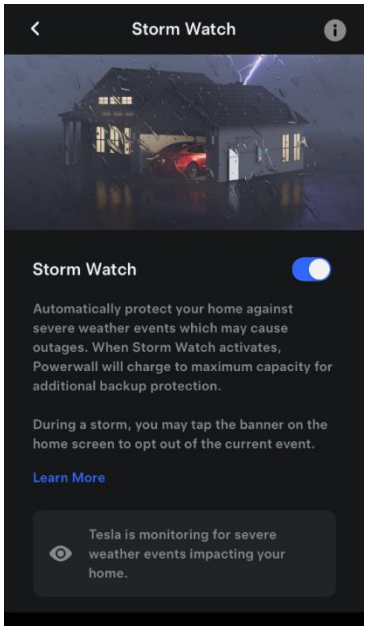


1. Under ADVANCED OPTIONS, change the Grid Charging setting to **Yes**.
2. You will receive a prompt like the one to the right. LPEA has no restrictions on grid charging. We encourage you to conduct your own research about the tax implications to determine whether you are comfortable proceeding with enabling Grid Charging. Here is a link to the IRS webpage describing this tax credit.

4. Select Storm Watch mode status

1. Decide whether to enable **Storm Watch**. With Storm Watch enabled, whenever a relevant National Weather Service alert is issued for your area the battery system will send you a notification, automatically charge to 100%, and stay fully charged until the alert expires. Read more here.

   With Storm Watch enabled you have maximum back-up power at times when outages are more common. However, it may cause you to charge from the grid during Peak Demand hours or have a higher Peak Demand charge because your battery didn't discharge to serve home load during Peak Demand hours. You do have the ability to opt-out of active events in the app and/or adjust your settings seasonaly.

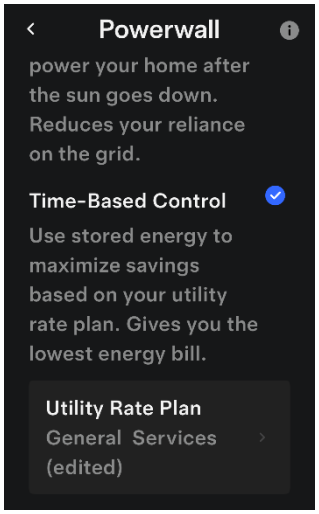


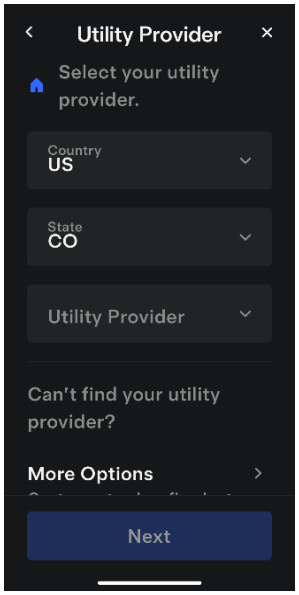
   LPEA does not require Storm Watch to be enabled or disabled, but we would like to be able to track member preferences and know Storm Watch status when reviewing battery performance data so we ask for a screenshot of your settings.

5. Set Utility Rate Plan (standard Battery Rebate Only)

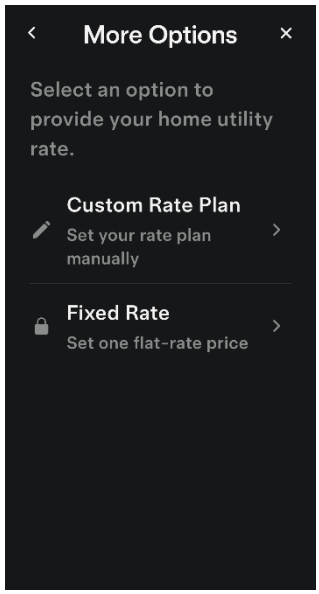
If you are in an Interconnection Limited Zone (Orange or Red area) and are applying for the Bonus Rebate skip to Step 6.

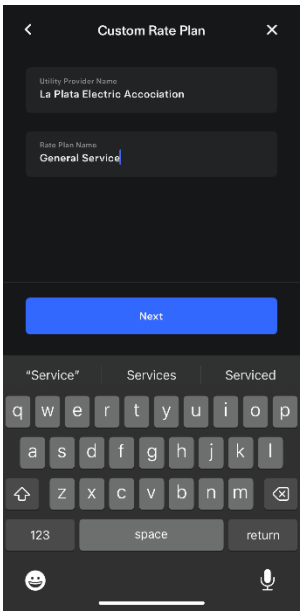
1. Return to the Settings menu, select Powerwall and then under Time-Based Control select **Utility Rate Plan**.
2. You will be taken to a Utility Provider screen. LPEA is not listed in Tesla's interface so you will need to select **More Options.** Then, on the More Options screen select **Custom Rate Plan**.



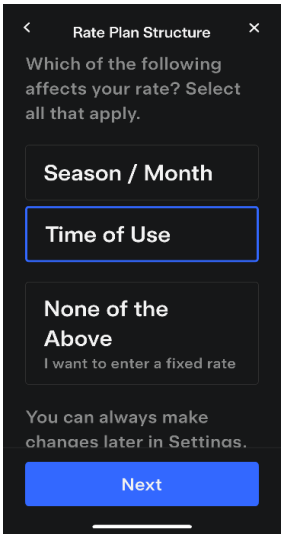


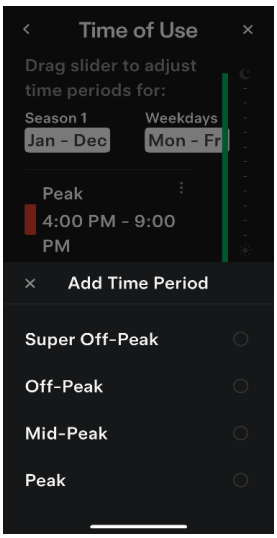
3. On the Custom Rate Plan screen, you will be prompted to add a Utility Provider Name and Rate Plan Name. We recommend you use "**La Plata Electric Association**" and "**General Service**". Click **Next** when complete.





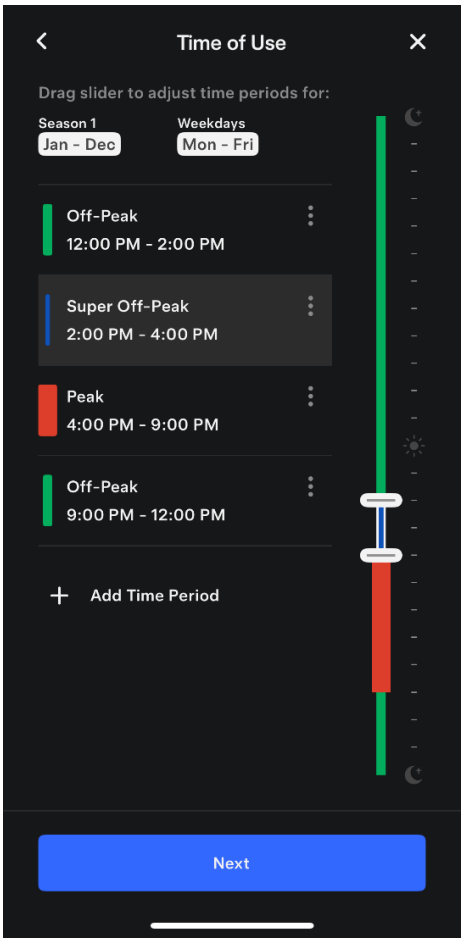
4. On the Rate Plan Structure screen, select **Time of Use** and then click **Next**.





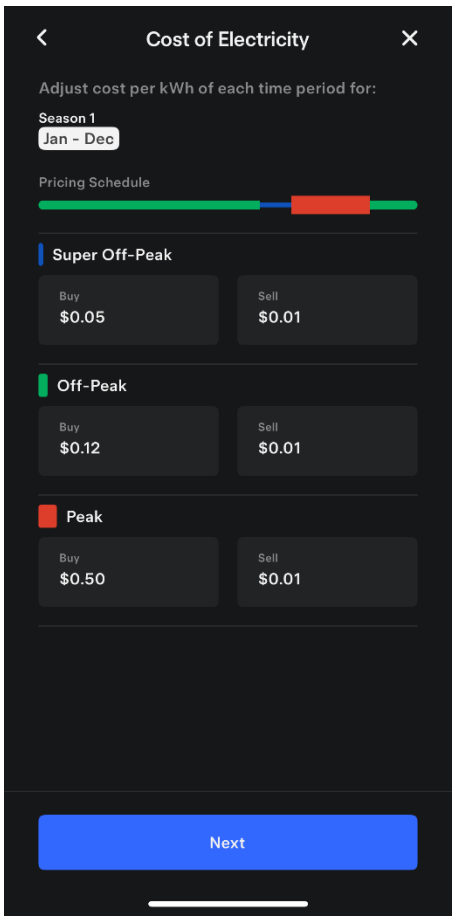
5. On the Time of Use screen, you will need to click **Add Time Period** to have four time periods. Assign them as **Off-Peak, Super Off-Peak, Peak** and **Off-Peak** and adjust the times on the slider to match the image below. Click **Next** when complete.

    1. **Off-Peak**: 12:00 AM - 2:00 PM
    2. **Super Off-Peak**: 2:00PM - 4:00 PM
    3. **Peak**: 4:00 PM - 9:00 PM
    4. **Off-Peak**: 9:00 PM – 12:00 AM



6. The next screen will ask if you want to use the same schedule on weekend days. LPEA's demand charge applies to the 4-9 pm window any day of the week so check the box **Same schedule as weekdays** and then click **Next.**

7. On the Cost of Electricity screen input the following values:



   1. **Super Off-Peak** Buy: $**0.05** Sell: $**0.01**

      $0.05 is an arbitrary value. What matters is that this value is the lowest Buy price so that the system knows that if it needs to purchase power from the grid to fill the batteries before the Peak Demand window, it should do so during the Super Off-Peak time.

   2. **Off-Peak** Buy: $**0.12** Sell: $**0.01**

      $0.12 is currently the cost for each kWh of electricity, rounded to the nearest penny, on LPEA's General Service rate. By entering a lower Sell price, you are sending a signal to the battery that it should prioritize meeting home load and then charging the battery before exporting to the grid.

   3. **Peak** Buy: $**0.50** Sell: $**0.01**

      $ 0.50 is an arbitrary value. What matters is that this value is significantly higher than the other rates. The purpose of this higher Peak Buy rate is to direct your battery system to prioritize the ability discharge to meet home load during this time and avoid buying electricity from the grid during LPEA's Peak Demand window if possible. Having a $0.01 Sell rate communicates to the battery that there is only value in meeting home load during this time, not trying to export additional power to the grid.

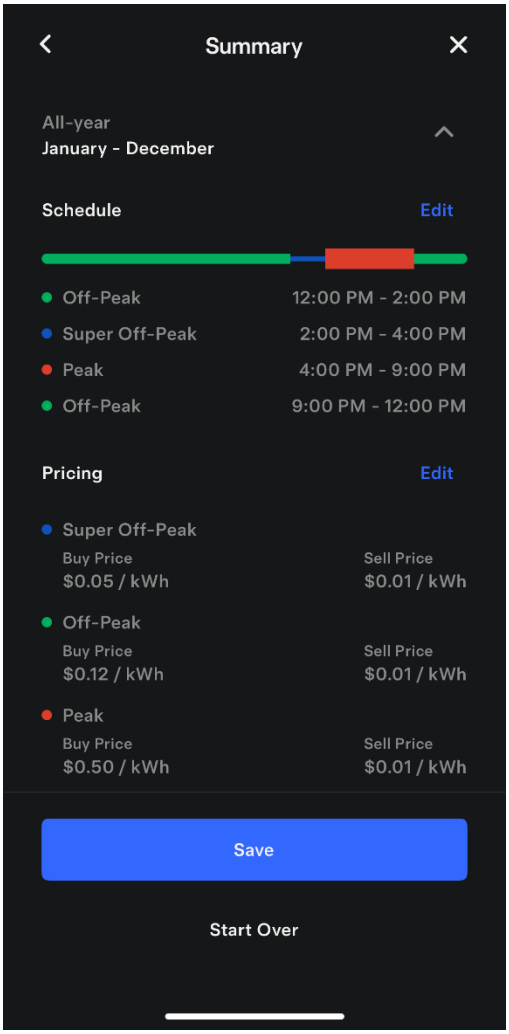
      LPEA's Peak Demand charge is $5.73/kW for the one hour a month, between 4-9pm, when you use the most electricity from the grid.

   4. When the screen looks like the one above click **Next**.

5. When complete, the Summary screen should look similar the one to the right.

   Take a screenshot and click **Save.**

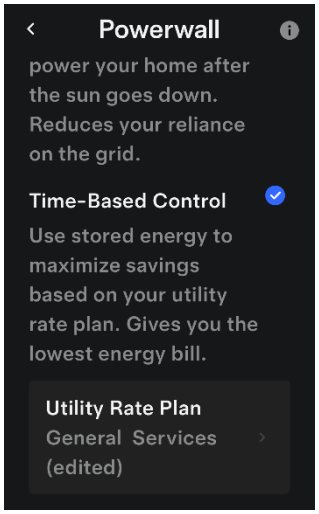
You have finished configuring your system for optimal financial savings under LPEA's General Service residential rate. You should now have all the screenshots needed to apply for LPEA's Battery Rebate. Reach out to communitypower@lpea.coop with any questions.

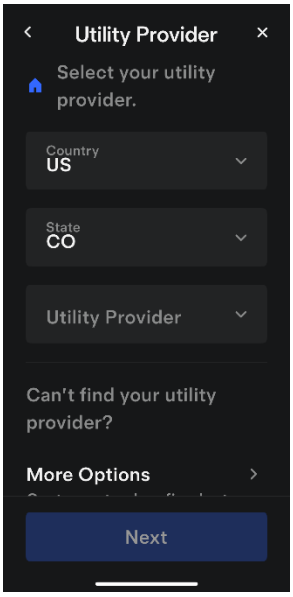


6. Set Utility Rate Plan (Bonus Battery Rebate Only)

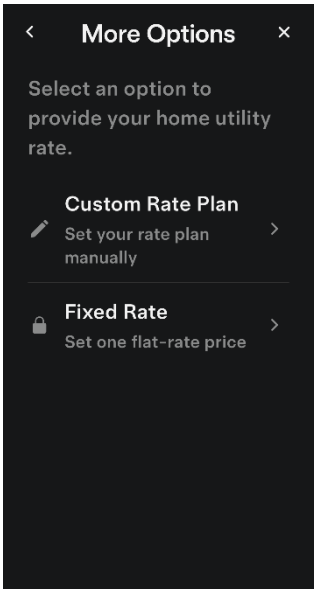
If you are in an Interconnection Limited Zone (Orange or Red area) and are applying for the Bonus Rebate follow these instructions.

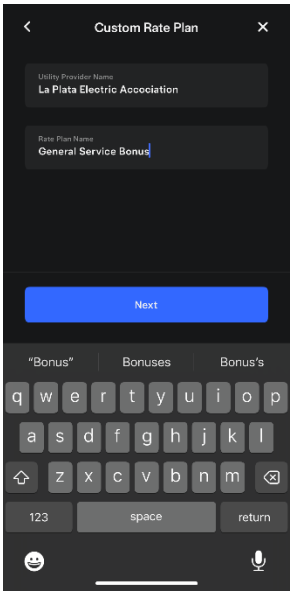
1. Return to the Settings menu, select Powerwall and then under Time-Based Control select **Utility Rate Plan**.
2. You will be taken to a Utility Provider screen. LPEA is not listed in Tesla's interface so you will need to select **More Options**. Then, on the More Options screen select **Custom Rate Plan**.



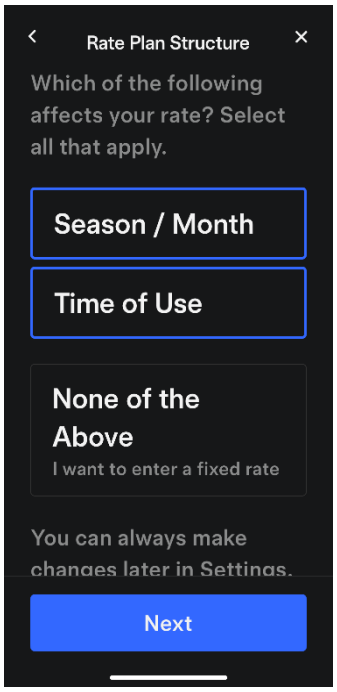


3. On the Custom Rate Plan screen, you will be prompted to add a Utility Provider Name and Rate Plan Name. We recommend you use "**La Plata Electric Association**" and "**General Service Bonus**". Click **Next** when complete.





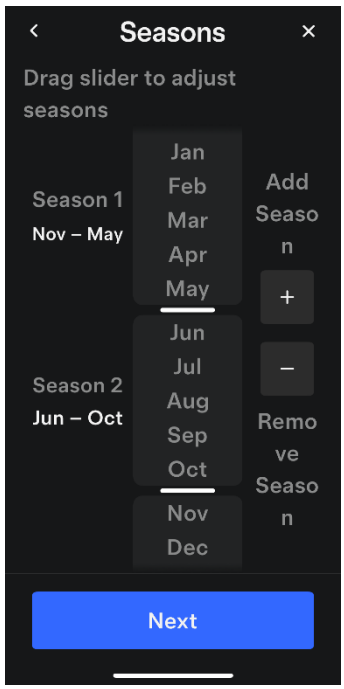
4. On the Rate Plan Structure screen, select **Time of Use** and **Season/Month** then click **Next**.

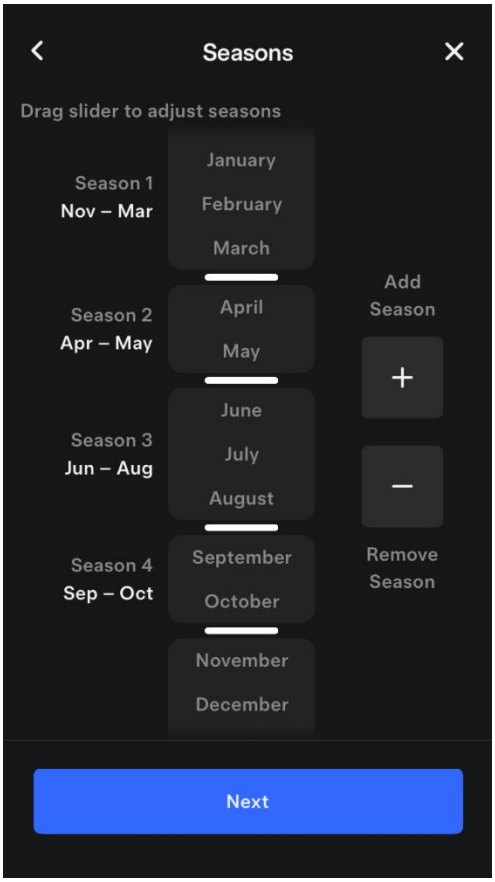


5. On the Seasons screen click **Add Season** to create four seasons. Then slide the bars between the months so that:

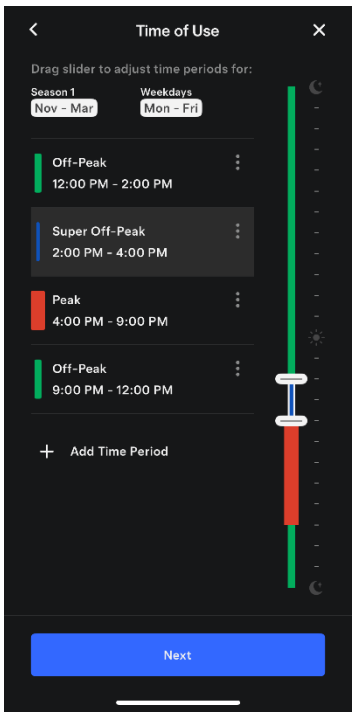
   Season 1 is November - March, **Season 2** is April and May, **Season 3** is June – August, and **Season 4** is September and October.

   Once your screen matches the image below click **Next**.





6. For Season 1 (Nov-Mar), create four time periods using the **Add Time Period** button. Designate them as **Off-Peak, Super Off-Peak, Peak** and **Off-Peak** like in the image to the right. Adjust your times on the slider to match the image to the right and then click **Next**.



7. On the next screen, check the box **Same schedule as weekdays** and then click **Next**.

8. On the Cost of Electricity screen input the following values:

    1. **Super Off-Peak** Buy: $**0.05** Sell: $**0.01**

        $0.05 is an arbitrary value. What matters is that this value is the lowest Buy price so that the system knows that if it needs to purchase power from the grid to fill the batteries before the Peak Demand window, it should do so during the Super Off-Peak time.

    2. **Off-Peak** Buy: $**0.12** Sell: $**0.01**

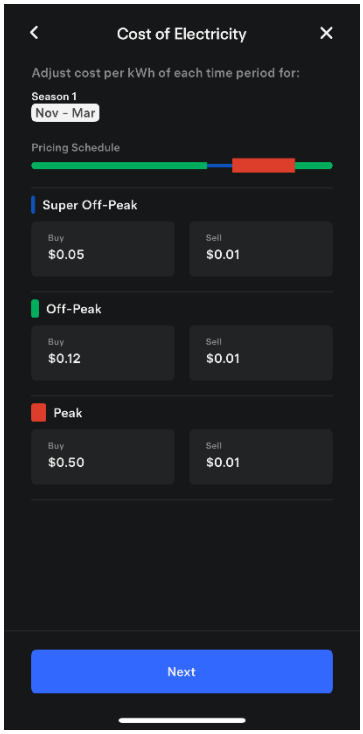
        $0.12 is currently the cost for each kWh of electricity, rounded to the nearest penny, on LPEA's General Service rate. By entering a lower Sell price, you are signaling to the battery that it should prioritize meeting home load and then charging the battery before exporting to the grid.

    3. **Peak** Buy: $**0.50** Sell: $**0.01**

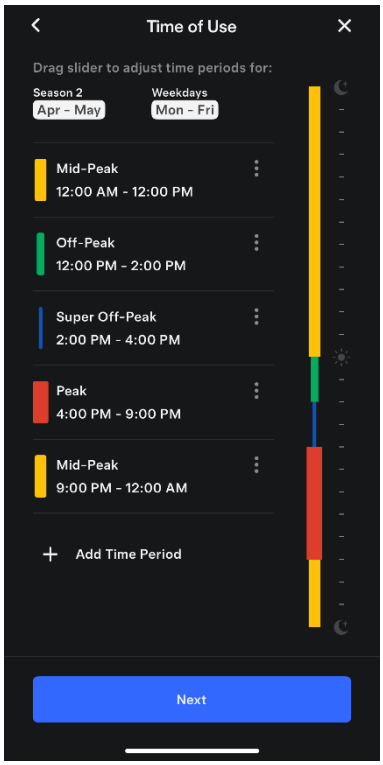
        $ 0.50 is an arbitrary value. What matters is that this value is significantly higher than the other rates. The purpose of this higher Peak Buy rate is to direct your battery system to prioritize the ability discharge to meet home load and avoid buying electricity from the grid during LPEA's Peak Demand window if possible. Having a $0.01 Sell rate communicates to the battery that there is no value in trying to export additional power to the grid.

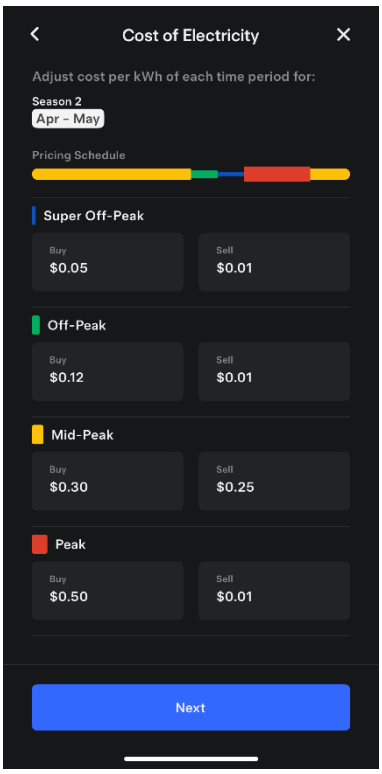
        LPEA's Peak Demand charge is $5.73/kW for the one hour a month, between 4-9pm, when you use the most electricity from the grid.

    4. When the screen looks like the one to the right click **Next**.



9. For Season 2 (April - May), create five time periods using the **Add Time Period** button. Designate them as **Mid-Peak**, **Off-Peak, Super Off-Peak, Peak** and **Mid-Peak**. Adjust your times on the slider to match the image to the right and then click **Next**.





10. On the next screen, check the box **Same schedule as weekdays** and then click **Next**.
11. On the Cost of Electricity screen input the following values:

1.	**Super Off-Peak**	Buy: $**0.05**	Sell: $**0.01**
2.	**Off-Peak**	Buy: $**0.12**	Sell: $**0.01**
3.	**Mid-Peak**	Buy: $**0.30**	Sell: $**0.25**
4.	**Peak**	Buy: $**0.50**	Sell: $**0.01**

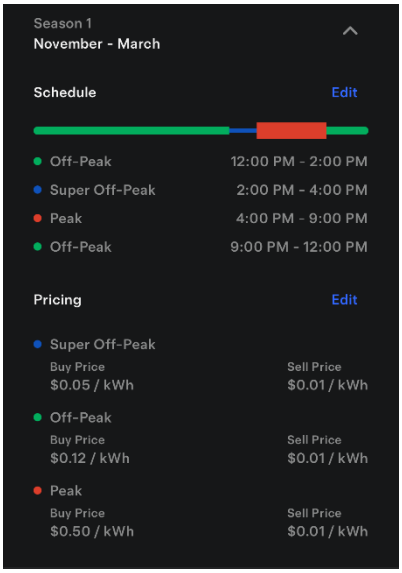
$0.30 for a Mid-Peak But rate is an arbitrary value. What matters is that it is higher than the Off-Peak rate and less than the Peak rate. The purpose of the $0.25 Sell price in the Mid-Peak rate is to direct the system to push power back to the grid during the morning and charge the battery in the afternoon during Off-Peak and Super Off-Peak times. This helps balance the generation and load on the grid during times of the year when solar power is abundant and there is less demand for electricity.

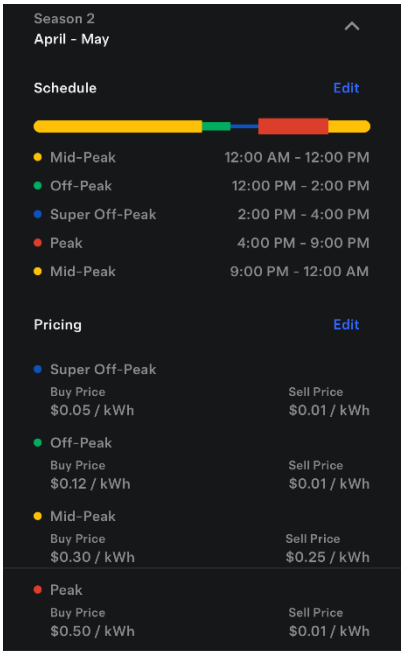
5. When the screen looks like the one in the upper right corner click "**Next**".

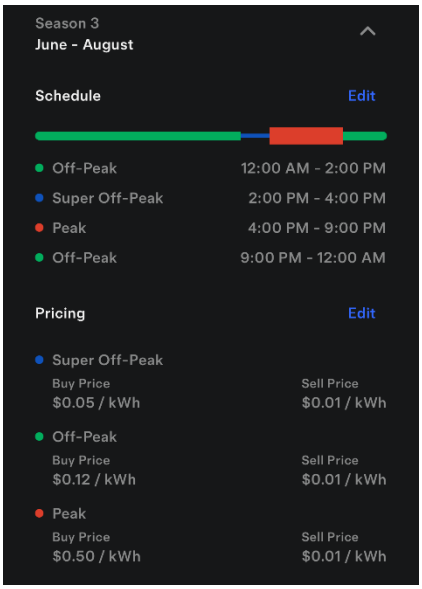
12. Repeat Steps 6-8 for Season 3, June -August.

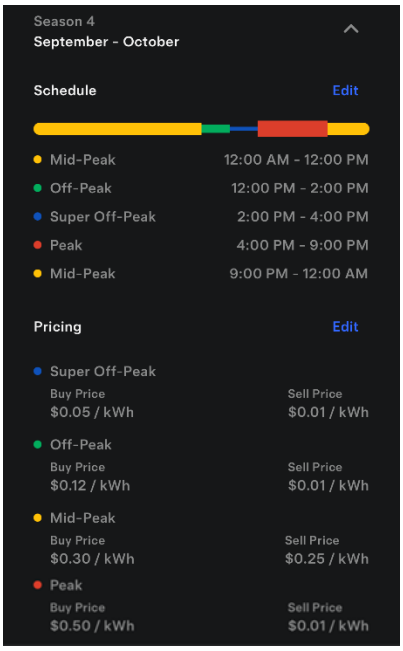
13. Repeat Steps 9-11 for Season 4, September-October.

14. When complete the Summary should show the following information. Please capture a screenshot for each season. If everything is correct, Click **Save**









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