Case Study

Customer Dashboard

ioenergy

Group Four

Amph Buachie | Su Chen | Elise Soh | Peter Vojtech | Tina Wang | Katherine Wong

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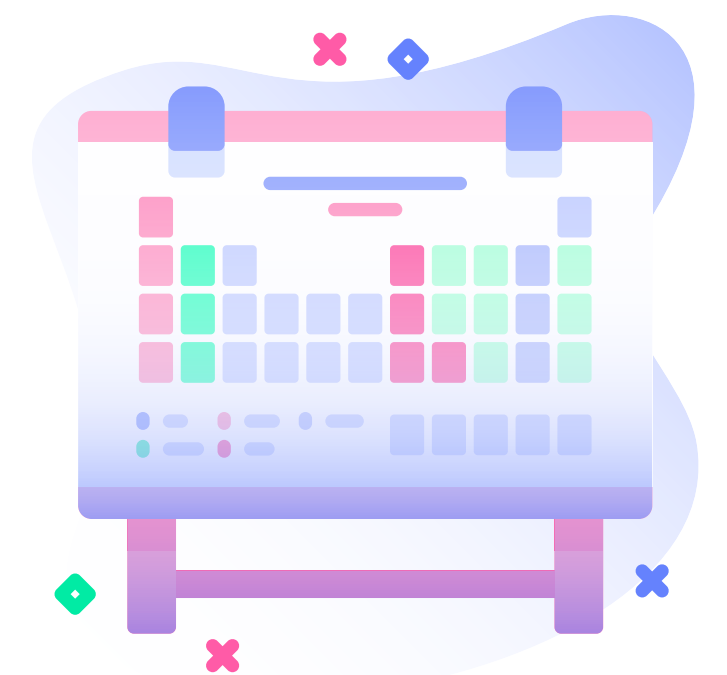
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Project Brief

iO Energy delivers affordable renewable energy to homes and businesses. They offer consumers a way to reduce their energy costs with smart electricity meters and 'time-of-use' pricing.

iO Energy was after a customer-facing dashboard that would be used to show customers data about their energy consumption and account data.

Our task was to create a smooth user experience for the end-user of the data dashboard(s), with recommendations regarding the best data visualisations for different metrics, the layout of data visualisations on pages, and the overall navigation of data reports.

After an initial client 'meet and greet', our team sent around fifteen questions related to existing research, visions and intended demographic. With answers in hand, we proceeded with a scoping framework.

Think about a particular **part of your user journey** that you'd like to solve and/or gain further insights into. ie: check-out, log-in process, account details, category page, wishlist.

NAME OF IDEA / PROJECT	- Data dashboard
COMPANY WEBSITE / APP	- www.ioenergy.com.au
COMPANY OVERVIEW	- iO Energy delivers affordable renewable energy to homes and businesses. We offer consumers a way to reduce their energy costs with smart electricity meters and time-of-use pricing, and we build energy tech that helps consumers to reduce their costs.
BACKGROUND	- iO Energy has recently been developing PowerBI data dashboards, with the intent of using them for both internal and customer-facing purposes - The internal data dashboards will be used to assist iO Energy understand its internal operational performance, requirements, and costs. These needs are relatively clear, although still UX research is required to determine effective UI - The customer-facing dashboards would be used to show customers data about their personal energy consumption and account data - Also there may also be some 'professional' customers who provide energy consulting services to others, and they may want a dashboard for B2B purposes
PROJECT OVERVIEW	- Start point: Review existing data dashboard - End point: Redesign data dashboards Create a smooth user experience for the end-user of the data dashboard(s), with recommendations regarding the best data visualisations for different metrics, the layout of data visualiations on pages, and the overall navigation of data reports.

PROJECT OBJECTIVES	**Primary Objective/s** 1. Improve utility of dashboards to audience(s) **Secondary Objective/s** 1. Improve aesthetic of customer facing dashboards 2. Minimise friction of user flow 3. Maximise customer delight of user flow
SUGGESTED DELIVERABLESs	**Key Deliverable/s** 1. Report on user testing insights 2. Mock up data dashboard(s) 3. Develop style guide **Additional Deliverable** 1. Additional Deliverable 1 2. Additional Deliverable 2 3.
3 virtual meetings with our students. Will you be attending each session or sending a representative?	If Yes, please provide your name: Luke Morton (COO) will be available from 21/06 Rob Morris (CEO) will be at project brief on 20/06
	If No, please provide your representative's name:
MAIN POINT OF CONTACT	
Additional notes	Note that Stone & Chalk Adelaide run 'Test Drive Tuesday' every week, for the purposes of user testing. We can use this opportunity to create a user testing focus group

Project Goals

The project goals were based on the brief, provided by IO Energy.

Our goals also included important points that the client raised after we provided some intial questions.

A key addition is the 'reinforce good behaviour'. To provide a sense of progress and also point users towards the next step they should take.

Design a customer dashboard

Allow business and residential customers to view their energy consumption and account data
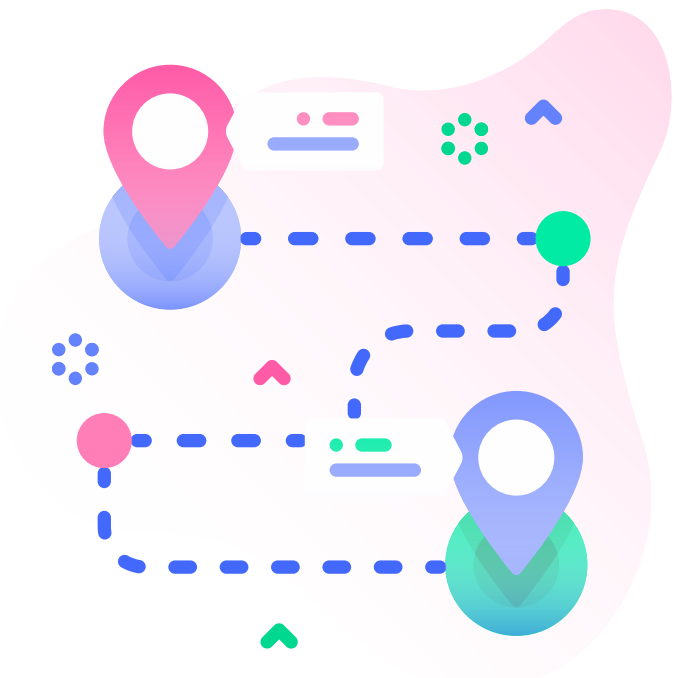
Improve Usability

Improve usability by minimising friction of the user flow

Maximise Customer Delight

Maximise delight by recommending better plans and having a 'viral' sharing quality.

Reinforce good behaviour

Provide knowledge and tools that reinforce good behaviour

Scoping Framework

A project scope was developed around the brief provided by IO Energy.

The scoping framework defined the goals, users, activities, deliverables and timelines.

This helped to to lay the foundations of research and stay focused throughout the discovery phase and beyond.

Scoping Framework

Project:
IO Energy External Dashboard (Team 4)

Motivation:
Improve the utility of dashboards for IO Energy Customers

Project End:
July 2022

Participants

IO ENERGY

· Luke Morton
· Rob Morris

ACADEMY XI
UI/UX Designers (Group 4)
· Elise Soh
· Su Chen
· Lyn Tran
· Peter Vojtech
· Tina Wang
· Katherine Wong
· Amph Buachie

UI/UX Design Mentor
· Thiru Yoganathan

Goals

· Redesign customer facing dashboard that allows business and residential customers to view their energy consumption and account data

· Improve the usability of dashboard

· Minimise Friction of user flow

· Maximise customer delight of user flow

Users

· Residential (Home Owners and Renters)

· Individuals who value the use of renewable energy

User Benefits

· Provide a tool that will help customers save money and energy
· Reduce wait time for customers to resolve issues.

Activities & Deliverables

*Client Deliverables in **bold**

Week 1-3
· **Scoping Framework**
· Surveys
· Interviews
· User Testing
· Competitor Analysis
· Affinity, Empathy Maps
· **Research Insights**
Week 4-6
· Personas, Journeys
· User Flows
· WireFrames
· **Prototype**
· **User Testing**

Assumptions

· Improving the utility of dashboard will provide the customer with a better understanding of usage and help minimise the cost of energy

· A dashboard that captures fluctuating energy prices will offer better information for when it it's best to optimise the use of energy.

· Improved service/ dashboard will help retain customers

Risks

· Not having access to IO Energy customers who already use their website.
· Limited access to the IO Energy website/app.
· Geographical limitations for accessing ideal demographic in local market

Milestones

Delivery of:

· Research Insights

· Prototype

· User Testing

Constraints

· In-person research and meetings are limited due to remote location of teams

· Limited project timeframe and project team experience.

Scope

· Create a customer facing dashboard for residential customers (indivuals)
· Develop an interface that allows residential customers to view their energy consuption and account data.

Australian energy consumers,
who are cost and environmentally conscious,
are **unaware** of how they can
optimise energy usage
to **reduce their costs and carbon footprint**
as they **lack relevant data or personalised
insights** to **make smarter decisions**.

Research Plan

Survey

From creation to distribution, aiming for 60-70 responses

Interview (+ usability test)

Interview guidelines with usability testing from the current iO Energy prototype, aiming for 6 x 45 minute interviews

Competitor Analysis

Review other electrical energy companies, looking into their UX - SWOT analysis

Landscape Review

Review current trending sites, analyse their UX - brief SWOT

Indirect Competitor Review

Review companies with no direct relation but provides insights to data display, analyse the UX - brief SWOT

Competitor Analysis & Opportunities

Competitor Analysis

Energy Australia

✅ Strengths

- Opt-in **carbon-neutral with no extra cost**
- A **progress bar** of the current bill period and the next bill date
- A quick switch between **different addresses**

❌ Weaknesses

- Energy usage **lacks elaboration** in graphics
- Timeline of billing and payment date is **confusing**
- **Maunally** comparing plan

💡 Opportunities

- **Smart recommendations** for plan e.g. environmental / price oriented?
- Make good use of **charts, tables and progression bars**
- **Shortcuts** for switching addresses, change plan and livechat
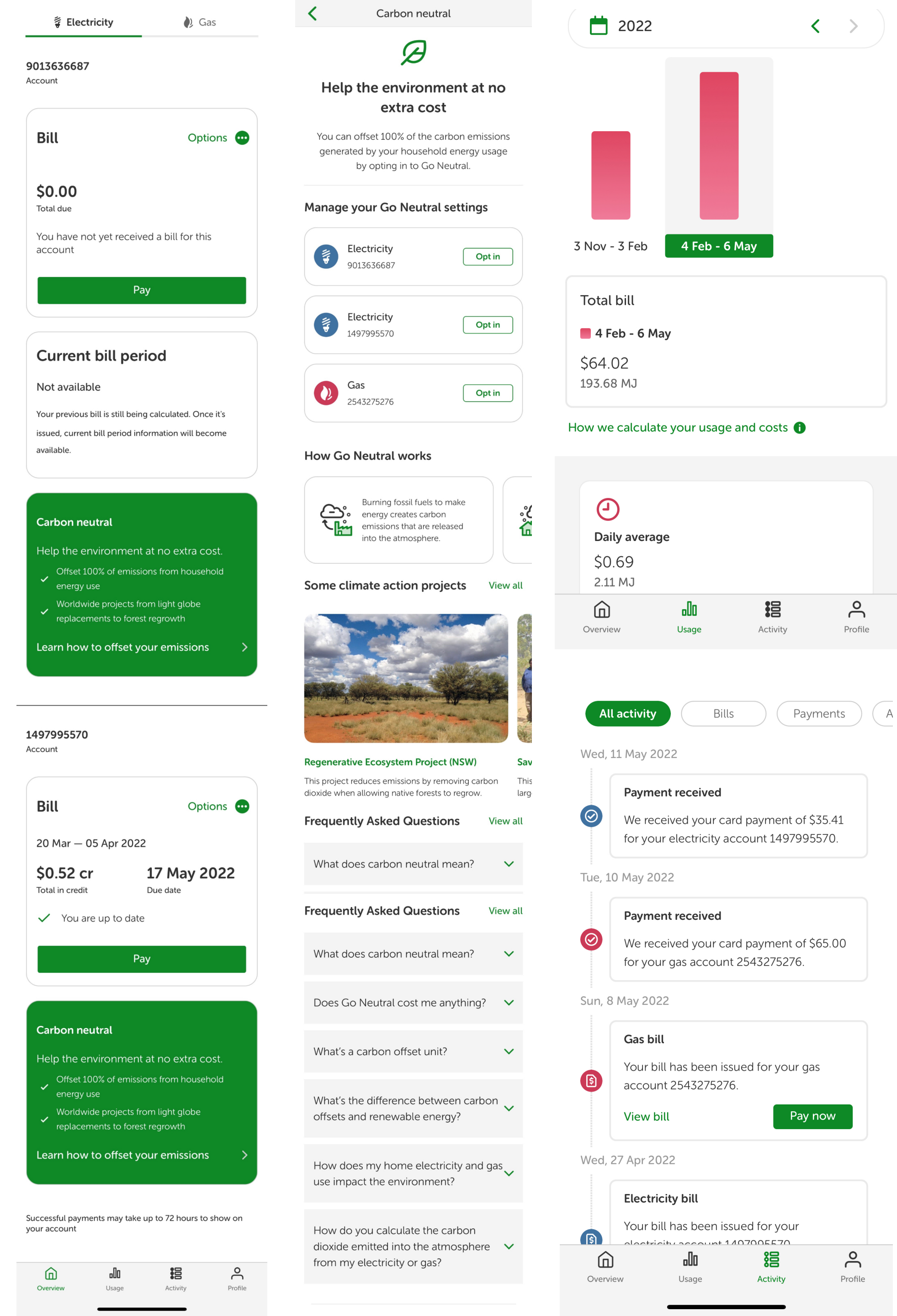
Competitor Analysis

Amber Energy

✅ Strengths

- Comprehensive **daily breakdown chart** with charged price and usage
- **Saving amount** of using solar power
- Price notification: notify users when price spikes >$3/ kWh occur, flexible options with email, SMS, and app notice

❌ Weaknesses

- No shortcuts for showing plan details and the **upgrade option**
- Can't access to plan comparison page quickly
- Rates are volitile. Harder to plan ahead

💡 Opportunities

- Price spike notification
- Convert usage to **cost**
- Show the **saved amount of money** when users are using renewable energy
- **Upgrade suggestion** to clear energy/ other plans
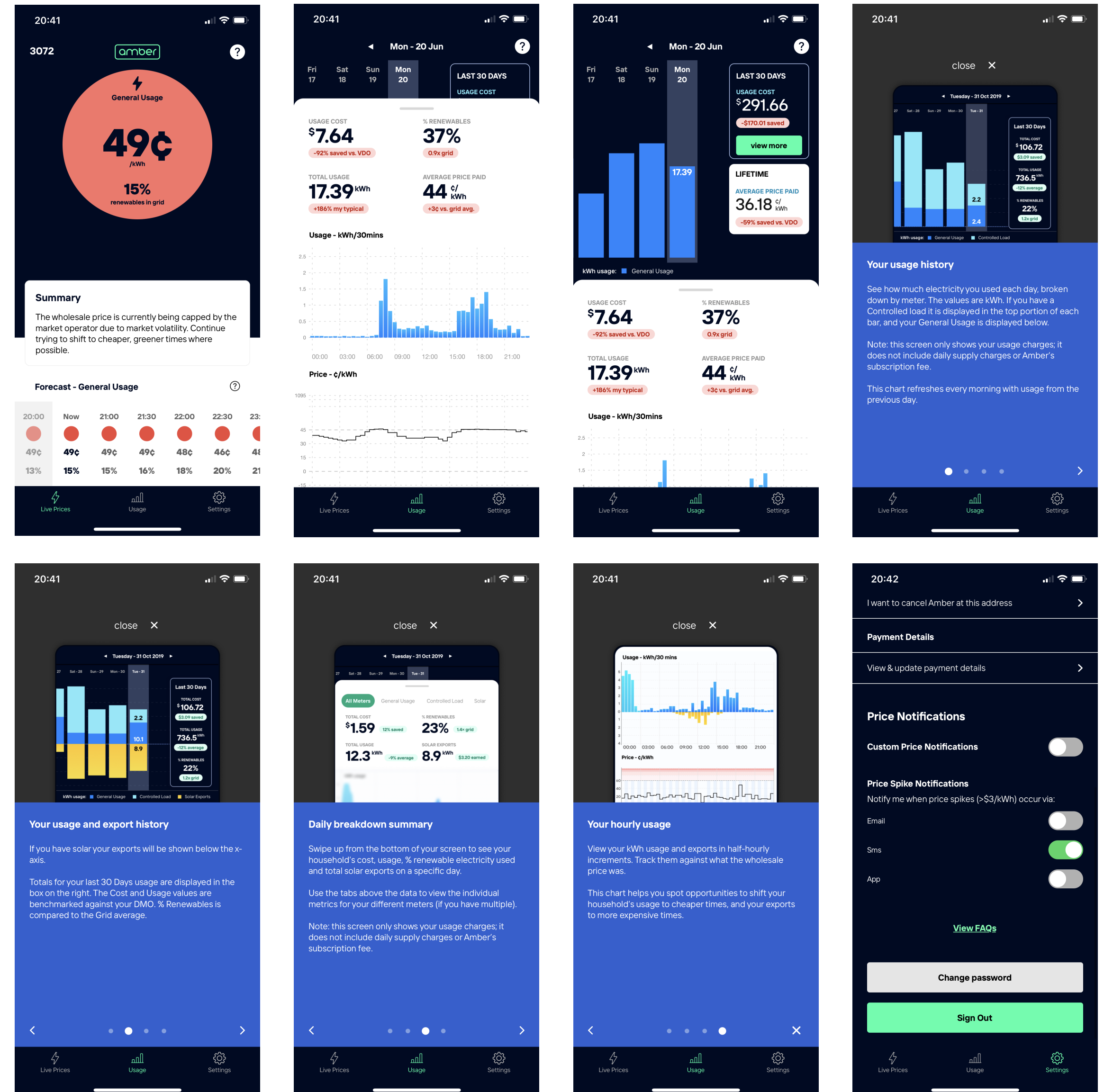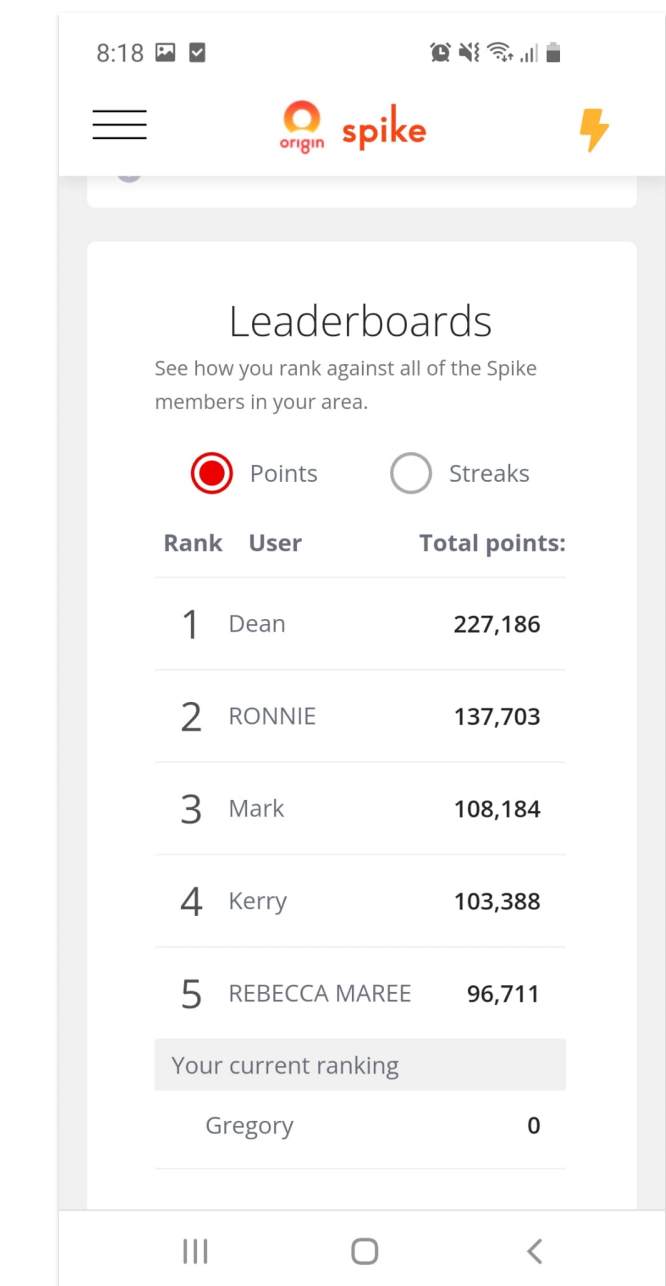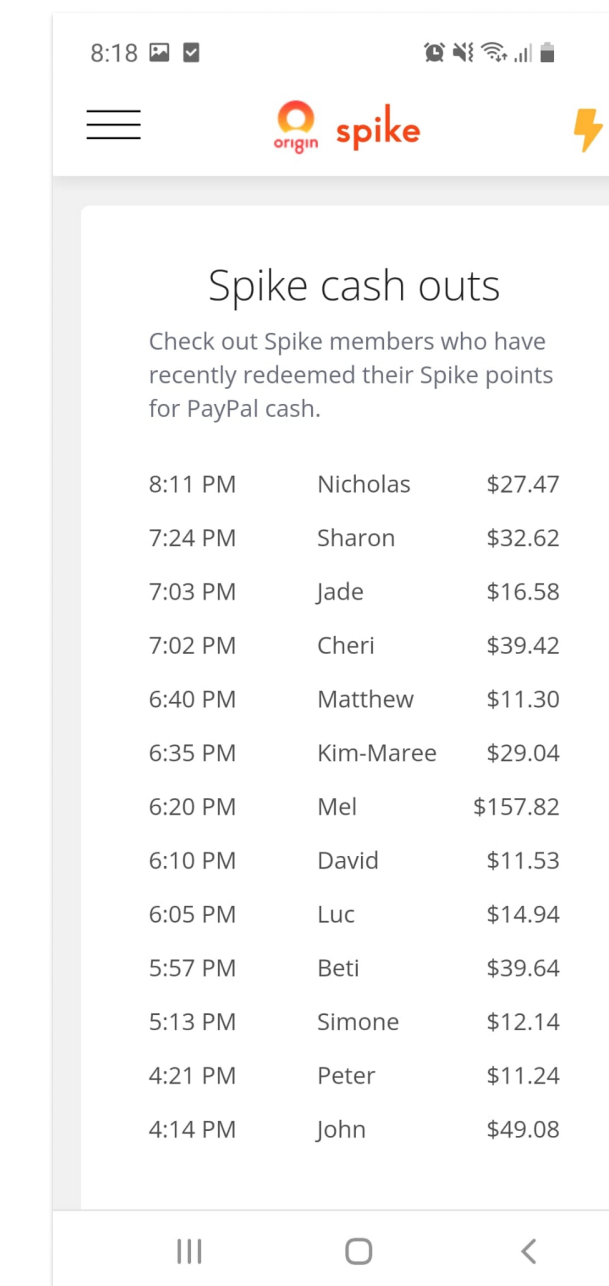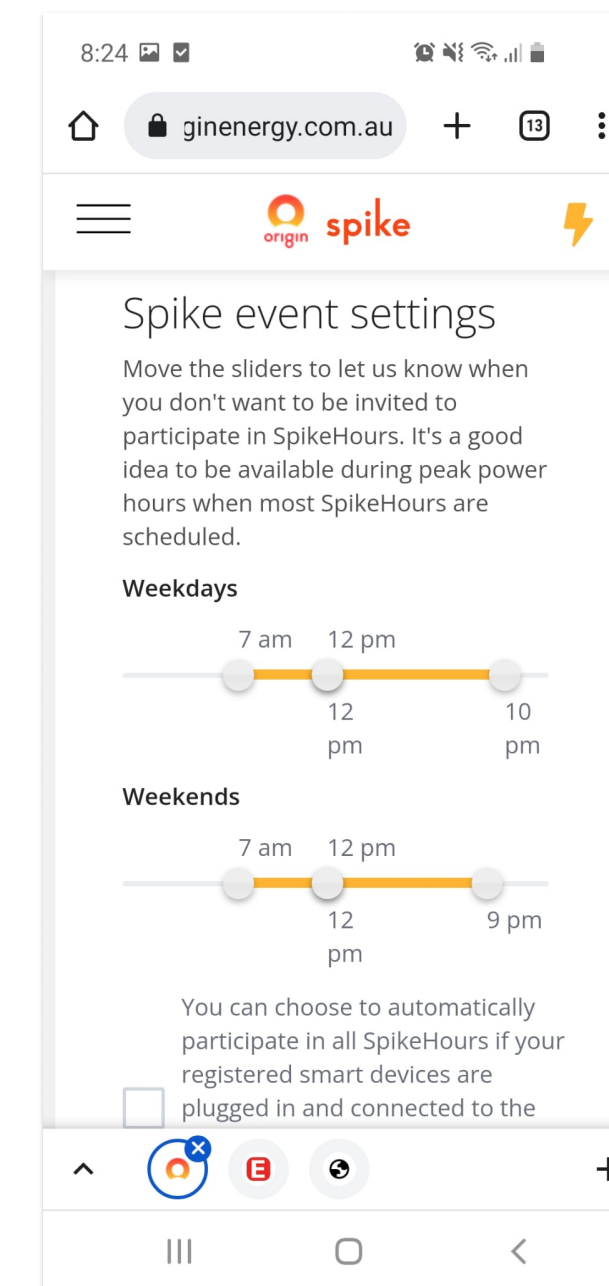
Competitor Analysis

Origin Spike

✅ **Strengths**

- **Direct rewarding** with collecting bouns point: PayPal cash/ gift card
- Encourage competition by showing other members' records in a nearby area
- Give **badges** to users when they achieve energy-saving in a row

❌ **Weaknesses**

- Spike is separating from Origins, the functions of billing & payment, and monitoring usage are still only available in Origins.

💡 **Opportunities**

- Tips for saving energy in spike hours
- Giving out limited/ seasonal badges and/or extra bouns point scheme to the long-term customers to drive a consistent usage
- A **goal** indicating how many bonus points expecting to earn from energy savings
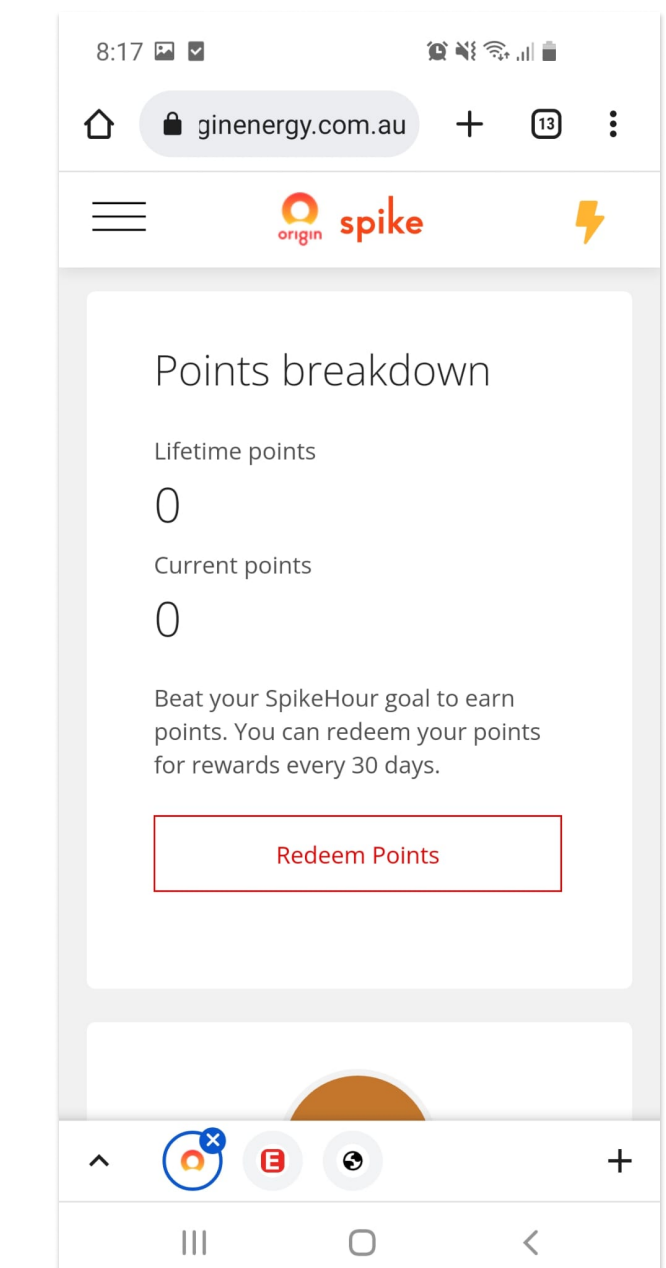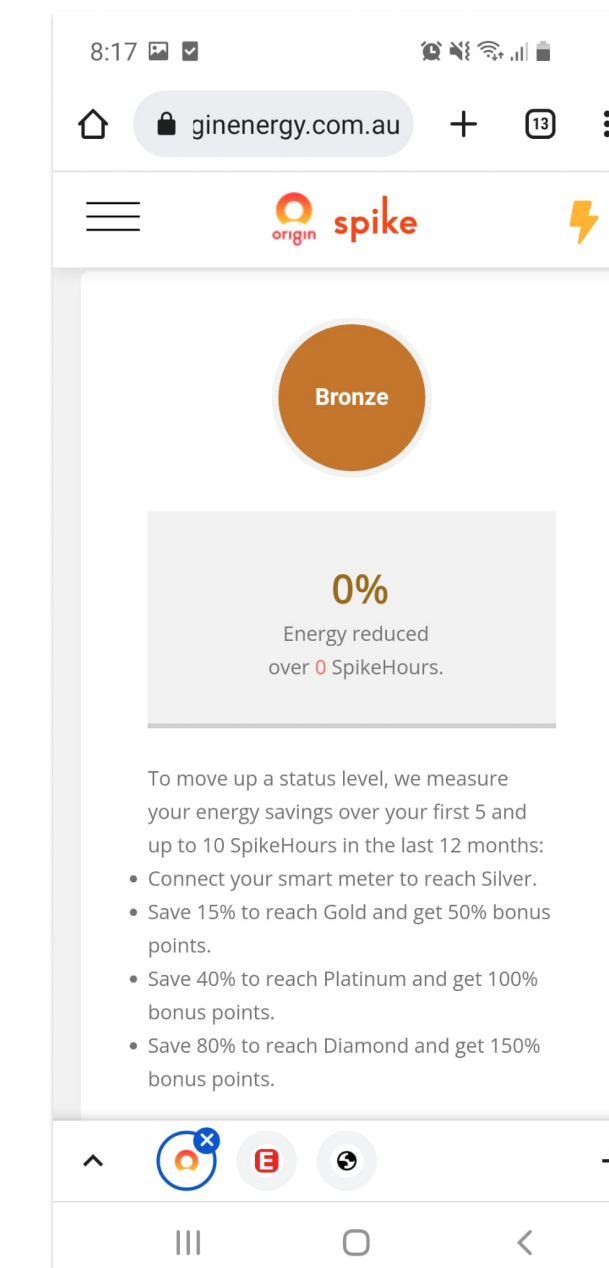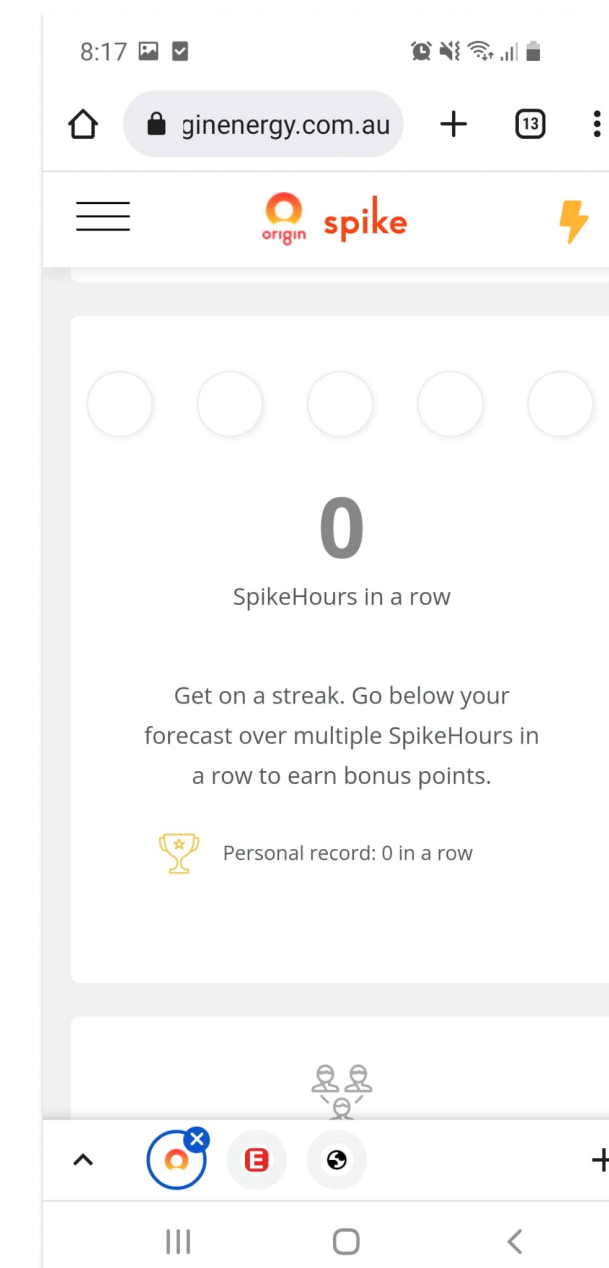
Competitor Analysis

Momentum

✅ **Strengths**

- Smooth pay feature, users can avoid bigger bills, pay the same amount weekly, fortnightly or monthly with flexibility
- Show the peak value every 30 minutes every day
- Shortcut button for organising the move & switch, managing account and downloading the latest bill
- Showing steps clearly of moving out procedure

❌ **Weaknesses**

- The hourly peak value is not including how much it cost to the user
- Account tools can be more personalise and flexible

💡 **Opportunities**

- The history search result can be filtered by date and changing the sorting
- Showing the bill and payment in a table format rather than the timeline
- Users can customise the dashboard shortcuts to help them manage the account
- Simple & easy to find move out button and showing predictable steps in the timeline

Competitor Analysis

Feature Table

	Renewable energy suggestion on dashboard	Show renewable energy in usage	Hourly usage breakdown	Live chat	Progression bar for current bill period	Clear billing & payment	Quick access to move out/ disconnect/ switch plan	Customised notifications
Energy Australia	✔	✔	✖	✖	✔	✖	✔	✖
Origin	✖	✖	✖	✔	✔	✔	✔	✖
Amber	✖	✔	✔	✖	✔	✔	✔	✔
Momentum	✖	✖	✔	✔	✖	✔	✔	✔

Opportunities from Competitors
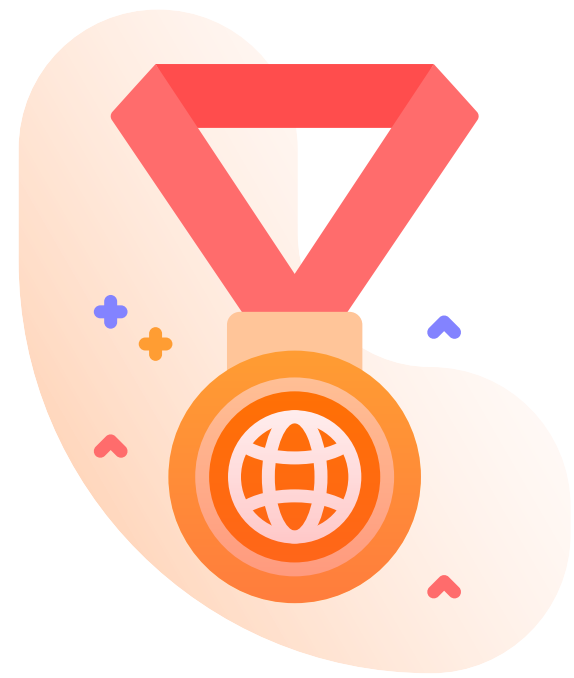
Rewarding & Interaction

Customise Dashboard & Settings

Visualise Data

Tips & Recommend

Opportunities from Competitors

Rewarding & Interaction

Piggy Bank

Shows how much users save each year when saving energy so they know how much rewards go back into their pockets
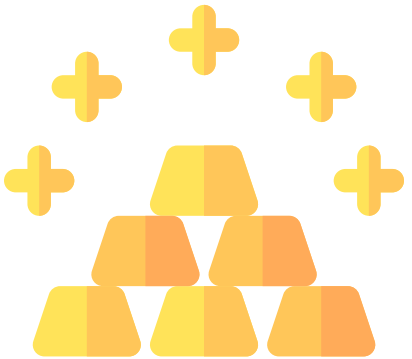
Special Rewarding

Giving out limited badges and extra reward points so they can be more meaningful and the users more driven to gain them
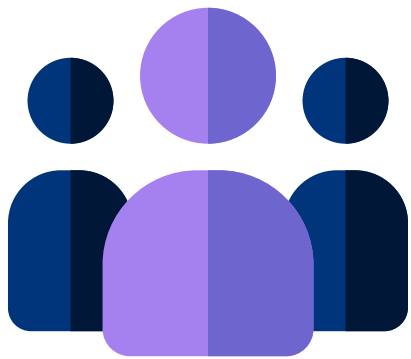
Connect to community

Compare the energy usage with other users in the same area

Achieve a goal

Indicative obbjectives for users to reduce emissions and save energy

Opportunities from Competitors

Customise Dashboard & Settings
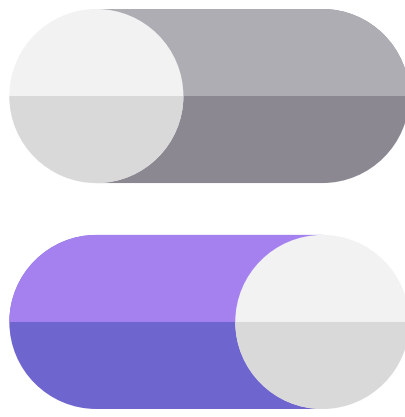
Price Notification
Able to set up price notification when price spikes to a certain amount
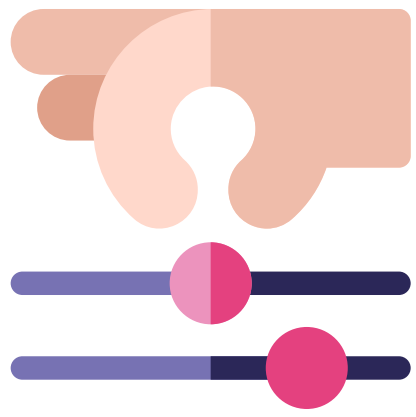
Custom Shortcuts
Users can customise buttons on the dashboard, helping to instantly access the features they need
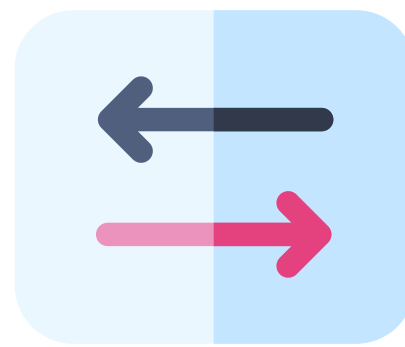
Quick Switch
Quick switch between addresses is easier for users who have multiple properties/ business
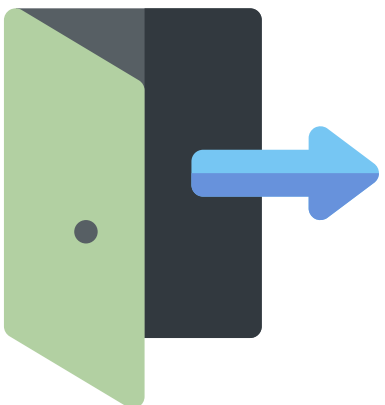
Easy to Change
Give clear direction for users to move out or disconnect

Opportunities from Competitors

Visualise Data
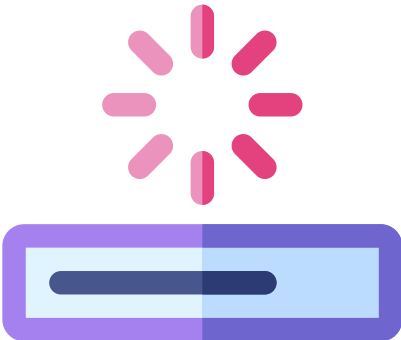
Progression Bar

Use progression bar for current billing period to show users how far along they are until next due

Convertible Units

View the usage chart by kWh or cost($), A number of trees are needed to take up the carbon dioxide emission

Make good use of charts

Detail breakdown in usage, costs, and fuel sources, providing more comprehensive data to review
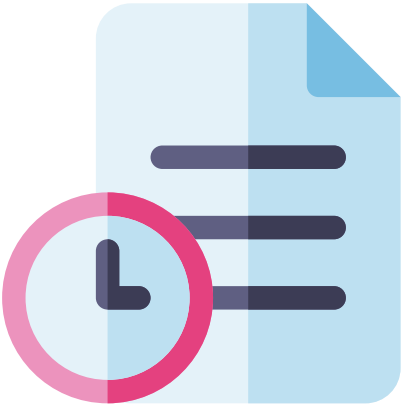
Searchable History

Billings can be filtered by date and changing the sorting. Clear payment status for each bill

Opportunities from Competitors

Tips & Recommend

Live Chat Support

Instant and real-time responses improve the support experience for users and solve their problems

Smart Assistant

Users fill in their needs and we give them the best solution on choosing and saving energy

Saving Tips

Send tips to users if they want to know how save energy & money in peak hours

Learn More

Renewable energy explained by providing more information and the story behind it

Indirect Competitor Analysis & Opportunities

Indirect Competitors

Yarra Valley Water

✅ Strengths

- Very **easy to see latest bill** and make a payment.
- **Great nav menu**. Obvious links to see bills, move house and see outages
- Very **clear usage** (based on season) that compares to same time last year. Also includes temperature on graph.

❌ Weaknesses

- Not easy to find usage using the menu as it's under bills
- No incentives to do better with usage

💡 Opportunities

- Have **comparison of usage to the same time last year**. Gamify to beat it.
- **Menu structure** with clear links for bills and usage

Indirect Competitors

Optus

✅ Strengths

- Very **easy to see latest bill** and make a payment.
- Very **clear usage** on homepage with usage remaining.

❌ Weaknesses

- Menu structure not clear. What is 'Only on Optus'?
- **No incentives** to do better with usage
- Almost too simple. Lacking anything unique

💡 Opportunities

- Clear and simple initial dashboard which includes minimal features around paying and viewing usage.

Indirect Competitors - Opportunities

Feedback Loop

Users set a **goal** which they are able to compare with themselves and other users, this **encourages habit changes** that allow for cost savings and reduced envirnomental impact
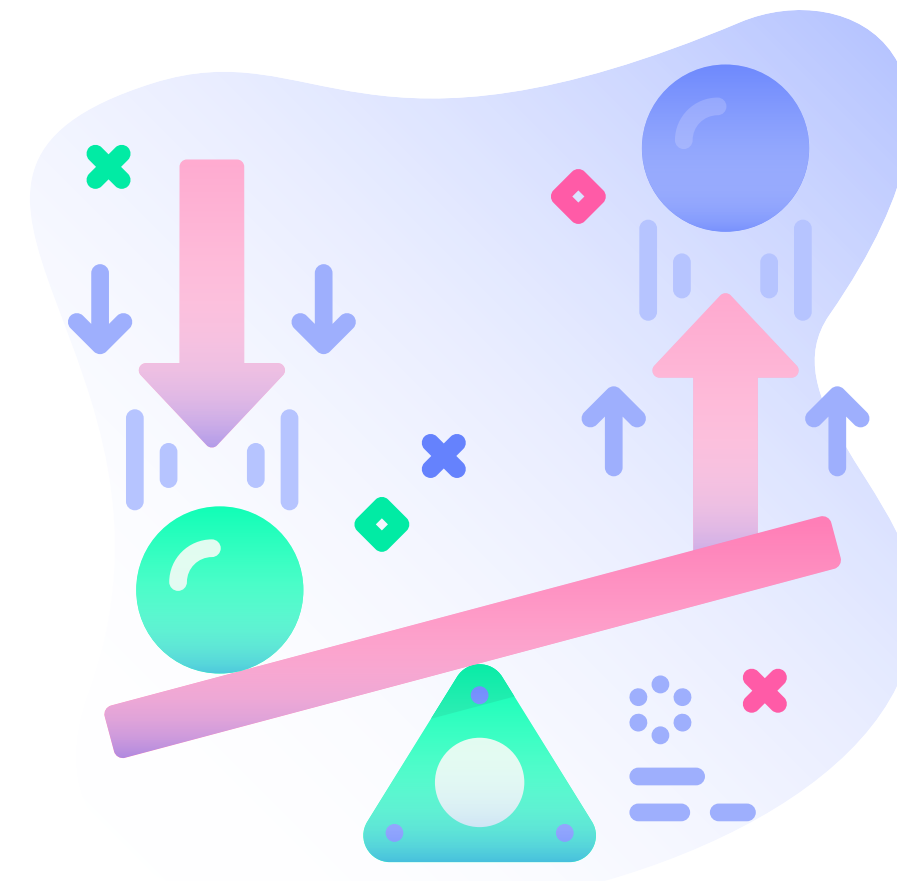
Comparison

Have **comparison of usage against previous billing periods and other users**, gamify elements to enourage more efficient usage habits

Minimal Design

Clear and simple dashboard which includes **minimal features** around paying and viewing usage

Landscape Review
Analysis & Opportunities
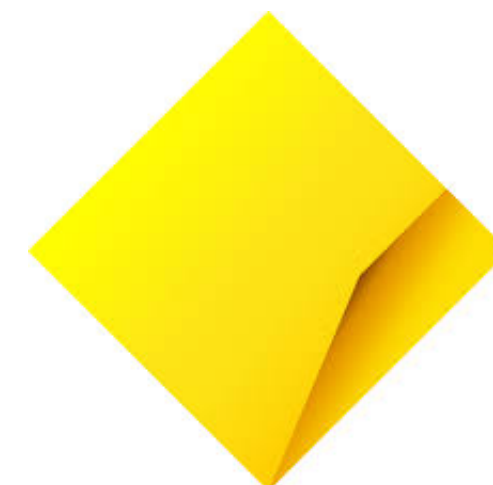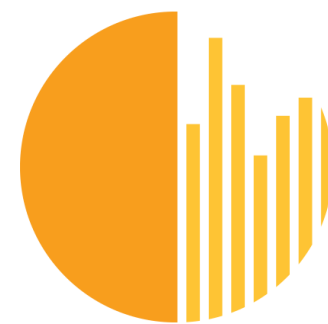
Landscape Review

CommBank

✅ **Strengths**

- Easy to customise in accordance to priority
- Information simple to digest at a glance
- Use of graphs and icons over text

❌ **Weaknesses**

- No option to customise accessibility settings

💡 **Opportunities**

- iO Energy service a variety of customers, having a customisable dashboard would aid in helping their users access the information they're after at a glance
- As renewable energy prices flux, use can view usage or cap certain services
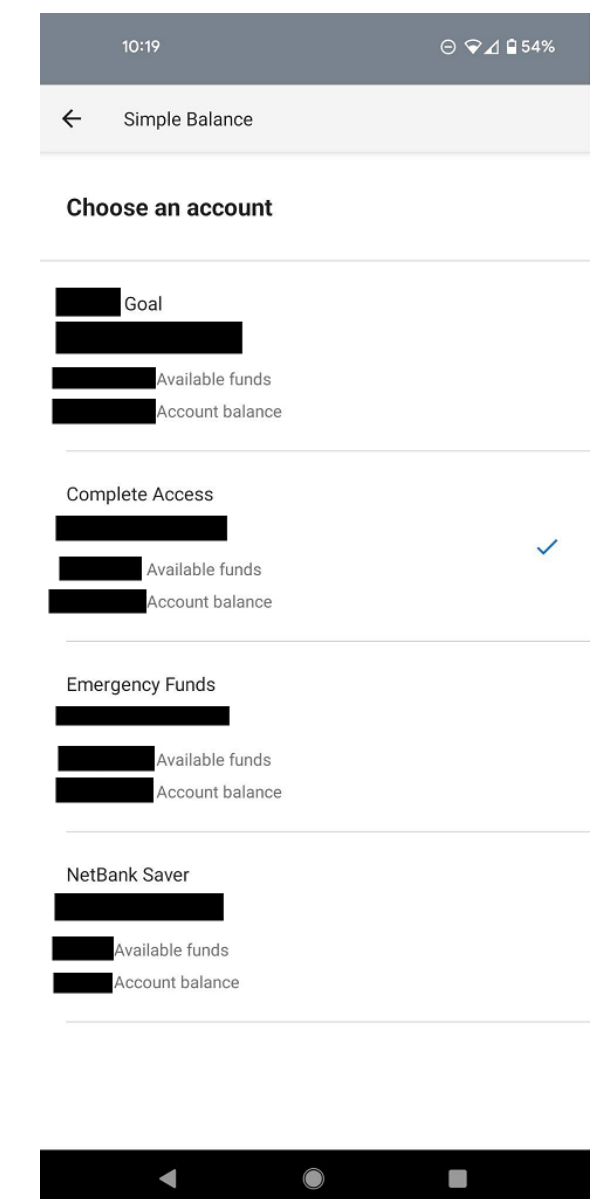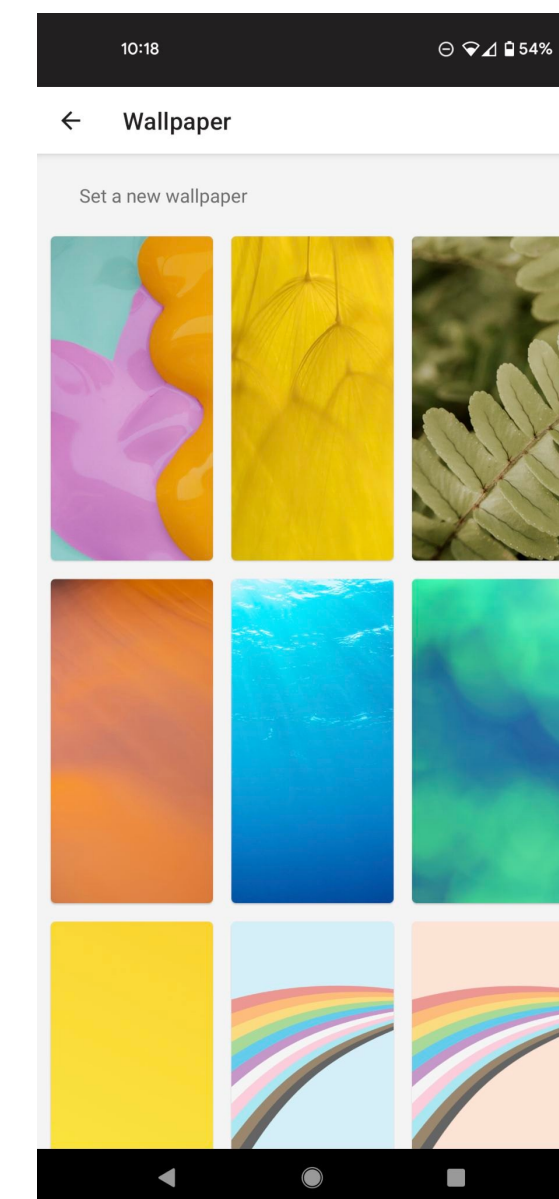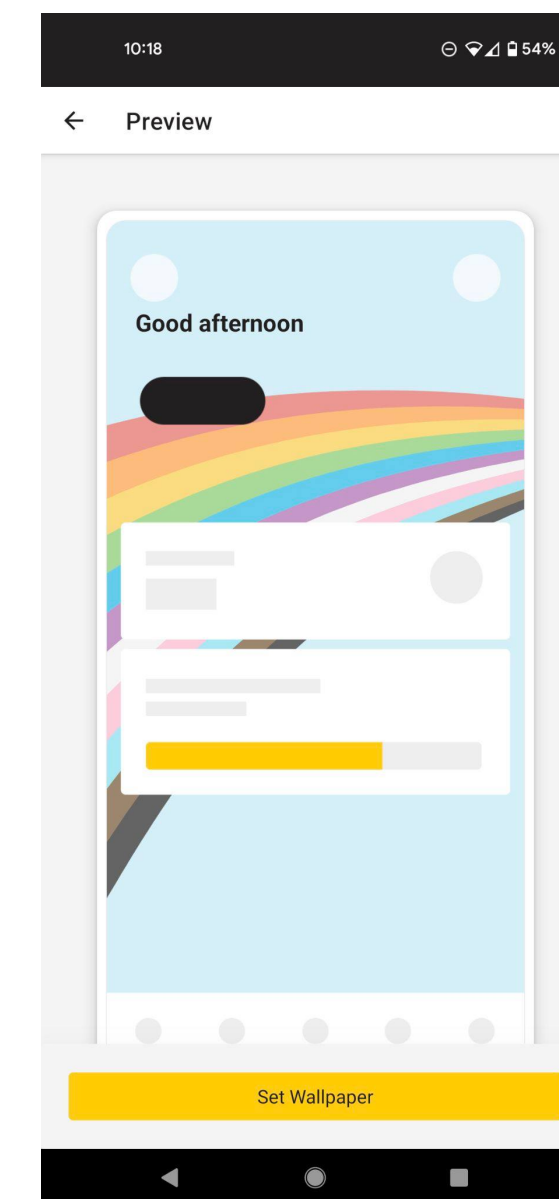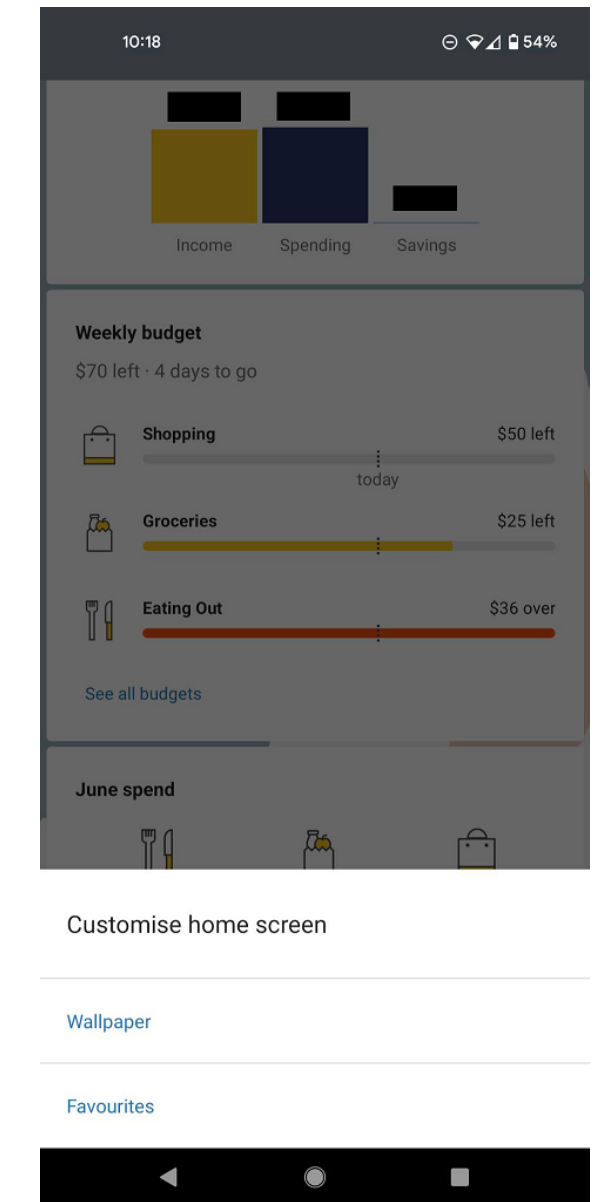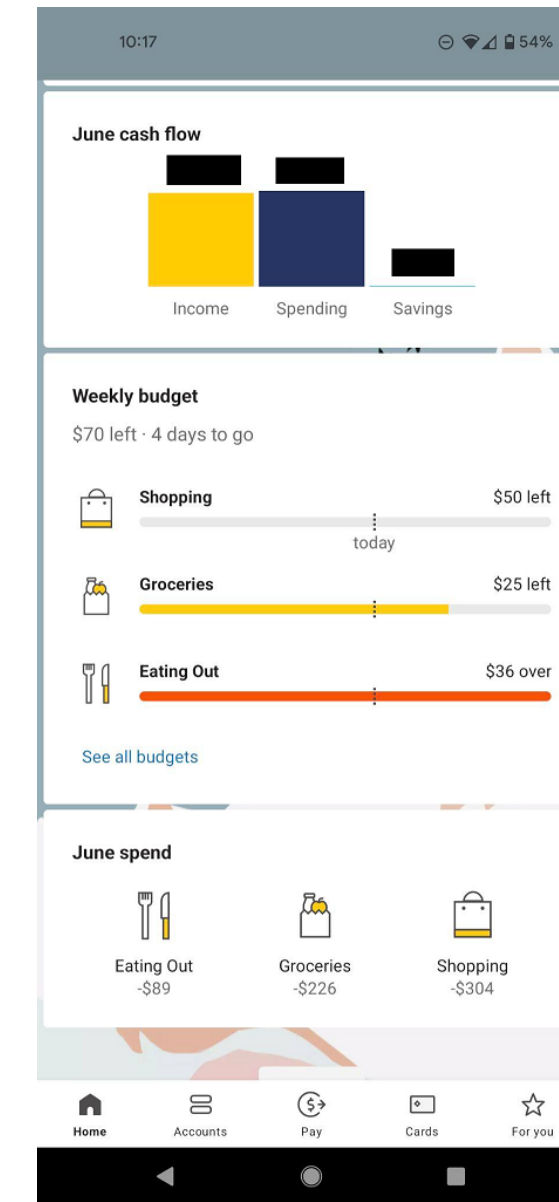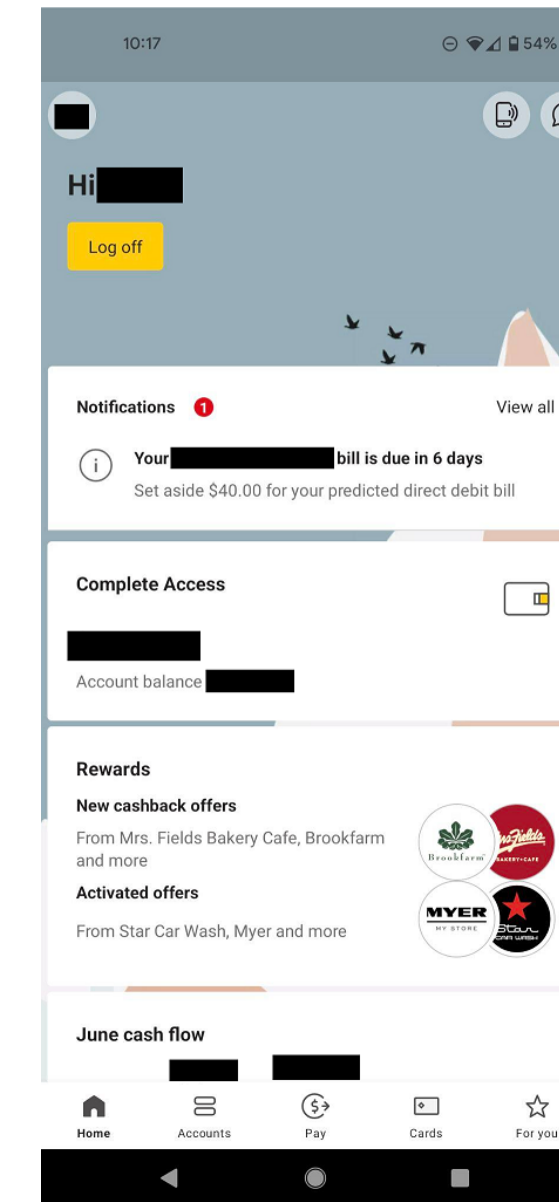
Landscape Review

Solar Analytics

✅ Strengths

- Clean, intuitive UI
- Provide users with clear indication of savings and usage
- Live monitor which gives customer clear view of energy produced and consumed

💡 Opportunities

- Use graphs and charts to display usage and savings
- The live monitor function could be used as an indication of how much energy is consumed within a certain period of time and how much it cost.
- Indicate the best time of the day to use energy to save x amount of dollars to motivate users to target specific time of the day to use energy and save money.
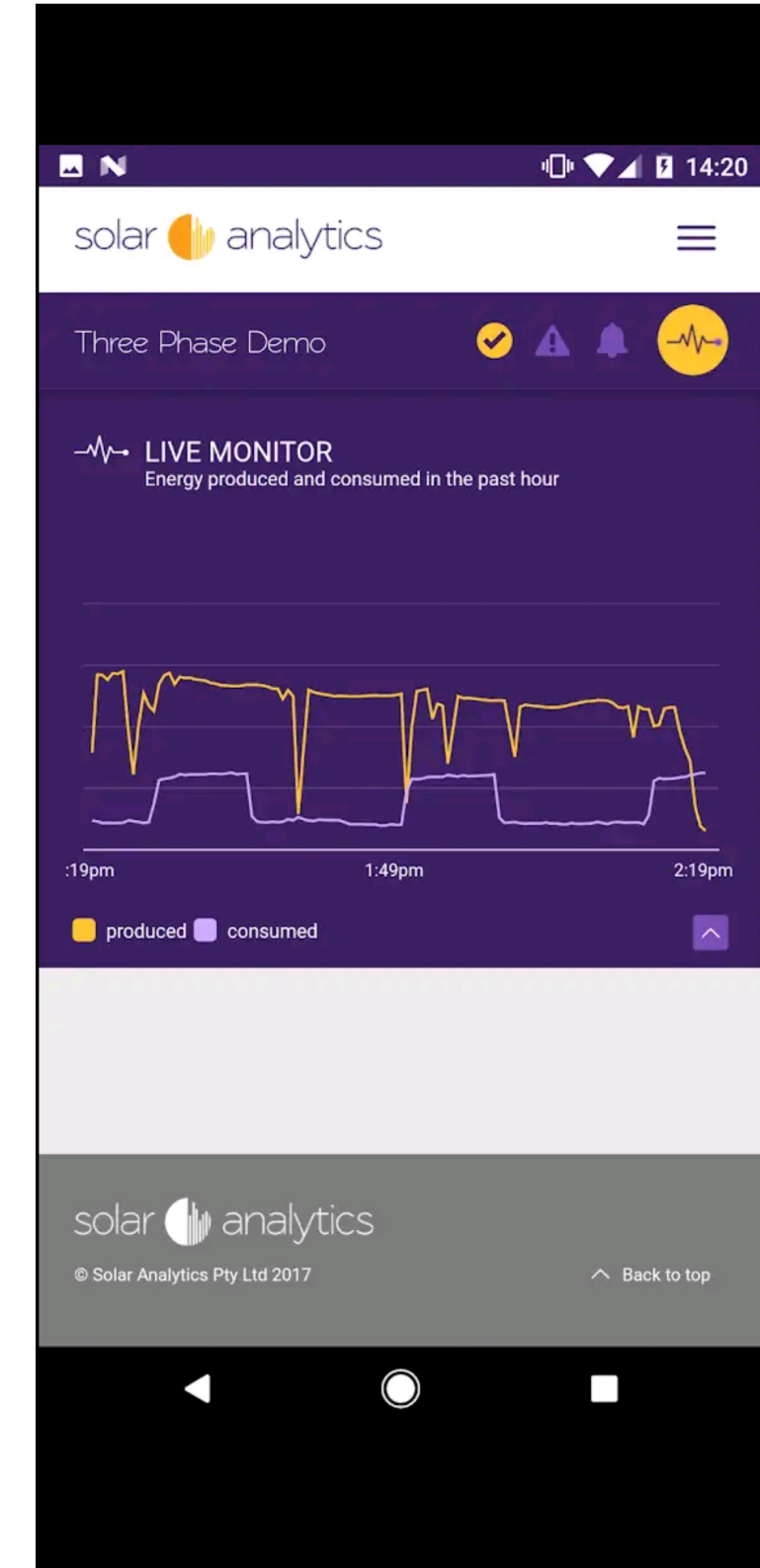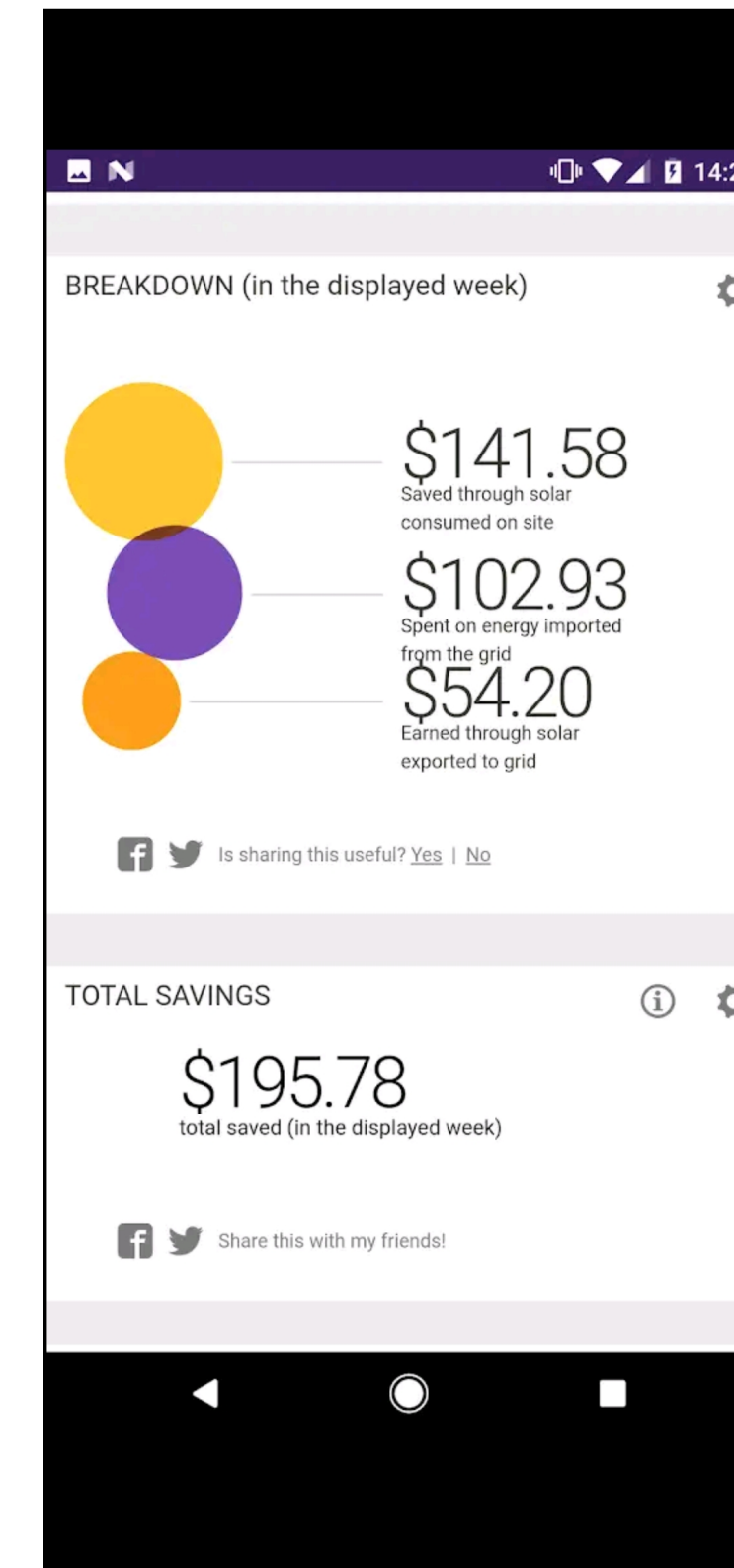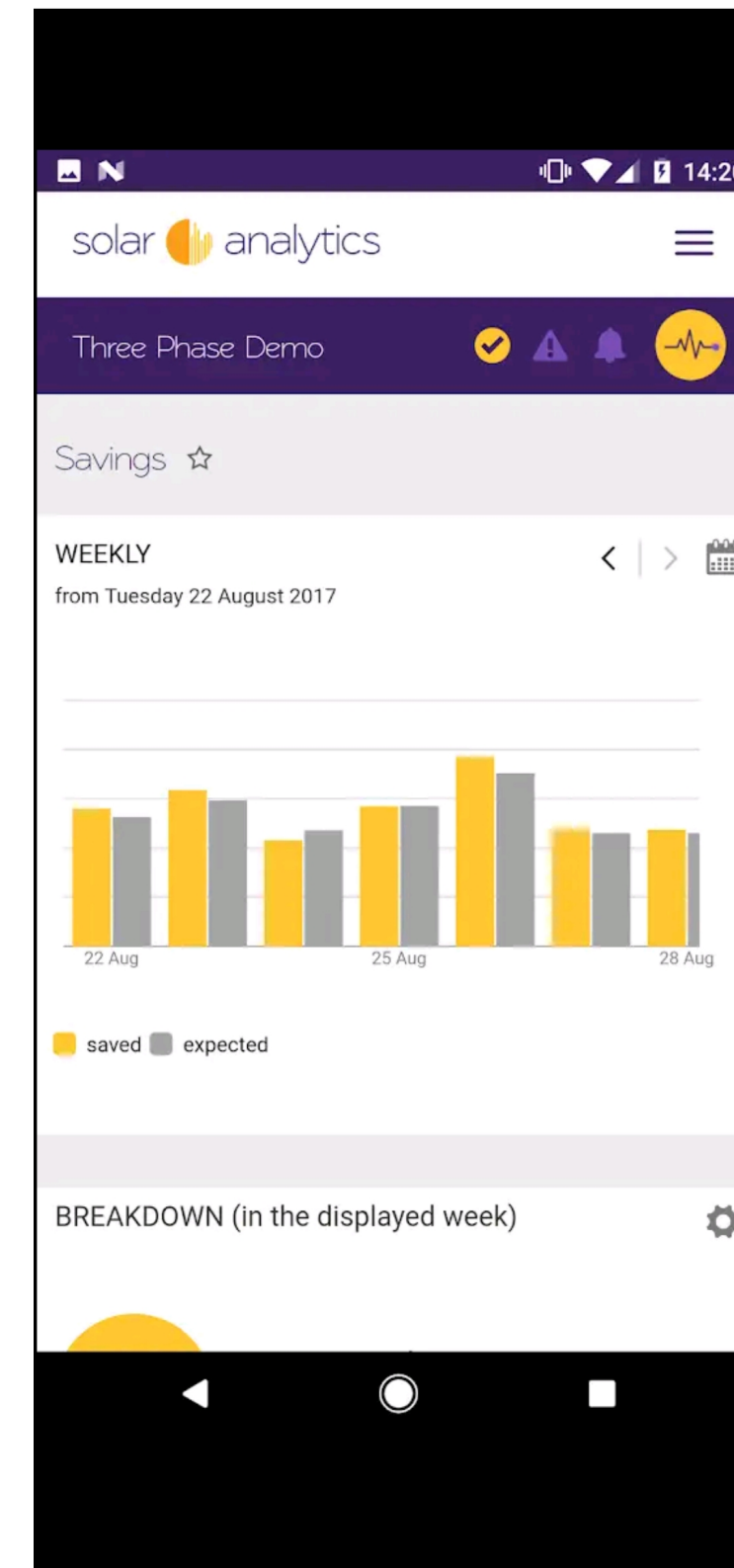
Landscape Review

Up

✅ Strengths

- Utilises in app live chat for feedback and help
- Provide tips on how to best utilise services
- Playful tone of voice
- Simple challenge to encourage saving

❌ Weaknesses

- Relies on demographic to be younger and more tech savvy

💡 Opportunities

- Tone of voice can help educate customers without sounding condescending
- Provide easy and responsive avenue for feedback and troubleshooting
- Challenge reinforces a positive habit, simple to complete and encourages friendly competition
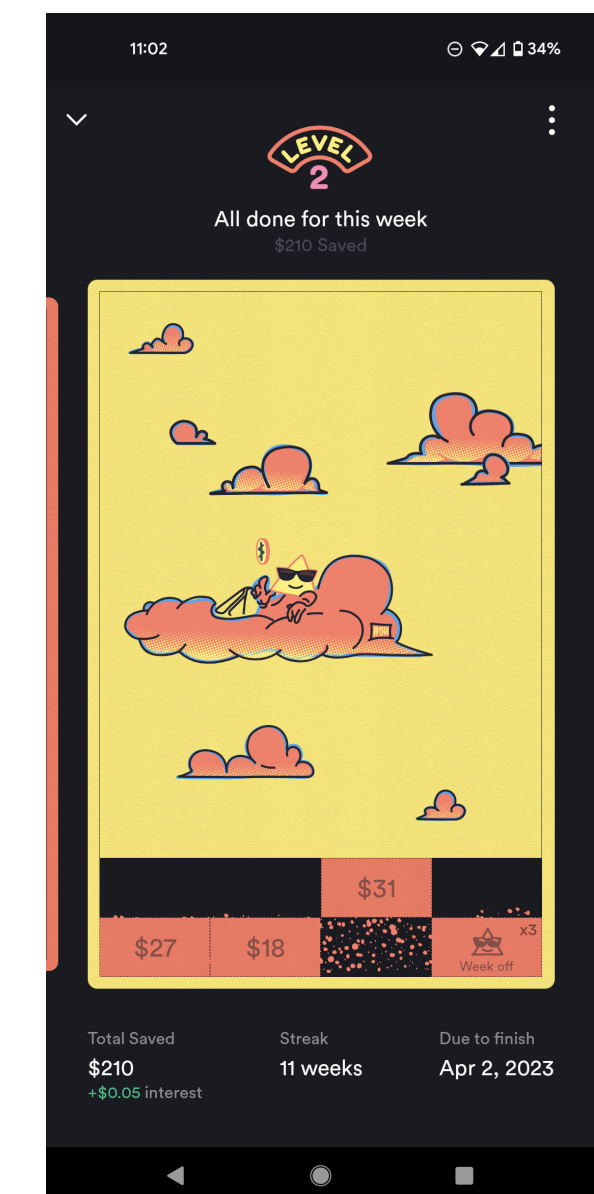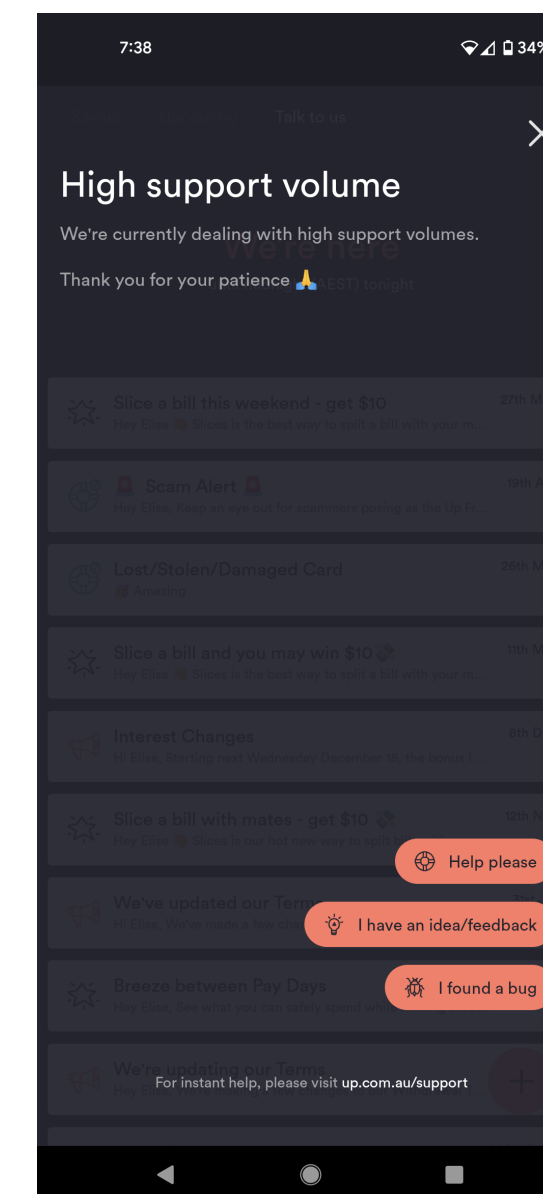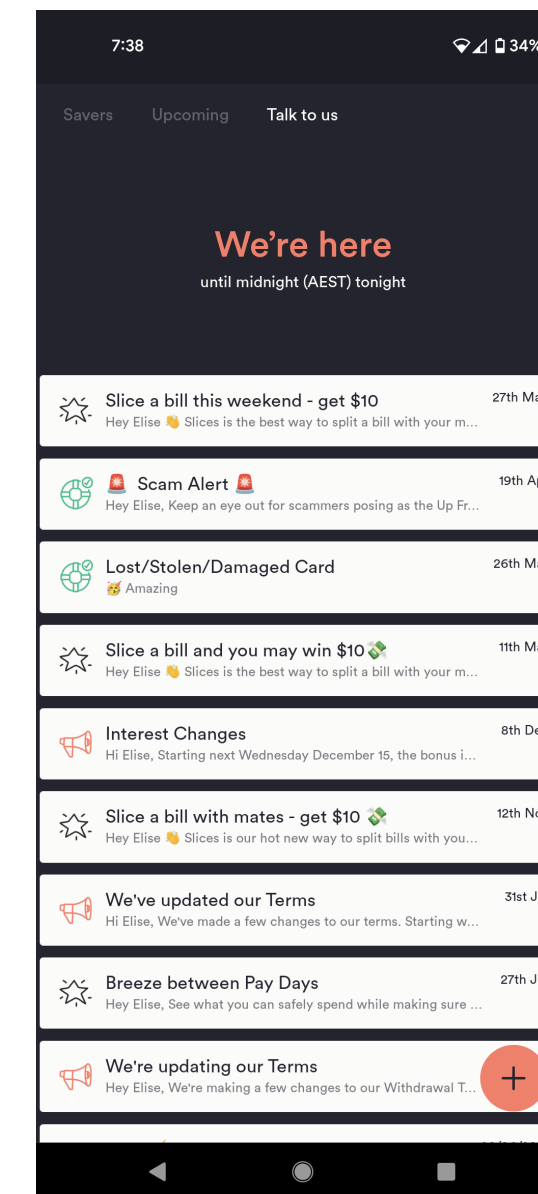
Landscape Review - Opportunities

Customisation

iO Energy service a **variety of customers**, having a **customisable dashboard** would aid users to **access relevant information in a shorter amount of time**

Data Presentation

Graphs to display **usage and savings**, with a live monitor indicating how much energy is consumed within a certain period of time and how much it cost to **motivate** users to **target specific time** of the day to **use energy and save money**

Gamification

Challenge to reinforce positive habits, that are simple to complete and encourages friendly competition
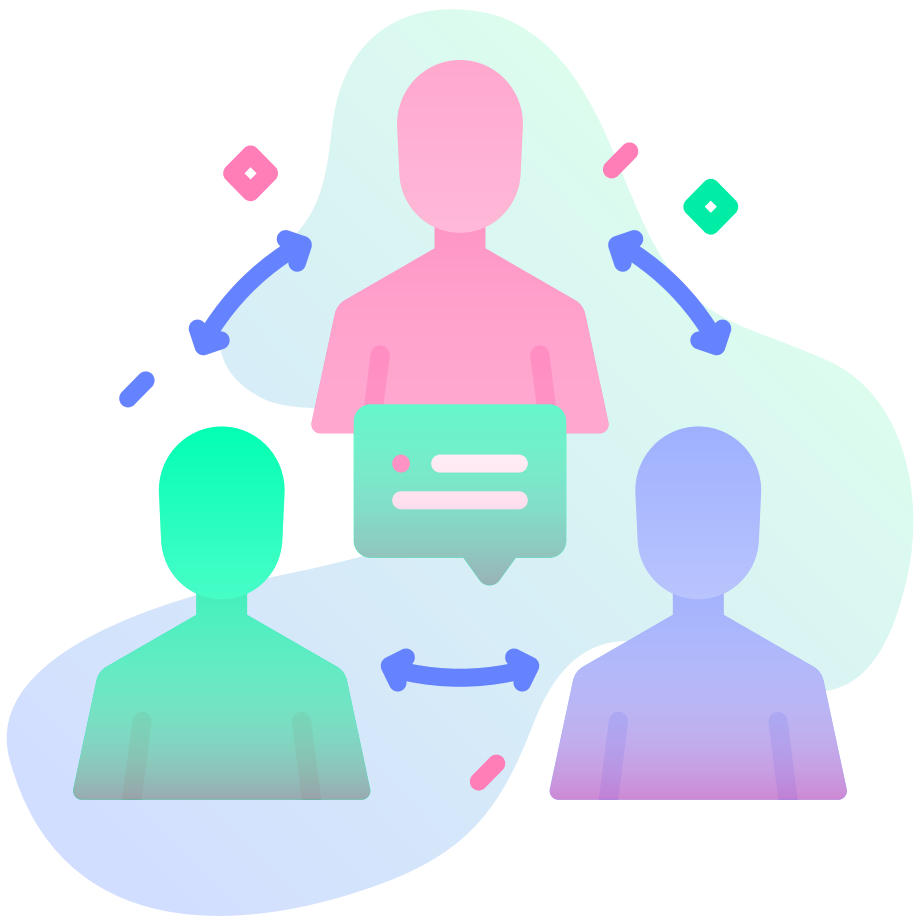
Communication

Tone of voice can help **educate customers** without sounding condescending, provide an **easy and responsive** avenue for **feedback and troubleshooting**

Survey

An online survey was conducted to gather quantitative data on topics such as demographic, usage habits, dashboard expectations and environmental stance.

- 63 responses

- 52.4% in aged between 20-40

- 90.5% are residential users

- 3.2% are business users

- 6.4% are both

Link to Survey Responses

Two main reasons why users used their customer portal: **to check their bills** (62.9%); and **to check their current usages** (43.5%)

49.2% of users were **unsure whether they had a smart or basic meter** on their property.
- 22.2% Smart Meter
- 28.6% Basic Meter

71.4% of users **do review their latest period energy usage bill**, where majority of these users would consider switching to renewable energy (90.5%)

Majority of users found it fairly easy to locate information they were looking within the portal (58.7%)

Most important features according to users:
- **Billing** (to see and pay)
- **Usage** (most current and accurate)
- **Ease of use**
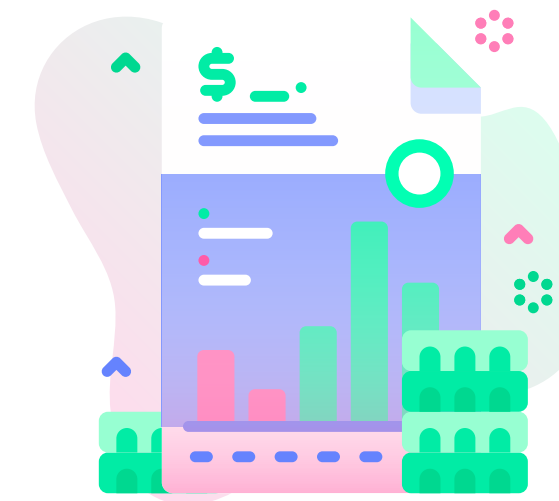
Having **multiple rates based on solar/ wind energy production** was most prefered (eg. afternoon would be the cheapest period), then following:
- 33.9% prefered 'on peak' and 'off peak' rates
- 30.6% prefered one set rate

Interview Insights
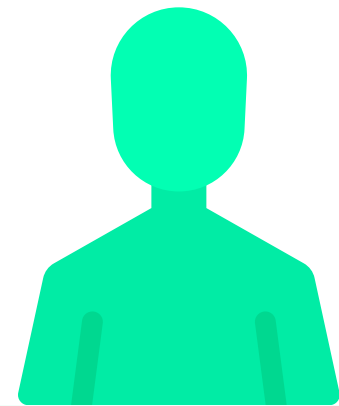
INTERVIEWEE 1

45, University Lecturer

Diamond Energy

"Im **environmentally consious** by not using or consuming, making me incredibly **cost sensitive**"

"Saying **power is cheaper now is not very helpful**. I may not be at home I'd like 'Ding' that power is going to **cheaper in the next 24hrs**"
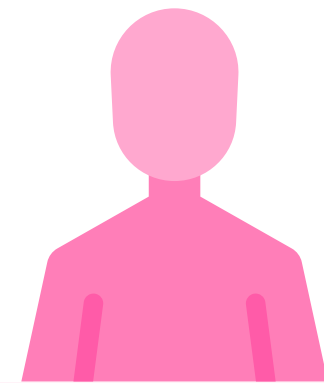
INTERVIEWEE 2

45, Studio Manager

Amber

"I prefer to use an energy provider that is **offsetting my usage** and is **carbon neutral** rather than a big corporation that **don't use renewables** "

"I do still find myself looking on **comparison websites** to see whether I am still getting a **good deal**"
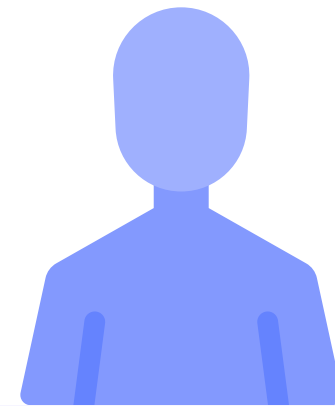
INTERVIEWEE 3

30, Engineer

Origin Energy

"I liked the idea of Spike hour, that I can use energy and also **accumulate points to redeem for rewards**"

"I use customer portal to **pay bills** , **check upcoming Spike Hours** and my rewards points"
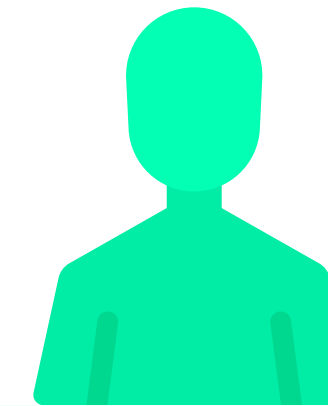
INTERVIEWEE 4

27, Construction Worker

Lumo Energy

"I chose to use **solar energy** - I'd like to think I'm **contributing to the environment**. I don't know if my house is purely running 100% on solar "

"**Give me simple information**, and a simple task, and I'm happy. Life doesn't need to be complicated. Keep it simple"
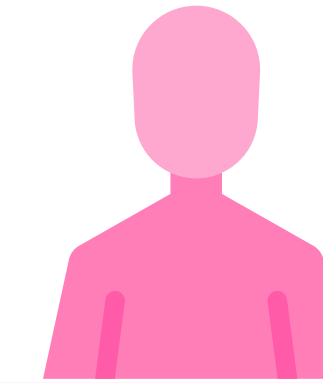
INTERVIEWEE 5

53, Project Manager

Energy Australia

"My husband looks at the app every time the bill comes in, sometimes even when it's a sunny day he'd check to see **what solar is giving us compared to what we're using**. To see if we're under, and not over".

"It would be great to have **notifications when you are exceeding your solar usage** also getting a notification when **you are late with your bill** "
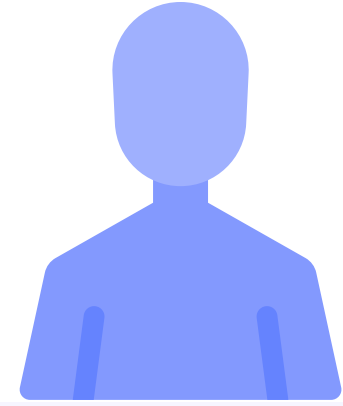
INTERVIEWEE 6

27, Architect

Arc Energy Group

"Would consider if I knew, if it's something too much. Might consider **changing usage habits to save a bit of money**."

"Like to see how much I'm using average wise, comparison to overall usage by all users (1, 2, 3 person household). **Want to confirm I'm low maintenance, saving the world, being efficient.**"

Research Stage Usability Testing

The iOEnergy team informed us they had an existing desktop customer dashboard prototype.

We could use this to our advantage to understand what users thought of the proposed solution and any room for improvement. We could then use these same tests (i.e. tasks) with our prototype later in the project.

After each 1:1 interview, we asked participants to perform some actions with the prototype.

We could only answer questions after the session. Our goal was to test the prototype, not the person. There were no wrong and correct answers - any feedback was welcome. We asked users to think aloud about everything they did.

Insights are summarised on the following pages.
Link to prototype
Link to task template
Link to results from synthesis.

---

iO

☰ Welcome, Jeff

Usage from **14 June** to **20 August**

Time range

Your charges so far

$62.05

25% Less spend

Your consumption so far

147.16 kWh

24.3% Less spend

Your current plan is

Millennium.

Powered by **io energy**

Average hourly usage

Charges	Consumption (kWh)	Date	Daily avg (kWh)
$3.57	**9.96**	**20 Aug 2021**	**6.31**

Average cost: $0.23

50

25

100

50

5 Participants

7 Tasks

Usability Insights

1. Sign In

Sign in to the customer portal
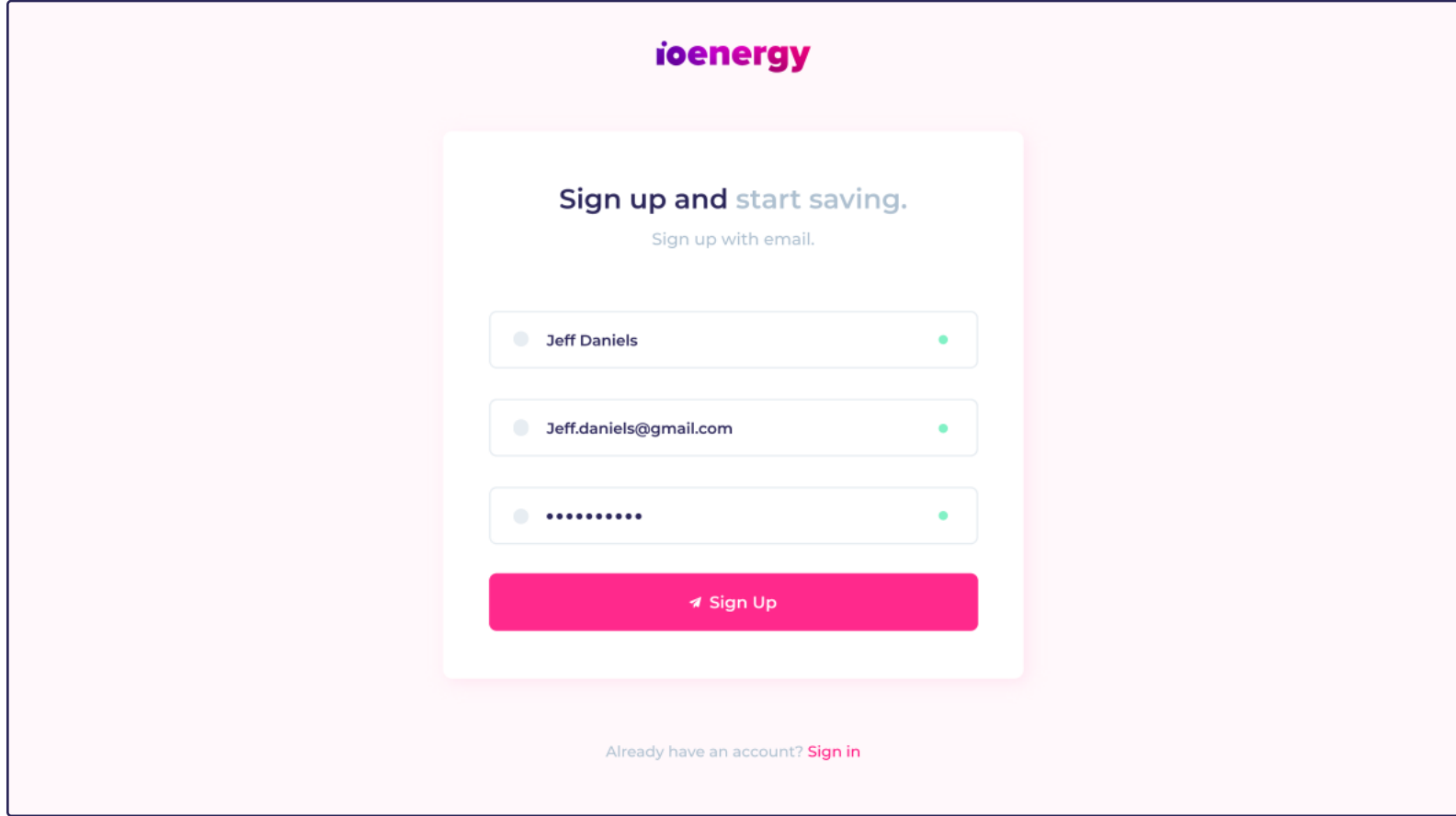
- An easy task for all.

2. Billing

Find latest bill and any outstanding amounts owing.
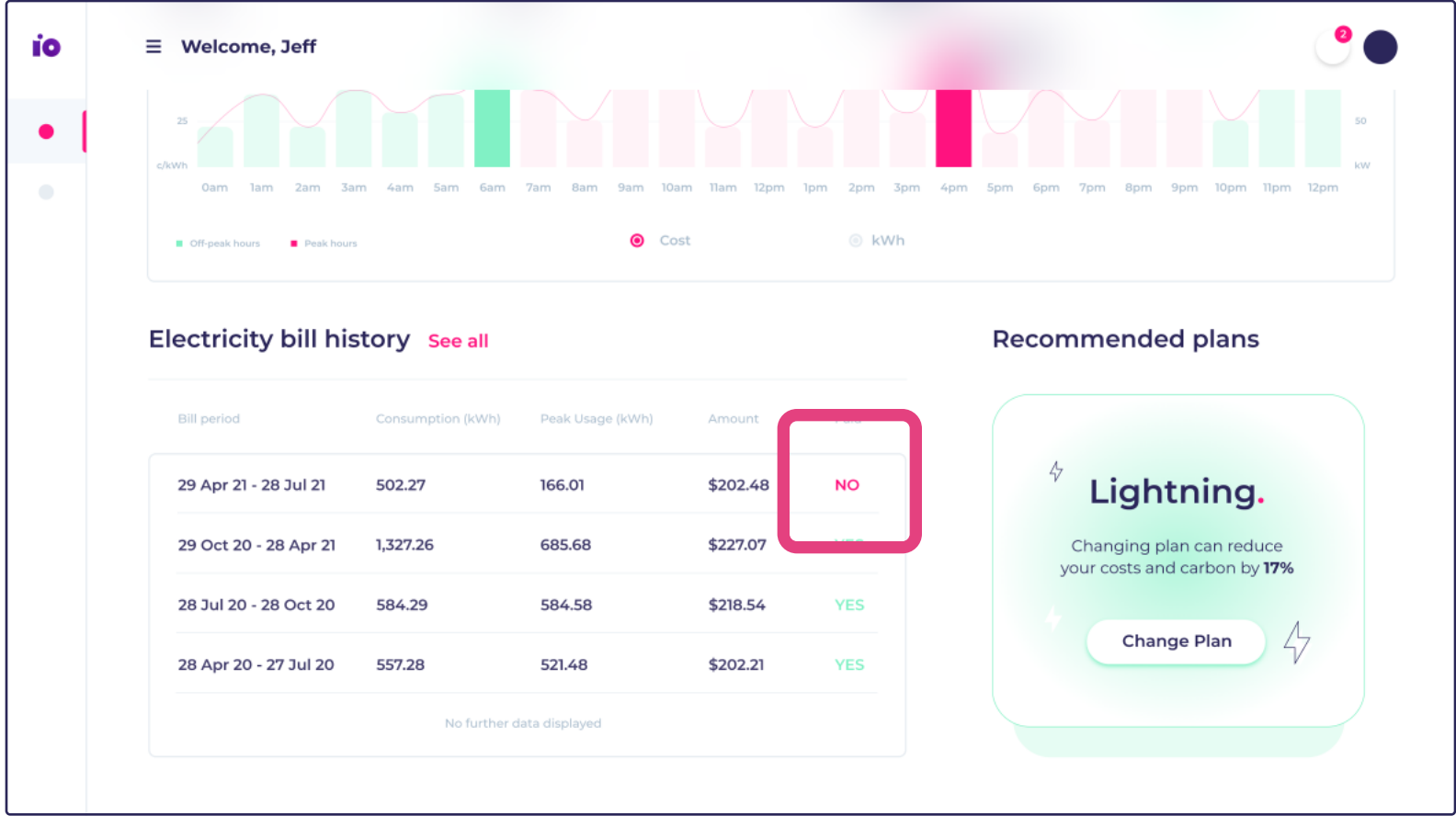
- The label 'Bills' should be prominent without need to scroll

- Improve visibility of outstanding bills

3. Current Usage

What are the charges and usage in current cycle. Is there a better plan?
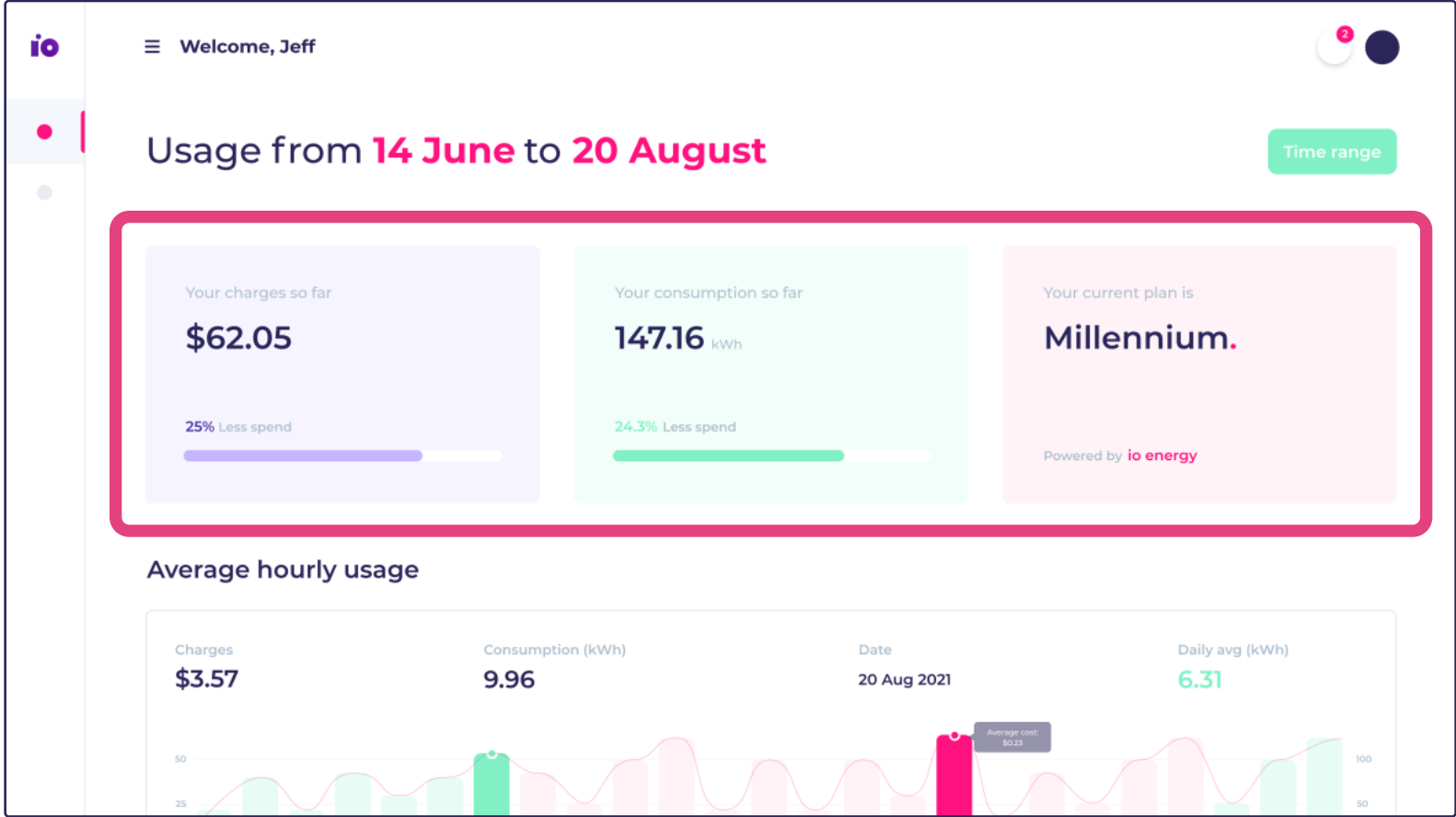
- Good feedback on top containers

- Recommended plan is more valuable than current plan

4. Appliance Use

You used a new dryer today at 4pm. What did it cost you to run?
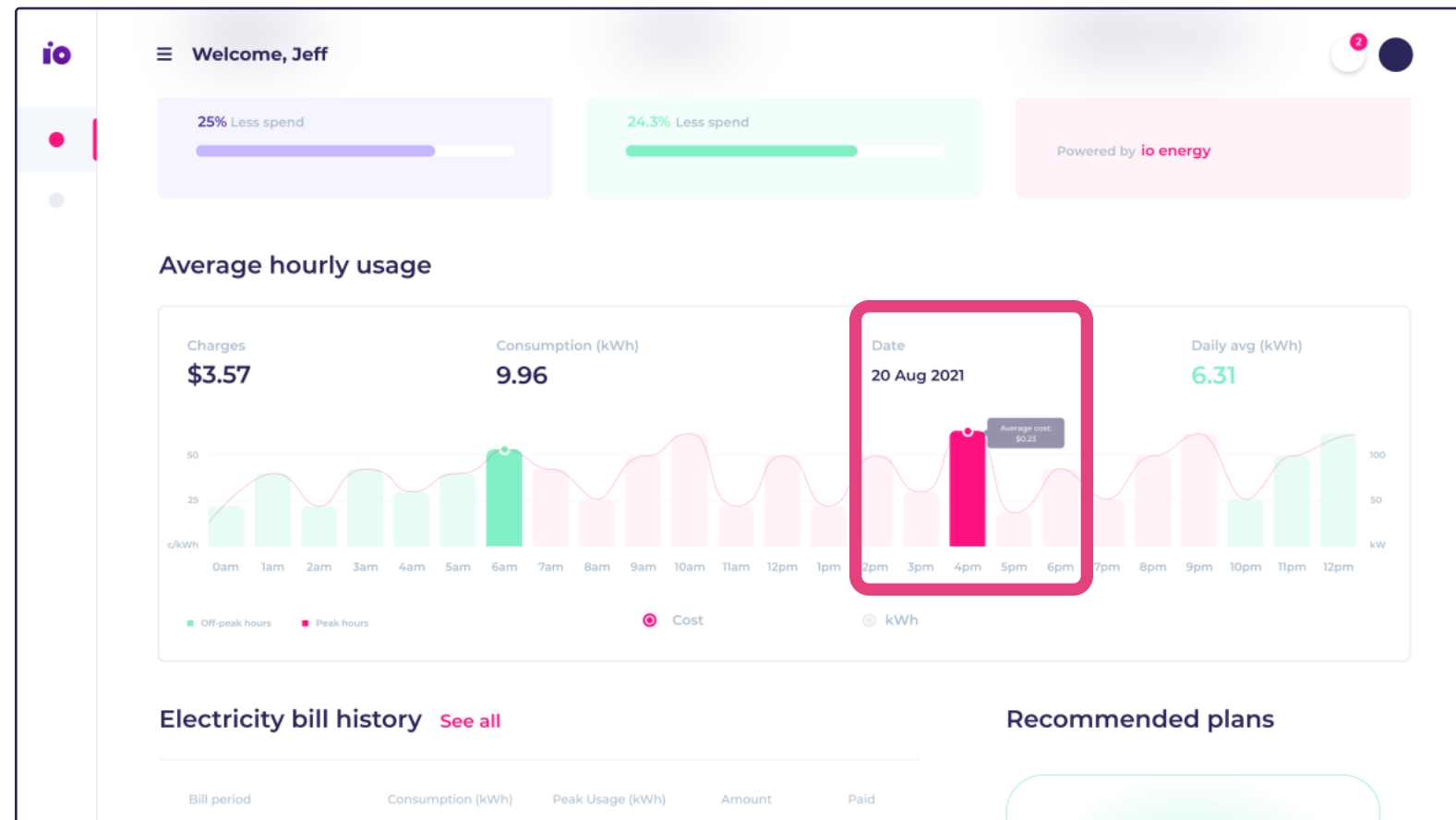
- Users found the cost, but tooltip and subtext too small.

- Pref. may be to one parameter on X axis to start with (kW toggle only changes opacity)

5. Environmental Impact

What renewable energy sources are part of your plan?
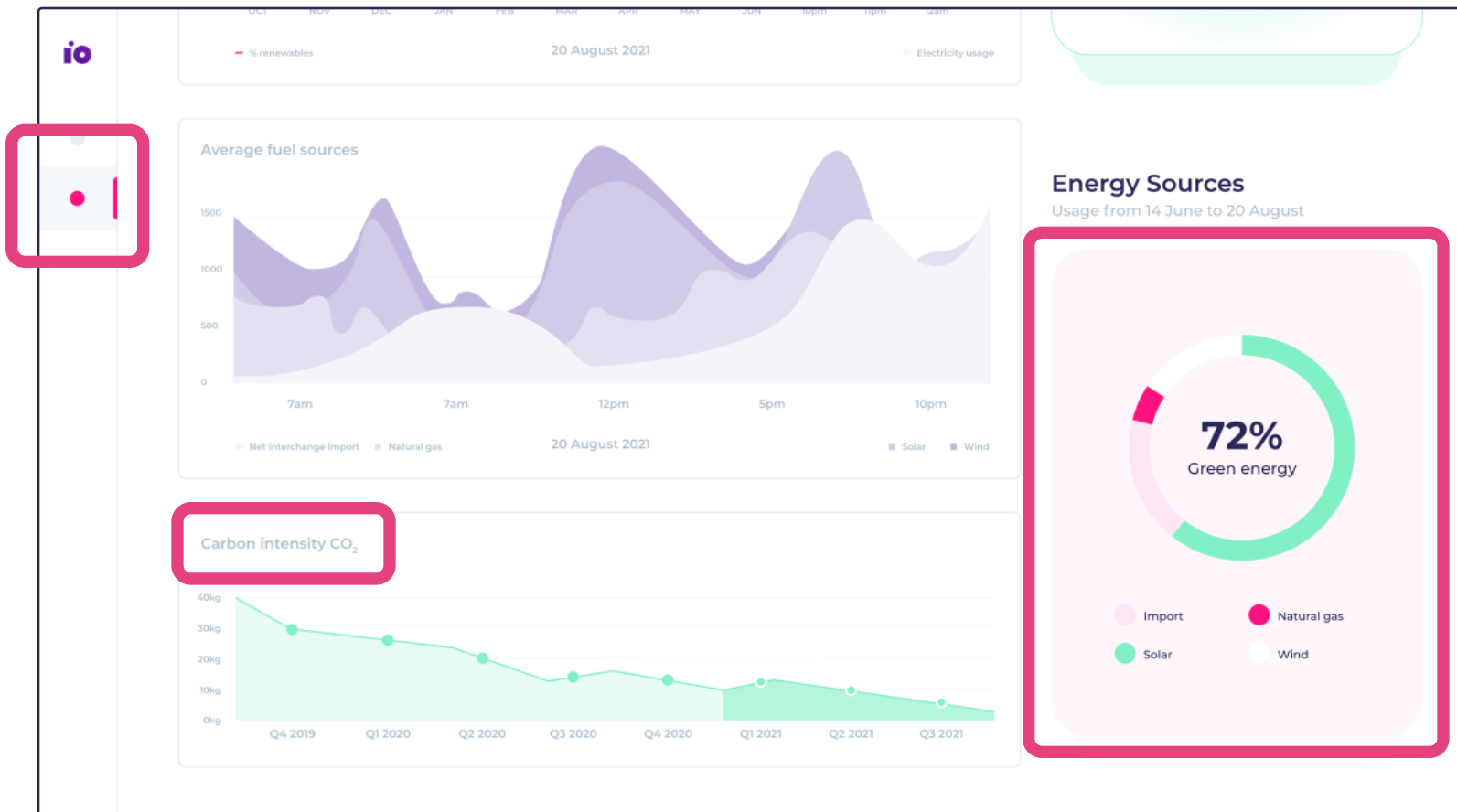
- Page Navigation dots need labels

- More education. What is carbon intensity? Green vs Renewable?

- Pie graph was easier to read relative to fuel source line graph.

6. Switching Plan

Can you change your plan and what would you choose?
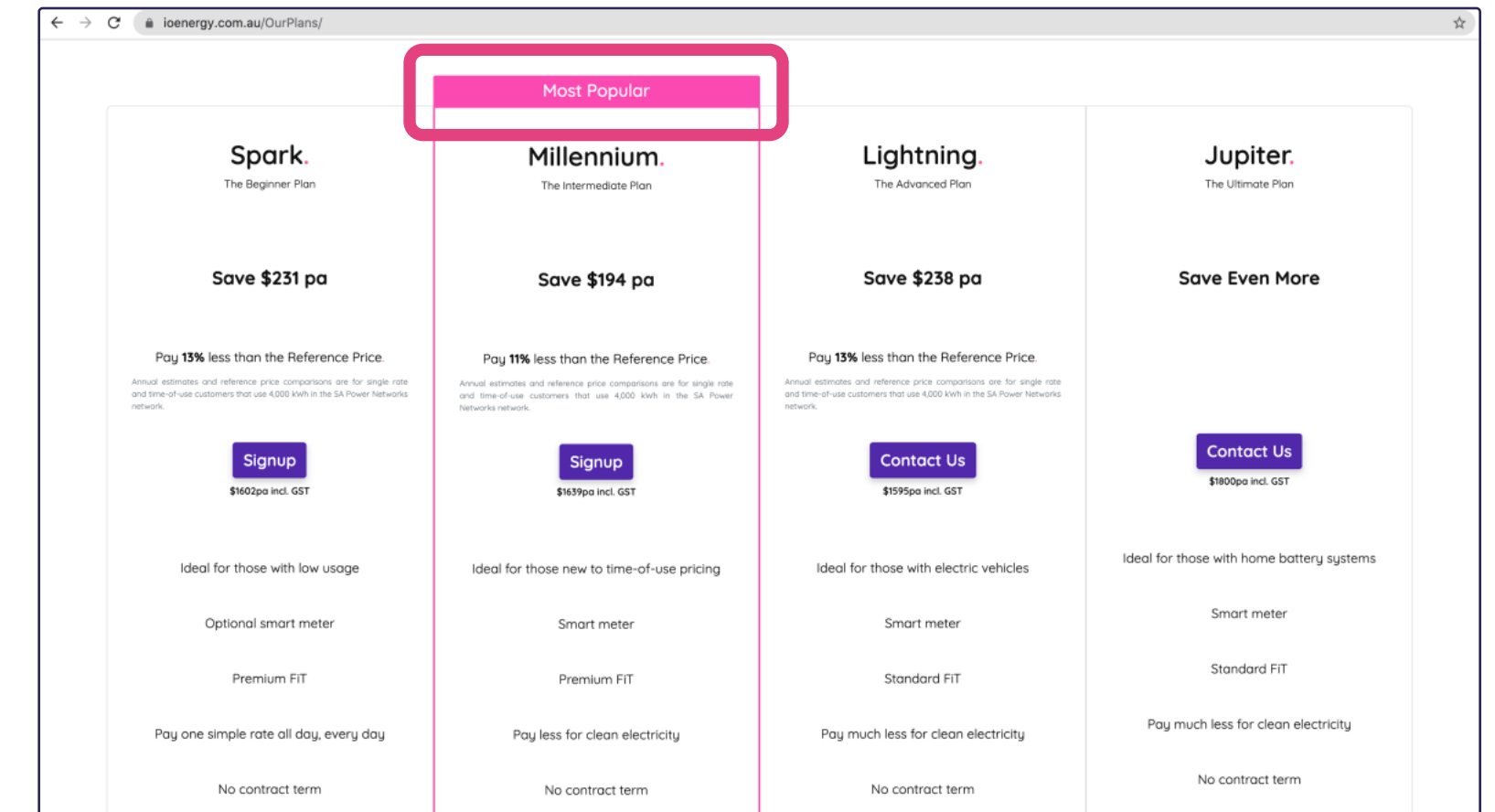
- Recommended plan missing on comparison page.

Define

Synthesise research to generate insights, uncover the problem that needs to be solved.

Affinity Map

After the interviews and user testing, we organised insights into common themes in a simple & detailed map.

The affinity map revealed that almost all users tried to reduce usage. Typically through more efficient products, setting times for appliance use or installing solar.

There was a mix of environmental and economic values and users mostly picked a provider based on price, convenience, renewables or with no choice (apartment living)

Users saved money by reducing consumption, through provider incentives or with better plans.

The portal mainly was used for billing, checking usage and viewing current prices.

Desired dashboard data included:
- KW/cost vs time (all timeframes).
- Current prices / time of use price.
- Information on how to do better.

Link to Affinity Map

Affinity Map (Detailed)

Empathy Map

In conjunction with affinity mapping, empathy mapping was utilised to gain a better understanding of potential users' needs. The insights under "Pains" and "Gains" were especially useful in guiding the direction of the future design work.

Link to Empathy Map

Who

Age Range:
14.3% - 21 - 25
14.3% - 26 - 30
12.7% - 31 - 35
11.1% - 36 - 40
9.5% - 41 - 45
12.7% - 46 - 50
9.5% - 51 - 55
7.9% - 56 - 60

Tina

Have a customer portal:
Yes - 76.2%
I don't know - 20.6%
No - 3.2%

Tina

Use Customer Portal:
Yes - 63.5%
No - 36.5%

Tina

Residential or Business:
90.5% Residential
3.2% Business
6.3% Both

Tina

Using portal on:
1. Desktop (web browser)
2. Phone (web browser)
3. Phone (app)

Tina

Goal: Wht need to do

Compare previous bill. Review the next quarter, and minimise the usage

Lyn

Straightforward, quick to find what he needs, loves the ability to see what solar has produced and what we're producing.

Check at the price and due date on the bill, use BPAY code to make payment

Lyn

Mainly check:
1. Billing
2. Usage
3. Changing of details
4. Cancel plan

Tina

Able to know what is using too much electricity

Elise

break down and analyze usage in a more detailed way so I can know how to save money on energy

Katherine

I use customer portal to pay bills, check upcoming SpikeHours and my rewards points.

Think & Feel

Environmentally conscious by not using or consuming, making me incredibly cost-sensitive"

Katherine

Lack of time to compare the other plans

Katherine

Not much can do when renting

Good and user-friendly app, I could see the benefit straight away

Elise

Hard to find things as they move around. Information is not all on the same page

Only use website when I need to do some big changes like switching plans or moving home

Katherine

I am more determined to make changes on energy issue

Katherine

usage is hard to understand e.g. when is peak, shoulder, and off-peak consumption

Katherine

Strong interest in renewable energy

Hear

Currently building managed

Elise

Community groups (NEM FB group) who knew the best plans and providers

Elise

my parents were also using Lumo

Lyn

Customer serivce assistant

Katherine

SEE

I can't tell from my portal or the bill of what kind of fuel I'm using

Katherine

The usage on that pdf document only shows my monthly usage which doesn't really help

Katherine

I think it'd be good if they can see through your usage that you're mostly early morning and late afternoon or evening, as you're at work during the day so not much would be used, it'd be great to have bills based on your usage rather than open plan. So it encourages people to use those times more, than the peak times.

Katherine

Email saying, amount is due. Go online to pay, and while online will check for it. Did not realise it is included in the email; PDF attached.

Elise

Comparison websites

Amph Buachie

Research about renewable energy

Katherine

"I use the the app everyday, I find it more beneficial because it gives me more information about my actual real time usage."

Amph Buachie

Say & Do

"I have really strong interest in renewable energy".

If there is peak hour cost, I don't think so. Will think about it if it's convenient. If it's essential then no.

Food / cooking is essential (dinner time is dinner time).

Elise

"I am aware of what the cost of our monthly bill is anyway because it tells you your usage over the past 30days within the app"

Amph Buachie

I am not sure what fuel they are using or does it is even really better for the environment.

Katherine

Use dishwasher and washing machine when electricity is cheaper

Solar panels did save our money in long-term

"I'm environmentally conscious by not using or consuming, making me incredibly cost-sensitive"

I find it really useful that I can view rates every half hour.

Amph Buachie

I can't tell when I should cut off or use less energy if I only read the bill without doing research online

Katherine

Optimize the use of energy and reduce the frequency of using appliance

Katherine

We use **plug-in energy meters**. So we're just going to go around the new house and make sure there are no surprises.

Olivia works as a Graduate Architect of a small practice that specializes in designing and construction of buildings that are environmentally sustainable and are based in Melbourne. Olivia is currently renting a 2 bedroom unit with her partner in the inner northern suburbs of Melbourne. Olivia is very conscious about the environment and is open to solutions that focus on sustainability. She likes finding new ways that encourage her to reduce her carbon footprint. Because Olivia is at the beginning of her career she is quite sensitive to the cost of her energy bills.

AGE: 27

LOCATION: Inner North Melbourne, VIC

STATUS: De Facto living with Partner

PERSONALITY TYPE: Ecological Sensitive

BACKGROUND: French/Vietnamese (Mixed Heritage - Caucasian/Asian)

KEYWORDS: Empathetic | Informed | Environmentally-Freindly | Analytical

OLIVIA MARTIN
Architect

INTERESTS:

- Keeping up to date with the news and global issues;
- Excersising and eating healthy (plant based diet)
- Travelling overseas with her Partner;
- Going to art exhibtions and art galleries.
- Attending live music events

PET PEEVES:

- Older relatives telling her generation have it easy.
- Institutions that stand in the way of gender equality.
- Corporations that don't invest in renewable energy

MONTHLY ENERGY USAGE:

- Lighting 23.5%
- Appliances 58.8%
- A/C 5.9%
- Hot Water 11.8%
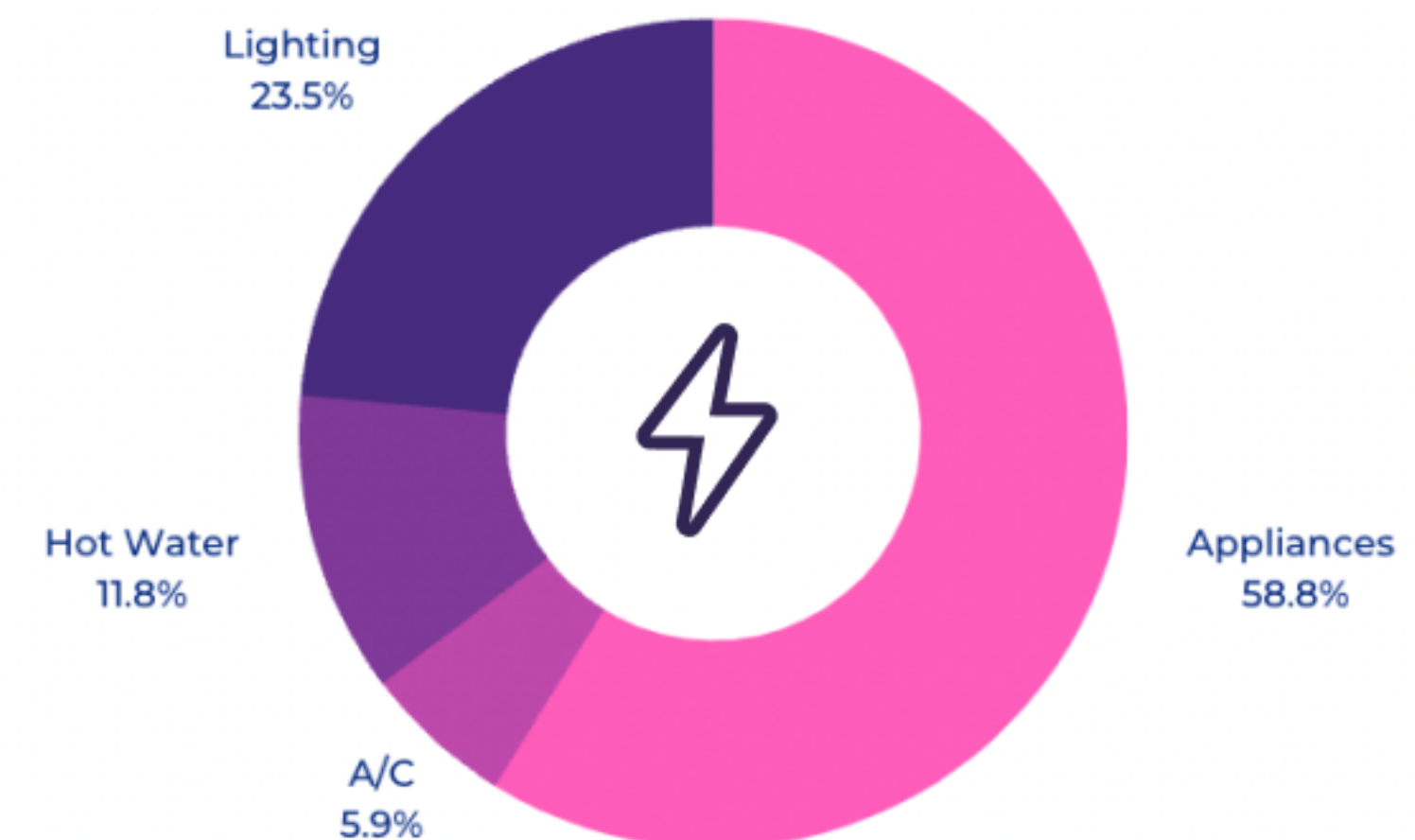
Faye is the typical Sydney homeowner. Lives in a big home in the Inner West suburbs with her husband and 2 kids. Money has never been a big issue for her or her family. She doesn't often have the time to sit and review her latest energy bill usage in her home, as she uses that time to spend it with her family, or is busy working. One of her kids is very environmentally conscious and has expressed their opinions to Faye about their home energy usage. Faye has taken this information and knowledge into consideration however doesn't really think it's that big of an issue nor does she have the time to fully act upon it.

AGE: 48

LOCATION: Inner West Sydney, NSW

STATUS: Married with 2 kids

PERSONALITY TYPE: Ecological Neive

BACKGROUND: Caucasian
(Mixed Heritage - Irish & British)

KEYWORDS: Oblivious   Stubborn   Environmentally Unaware   Naive   Unconcerned

INTERESTS:

- Spending time with the family
- Hosting large social events in her home
- Baking muffins every few days
- Doing the Bay Run walk with her family;
- Sitting down at night with a nice glass of red and her favourite tv series

PET PEEVES:

- Activists blaming her for being the issue to the world's climate problems
- Younger generations having it easy and taking advantage of it
- Having climate change activists shove brochures in her face

MONTHLY ENERGY USAGE:

- Lighting 25%
- Appliances 55%
- Hot Water 12%
- A/C 8%

FAYE GOODMAN
Corportate Tax Manager
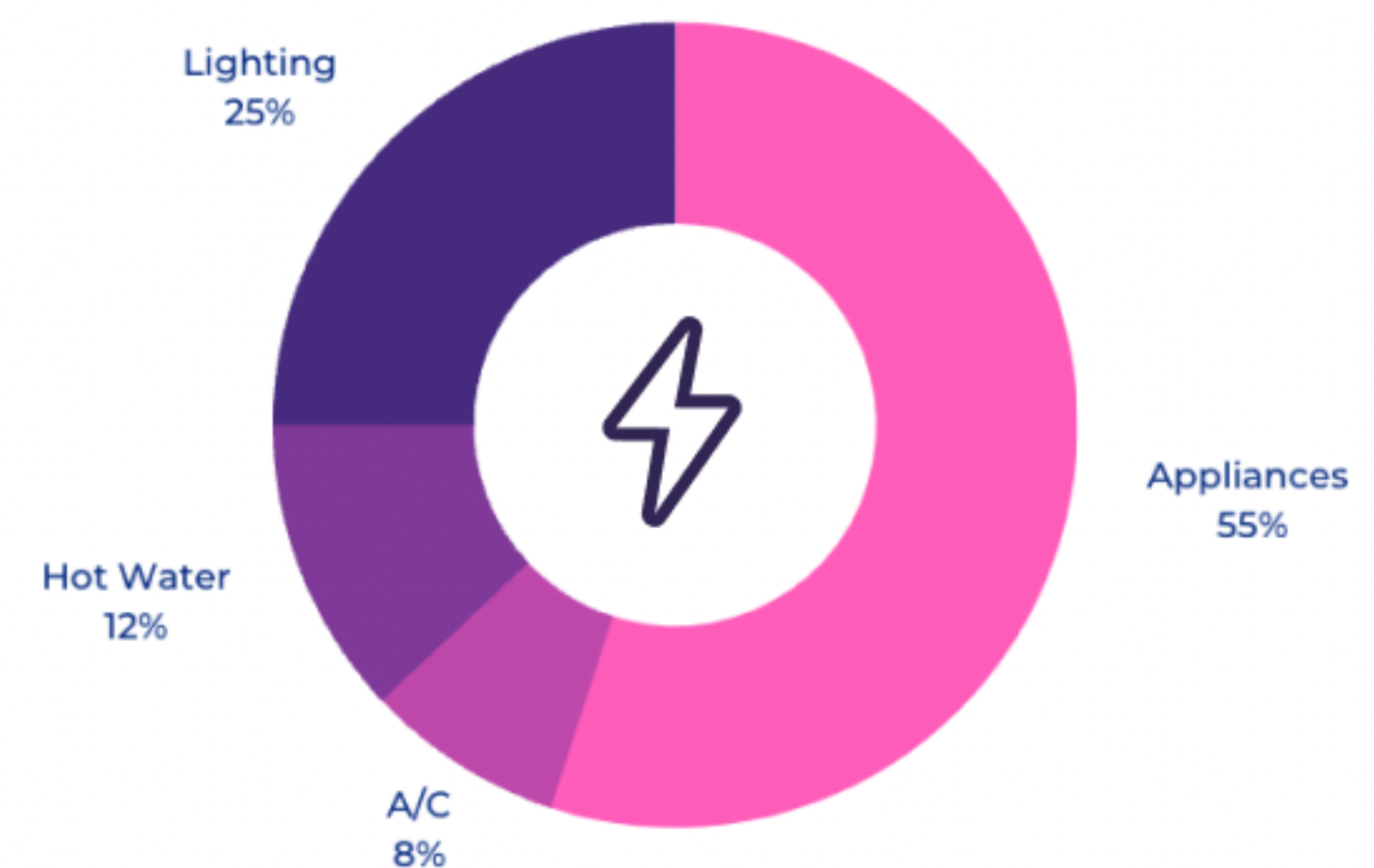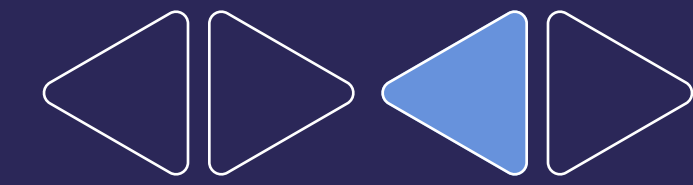
Develop

Explore effective solutions using an iterative approach.

How Might We?

- How might we **inform** users of the **benefits of better plans**?
- How might we **educate** users on how to **save costs** and their **reduce carbon footprint**?
- How might we **present data** that is **easy to understand and relevant** to the user?
- How might we **personalise** the customer portal experience for users?
- How might we **encourage efficient energy consumption** through **improved usage habits**?
- How might we **reinforce good user behaviour through incentives**?
- How might we ensure the **dashboard experience is predictable** to the user?

Crazy 8's

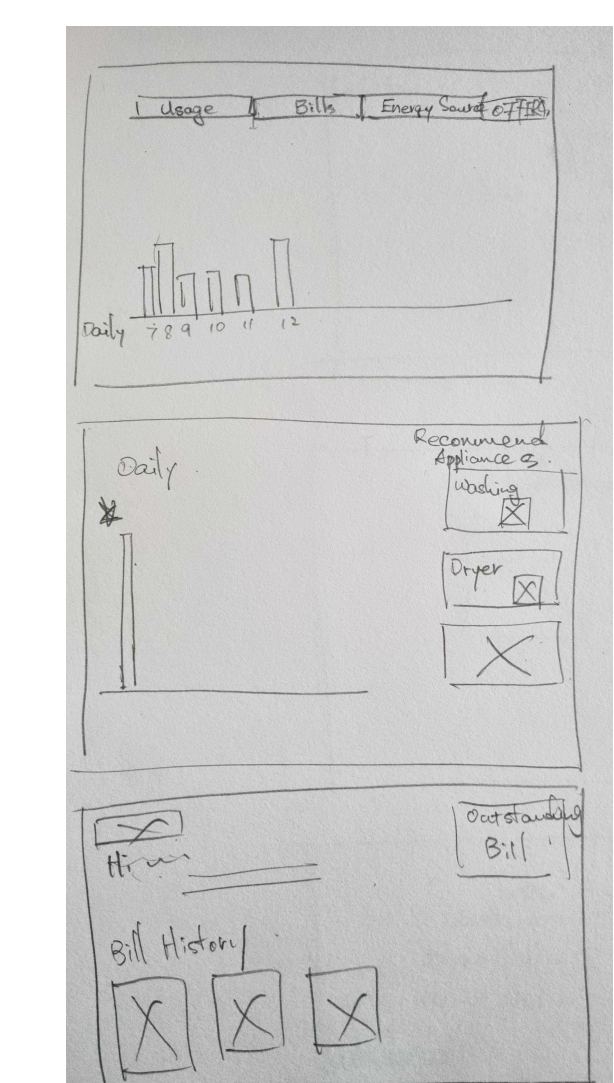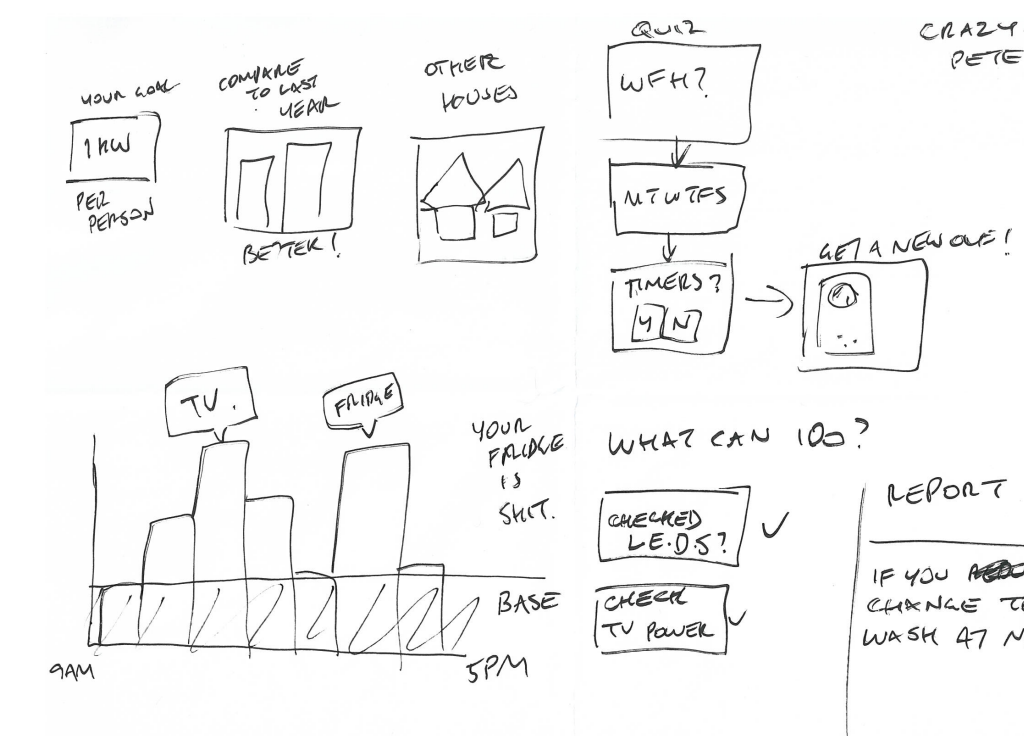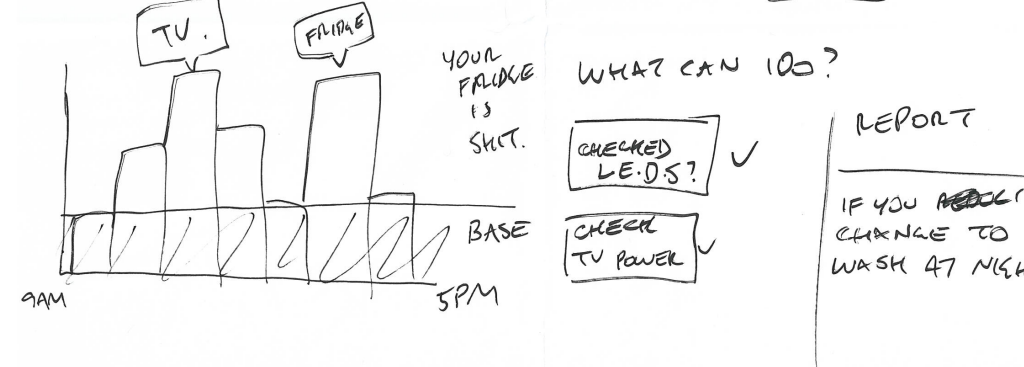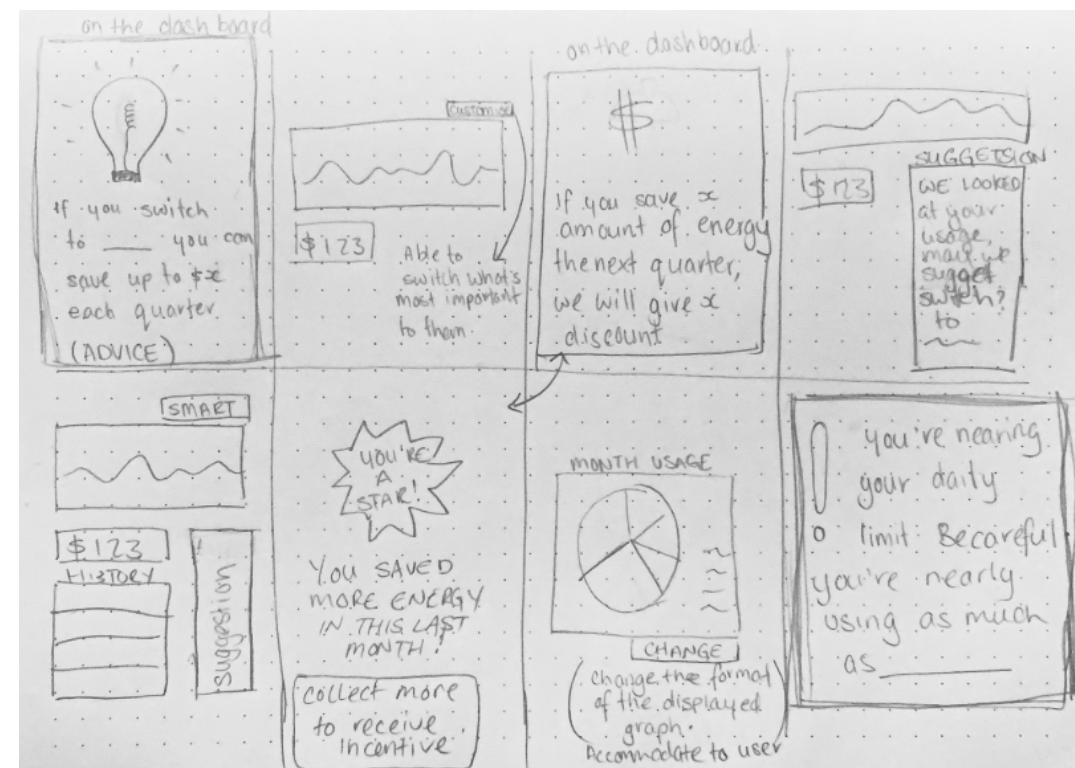Crazy 8s was used to build upon the "How Might We?" questions and provide a number of quick ideas for further development

Some features and ideas include:
- Improving the basics
- Tag appliances
- Tips/Advice Panel
- Usage challenge
- Bill comparison
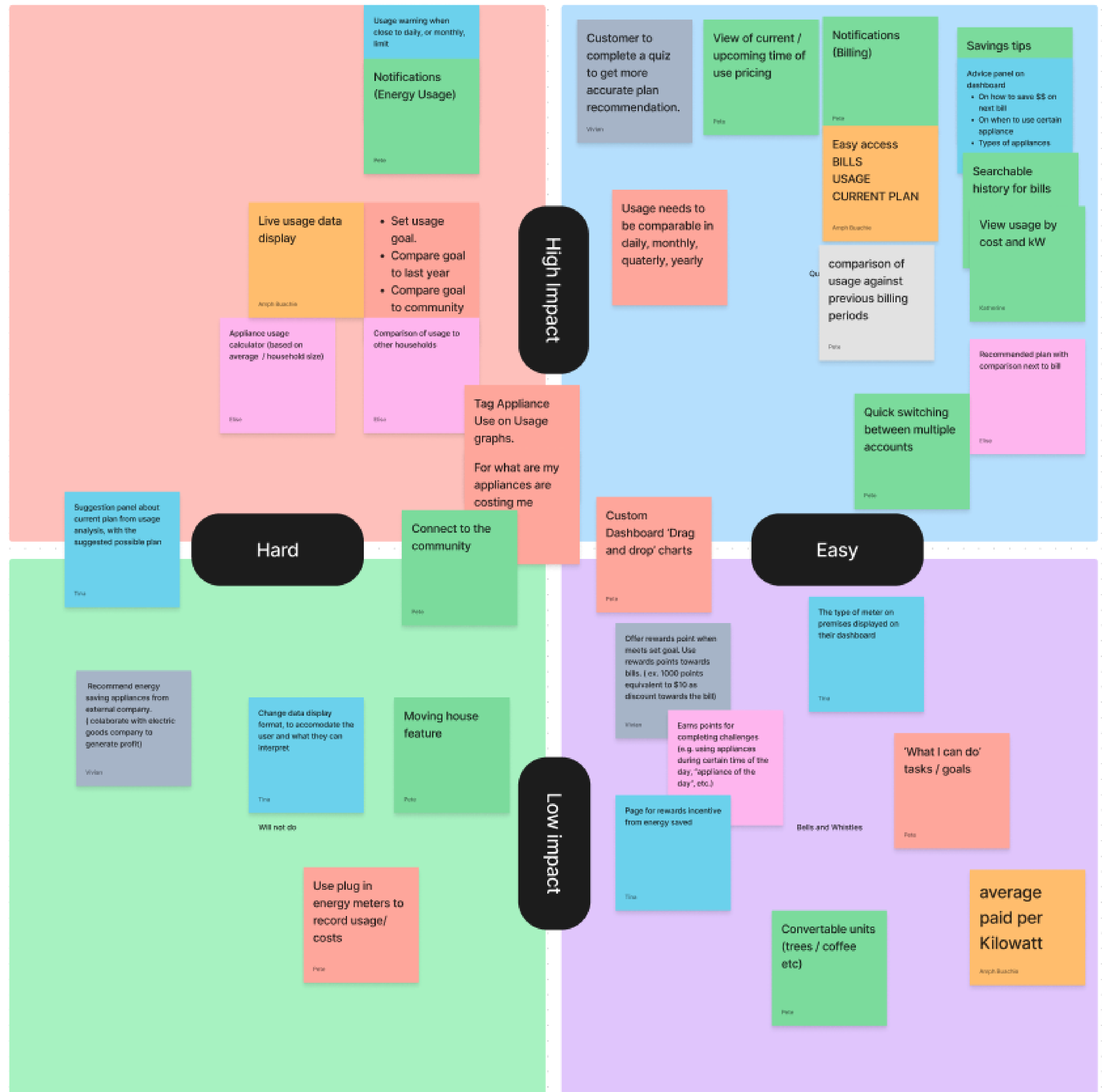- Lifestyle quiz
- Graph toggle

MVP

The MVP approach was followed in order to categorise ideas based on their value and effort:

Easy wins:
- Basics (Billing and Usage)
- Notifications
- Current and recommended plan
- Cost and usage saving tips
- Quick switch between accounts
- Billing comparison
- Quiz

Link to MVP

High Impact

Usage warning when close to daily, or monthly, limit

Notifications (Energy Usage)

Pete

Customer to complete a quiz to get more accurate plan recommendation.

Vivian

View of current / upcoming time of use pricing

Pete

Notifications (Billing)

Pete

Savings tips

Advice panel on dashboard
- On how to save $$ on next bill
- On when to use certain appliance
- Types of appliances

Easy access
BILLS
USAGE
CURRENT PLAN

Amph Buachie

Searchable history for bills

View usage by cost and kW

Katherine

Live usage data display

Amph Buachie

- Set usage goal.
- Compare goal to last year
- Compare goal to community

Usage needs to be comparable in daily, monthly, quaterly, yearly

comparison of usage against previous billing periods

Pete

Appliance usage calculator (based on average / household size)

Elise

Comparison of usage to other households

Elise

Tag Appliance Use on Usage graphs.

For what are my appliances are costing me

Recommended plan with comparison next to bill

Elise

Hard

Suggestion panel about current plan from usage analysis, with the suggested possible plan

Tina

Connect to the community

Pete

Custom Dashboard 'Drag and drop' charts

Pete

Quick switching between multiple accounts

Pete

Easy

The type of meter on premises displayed on their dashboard

Low impact

Recommend energy saving appliances from external company. (colaborate with electric goods company to generate profit)

Vivian

Change data display format, to accomodate the user and what they can interpret

Tina

Will not do

Moving house feature

Pete

Offer rewards point when meets set goal. Use rewards points towards bills. (ex. 1000 points equivalent to $10 as discount towards the bill)

Vivian

Earns points for completing challenges (e.g. using appliances during certain time of the day, "appliance of the day", etc.)

Page for rewards incentive from energy saved

Tina

Bells and Whistles

'What I can do' tasks / goals

Pete

Use plug in energy meters to record usage/ costs

Pete

Convertable units (trees / coffee etc)

Pete

average paid per Kilowatt

Amph Buachia

Storyboarding Online Quiz

Storyboarding allows us to visualise how a feature would be used and be beneficial towards the targeted users.

The created scenarios show us how users may use and benefit from some of the MVP that were thought of through our brainstorming.

The online quiz was identified as a way for users to find the best suited plan, or action, for them and/or their household.

This feature was created with users like our two personas in mind.
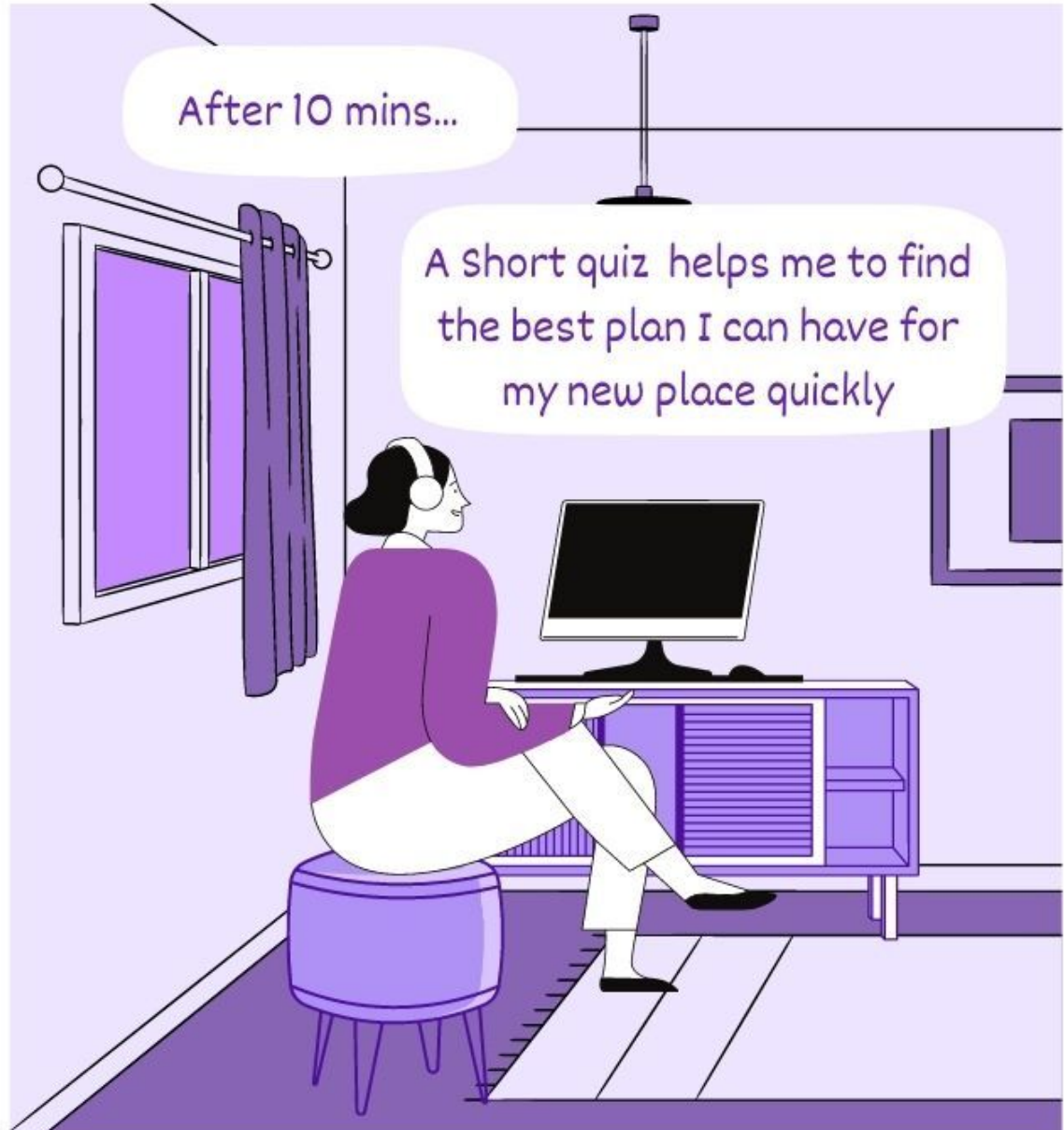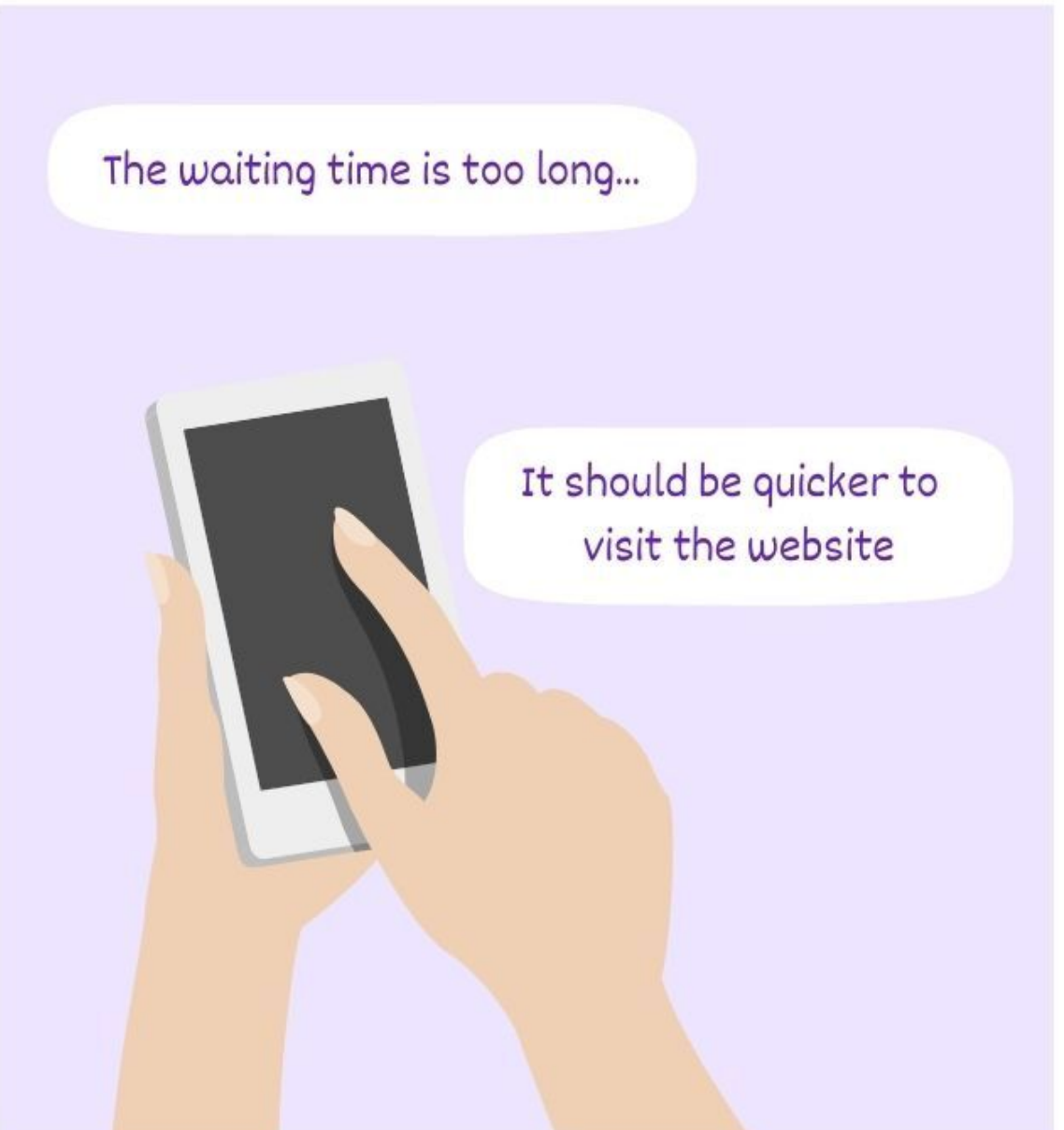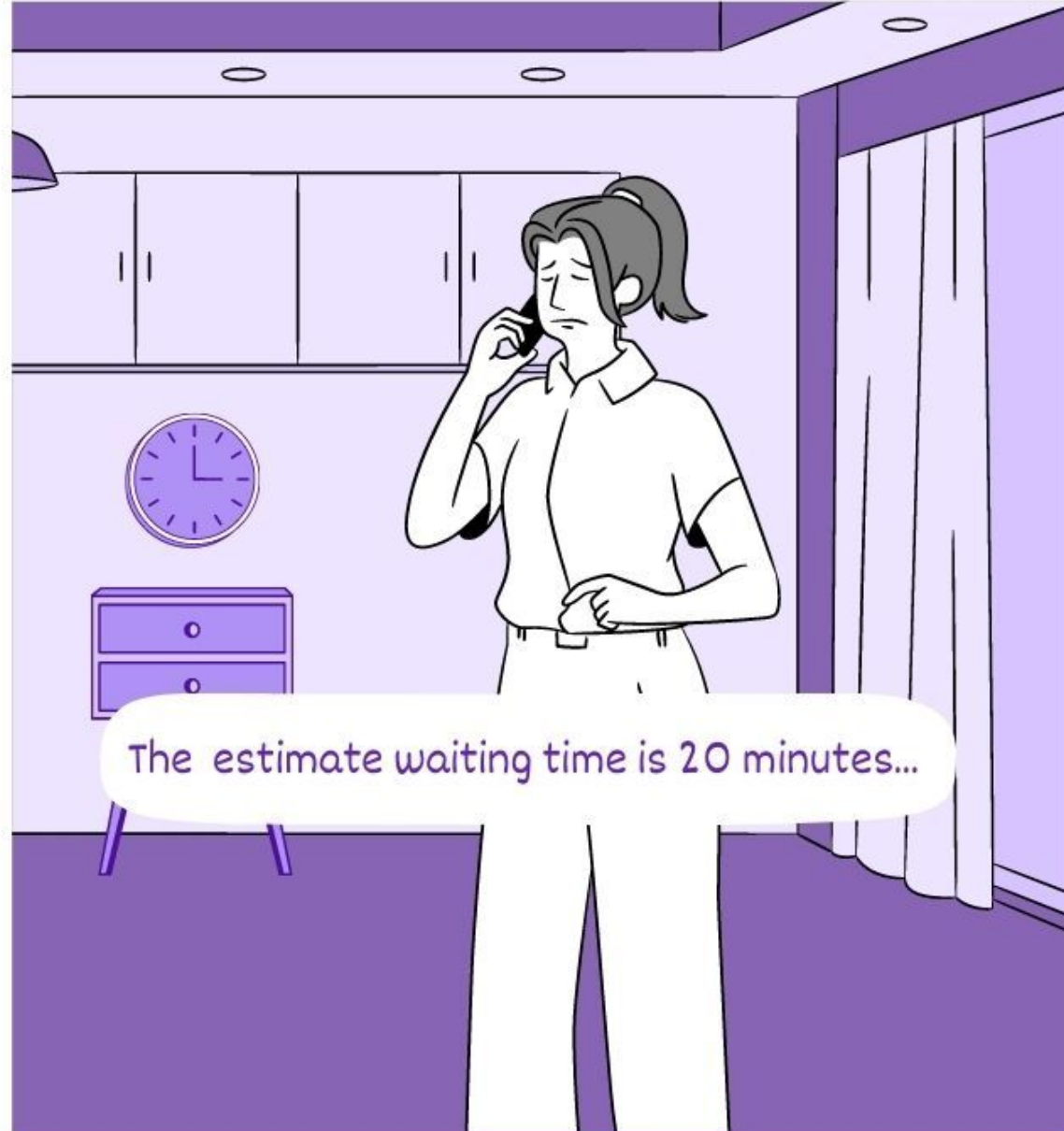
Storyboarding Tagging Appliances

In order for iO Energy's customers to effeciently adjust their usage habits, we believed providing a tool for users to monitor cost and energy for specific appliances would beneficial.

The team brainstormed a tagging feature which would allow users to mark points within their usage graphs with certain appliances.

This would not only help users but also allow iO Energy to collate a data base of their customer usage habits.

However due to time constraints, this feature was moved to phase two.

The team felt appliance tagging required additional planning to iron out its functionality, instead focus was shifted to design solution for existing features.
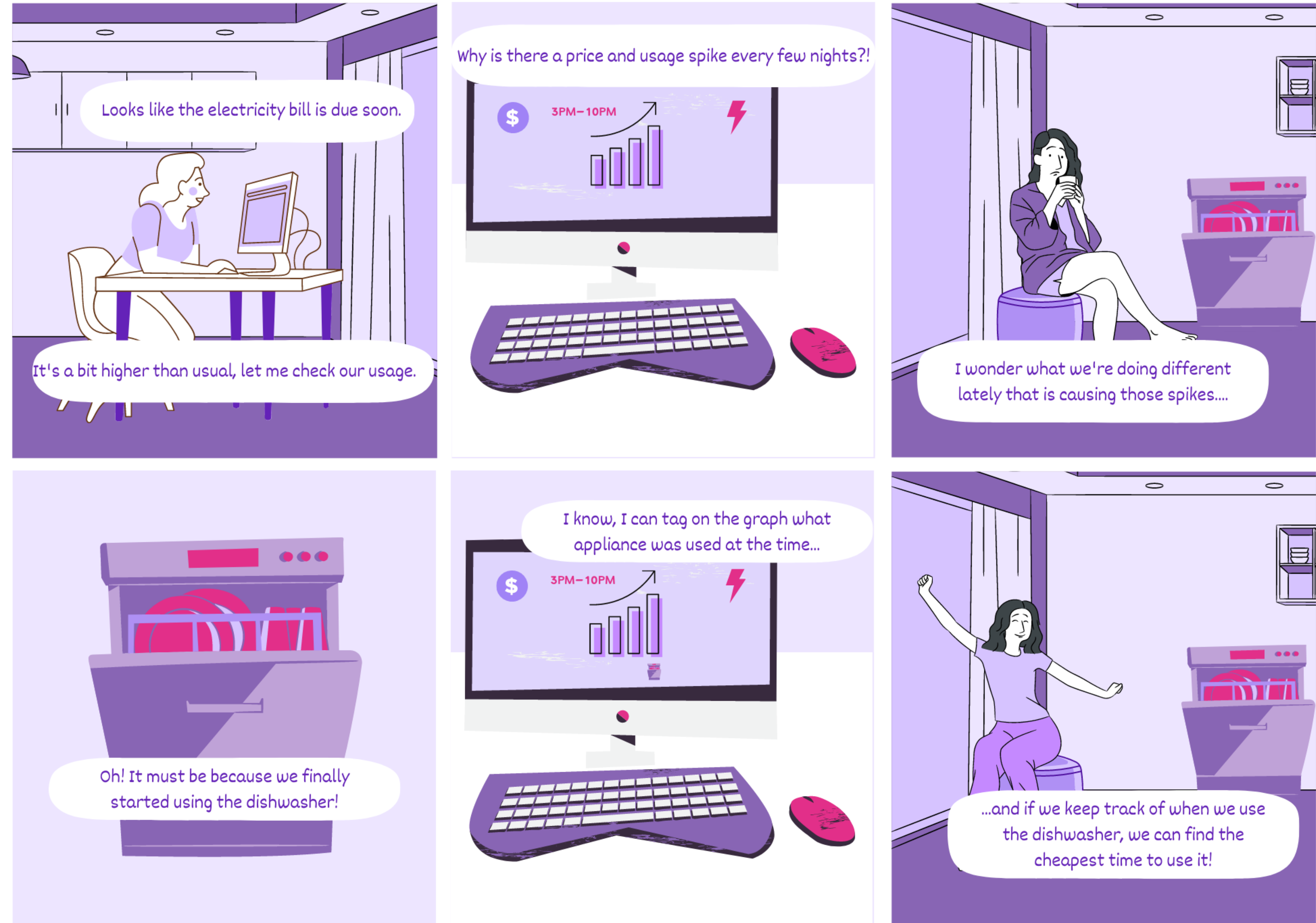
User Flow

After deciding on our MVP, we developed a user flow to understand how users would navigate and explore the app.

The flow includes the user actions, pages and the data presented on each page. The data could be graphs, tips or offering a moment of pride.

The navigation includes four primary areas of importance, as determined from surveys and interviews.

- Dashboard (Home)
- Billing
- Usage
- Renewables
- My Account

The features within each page are also prioritised based on our research insights.

Link to User Flow
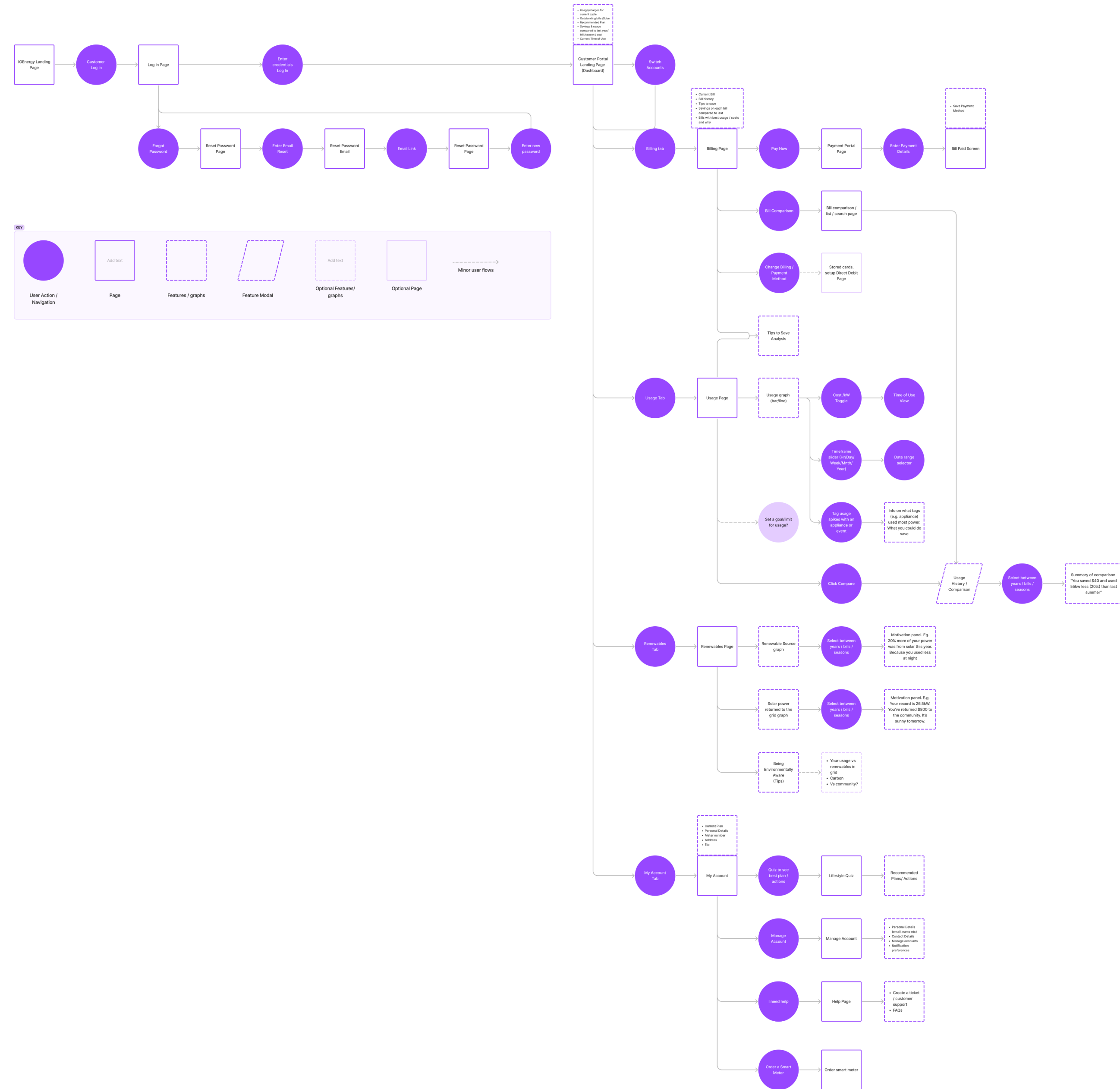
Information Architecture

The Information Architecture was developed to ensure that the customer portal fulfilled the requirements of users as defined through the results of the research. The design of the portal is intended to be simple to use and allows decisions to be made intuitively by users.

Link to Information Architecture
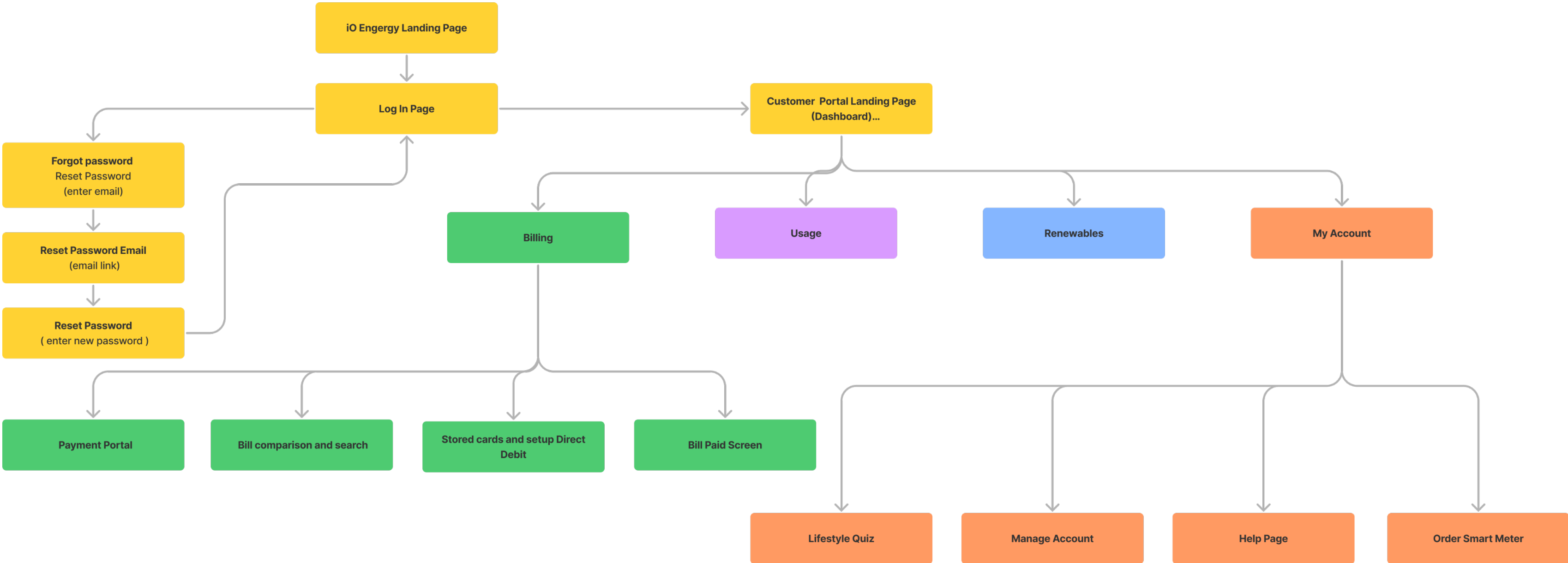
Wireframe

Visual representation of the ideas of features and redesigns brainstormed to address the problem statement.

Using the User Flow and IA as our blueprint, these mid-fidelity wireframes would also serve as an initial usability testing prototype.

The designs were created in greyscale to focus on functionality rather than aesthetics prototype.

Link to [Wireframe](#)

Wireframe Dashboard/Home

*How might we personalise the customer portal experience for users?*

The home page / user dashboard was created with the the idea that it would contain all relevant information specific to the user on one page.

If customers required more in depth detail, this page would lead them to other parts of the customer portal.

We wanted to give users control of what they wanted to see, in the order they wanted to see it, so we implemented a customisation tool.

The usage goal tool was included to allow users to track their comsumption and charges as they see fit.

Usage time would inform users on the ideal / cheapest / cleanest hours for their energy consumption.
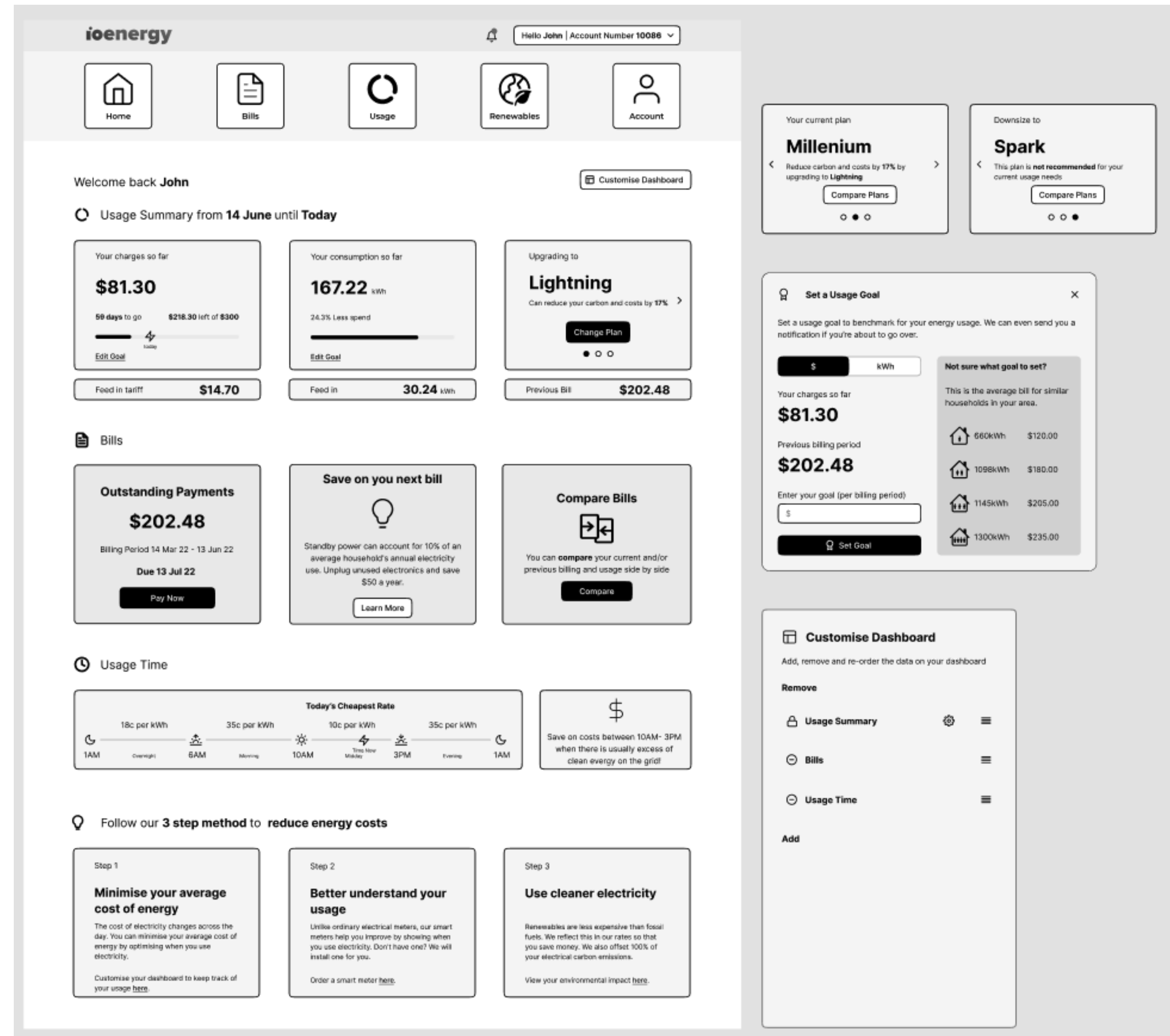
Wireframe
Billing

*How might we educate users on how to save costs and their reduce carbon footprint?*

How might we ensure the dashboard experience is predictable to the user?

The billing page was created with the idea to just have billing information, and not cross over with usage information too much.

Having the general information such as current charges, outstanding payments and cost goal for the next bill if the user has set one.

Users would also be able to see their billing history, as well as being able to email or download the selected bill.

With the comparison modal, the user would be able to compare any bill by selecting either a specific date, season, or billing period. From that they would be able to see side by side the differences.
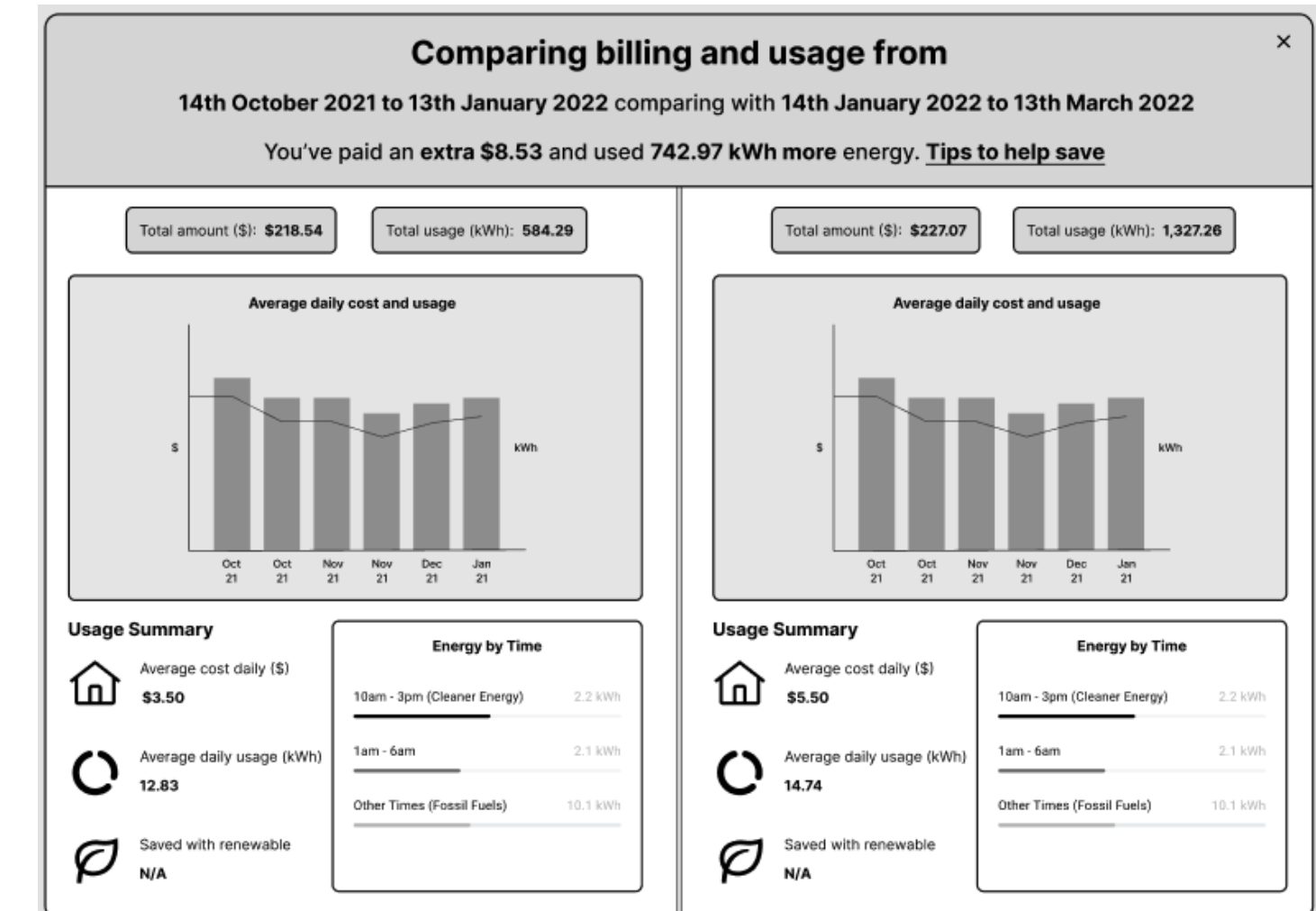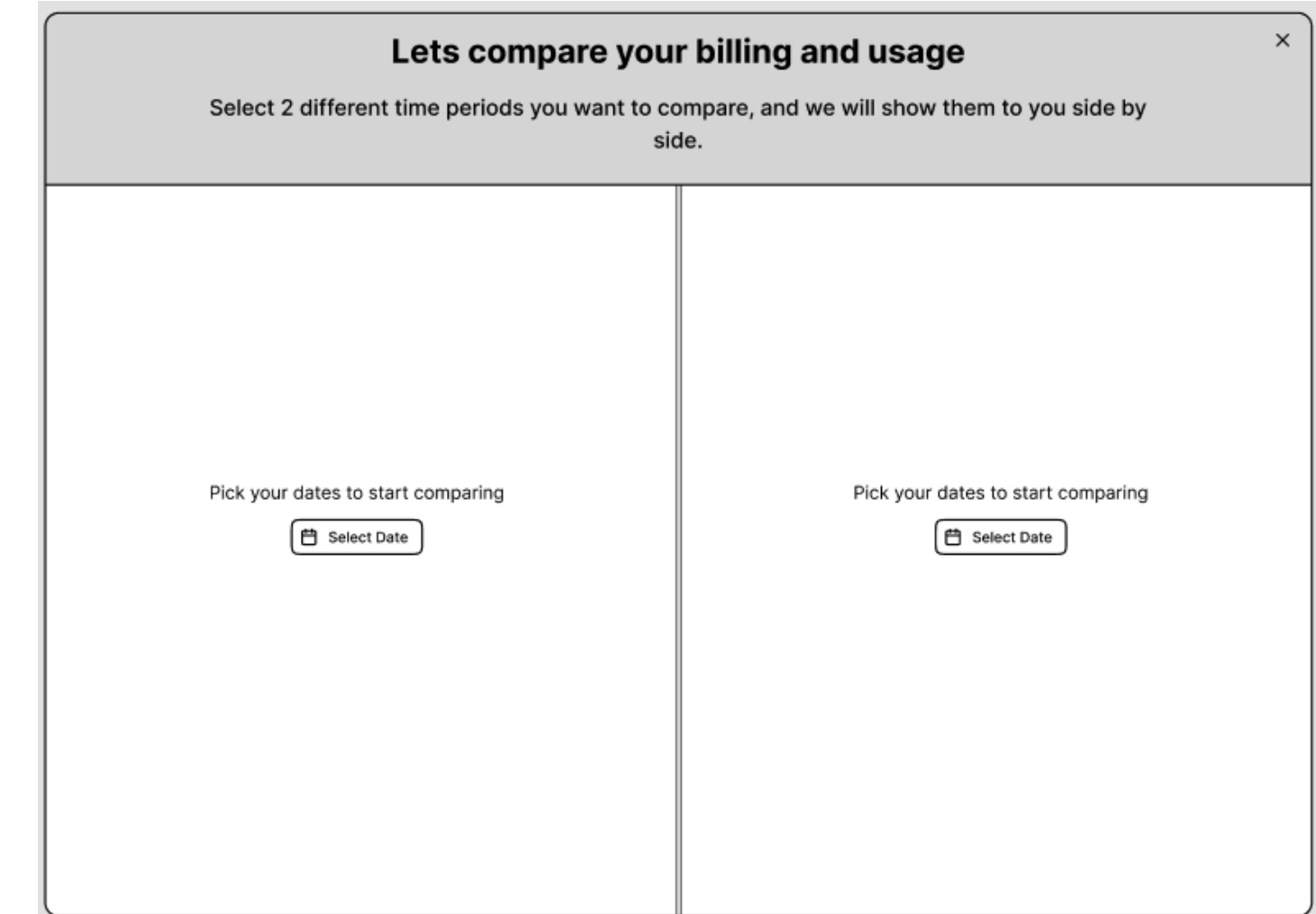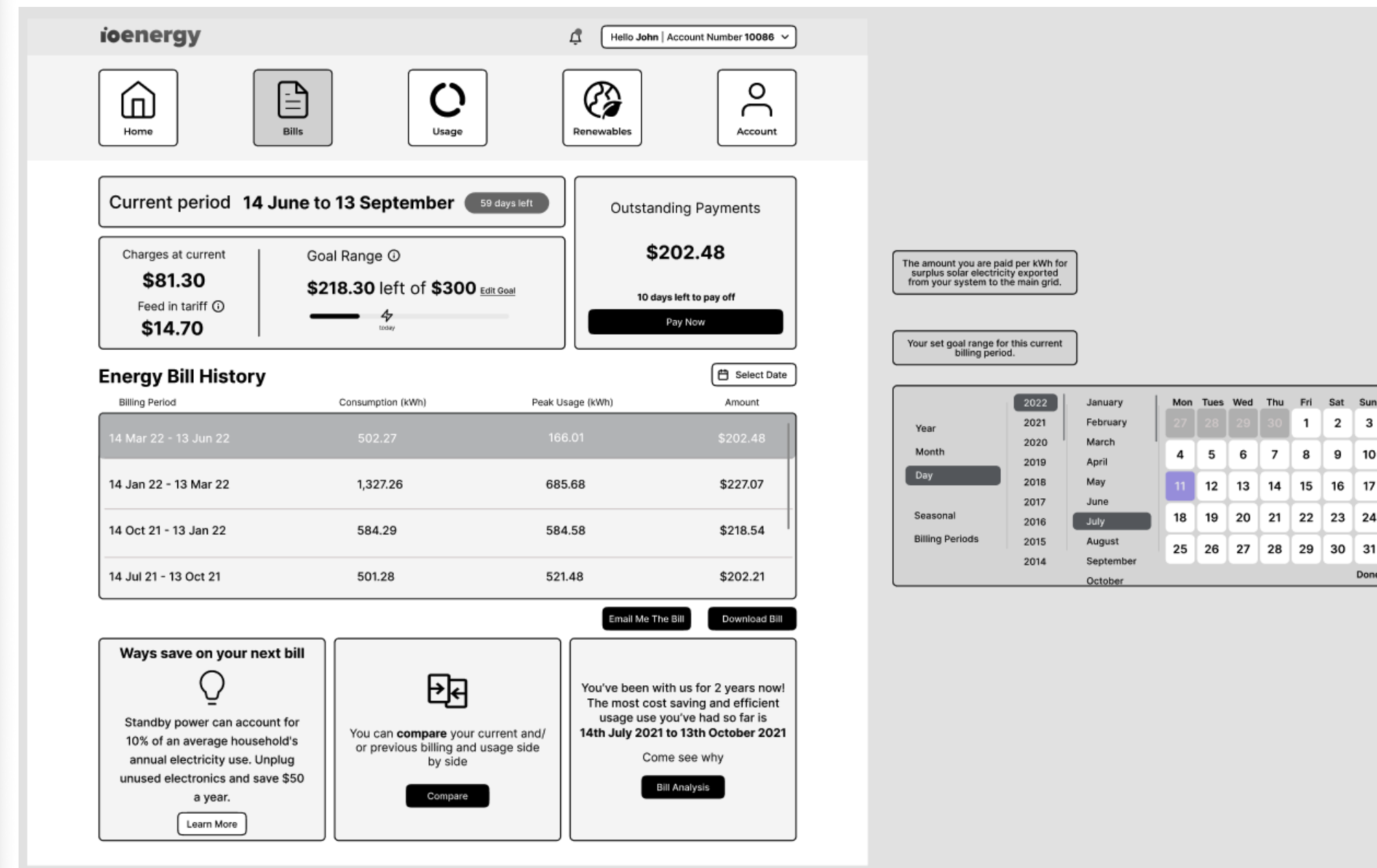
Wireframe
Usage

How might we present data that is easy to understand and relevant to the user?

The main objective to the usage page is present comphensive information which relates to amount of energy the user is consuming in addition to the costs that would incur.

Users like Faye don't have time to look through data about her usage but wanted to know where This is where simplification was really important.

For the usage page we intially decided to display usage in kilowatts in addition to usage costs.
The ability to access usage comparison as well as usage being able to select a specific date and billing period.

The graph here displays a specific date with seperate colours that represent different times of the day.

Wireframe
Renewables

*How might we educate users on how to save costs and reduce carbon footprint?*

An essential aspect of the customer portal was renewables, with key features relating to the above HMW.

Users such as Olivia (our second persona) wanted a dedicated area to review their carbon footprint.

Confessed 'energy nerds' such as our first interviewee wanted an area to review their solar usage and its impact on their household and those around them.

Each graph is simple by default, but users can hover on elements to reveal a detailed breakdown.

In our user testing of the initial prototype, everyone loved the breakdown of energy sources, so this carries on to be front and centre in this design.
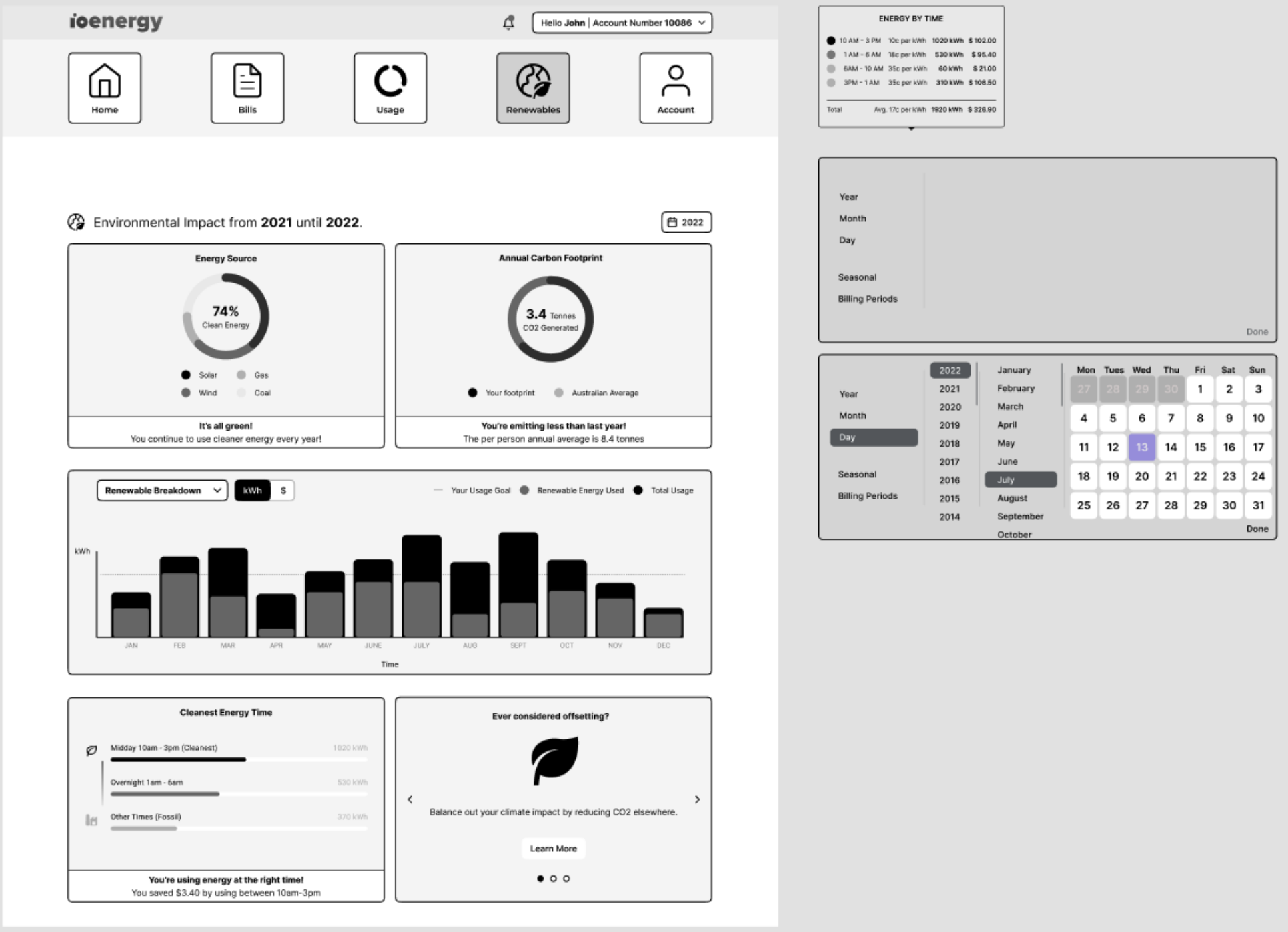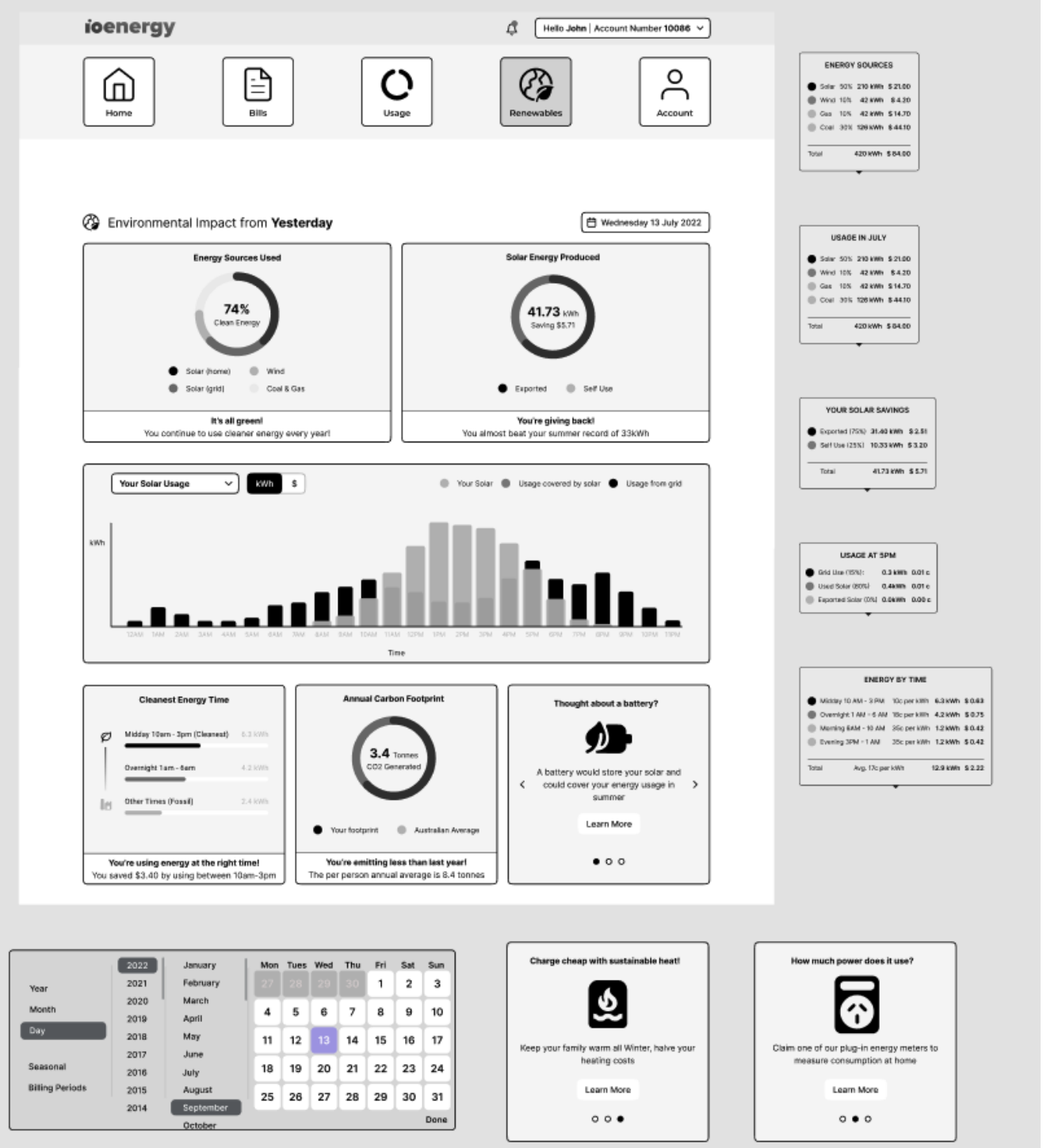
Wireframe
Accounts

How might we ensure the dashboard experience is predictable to the user?

In the Account page, the Overview gives brief but essential information to the users. It provides users with shortcuts for more direct access to important functions. The Lifestyle Quiz on this page also helps users to review and find better energy plan, or find ways to help save on their next energy bill.
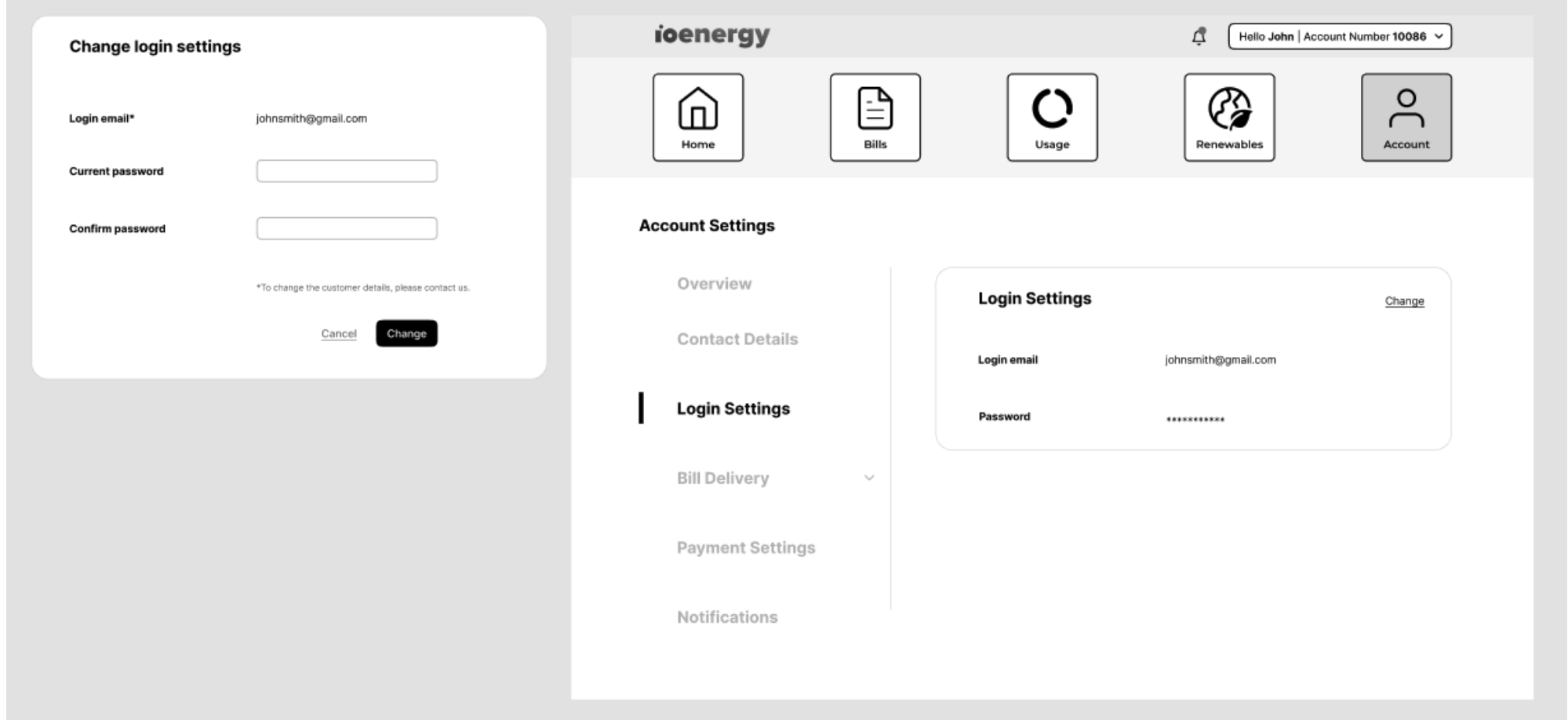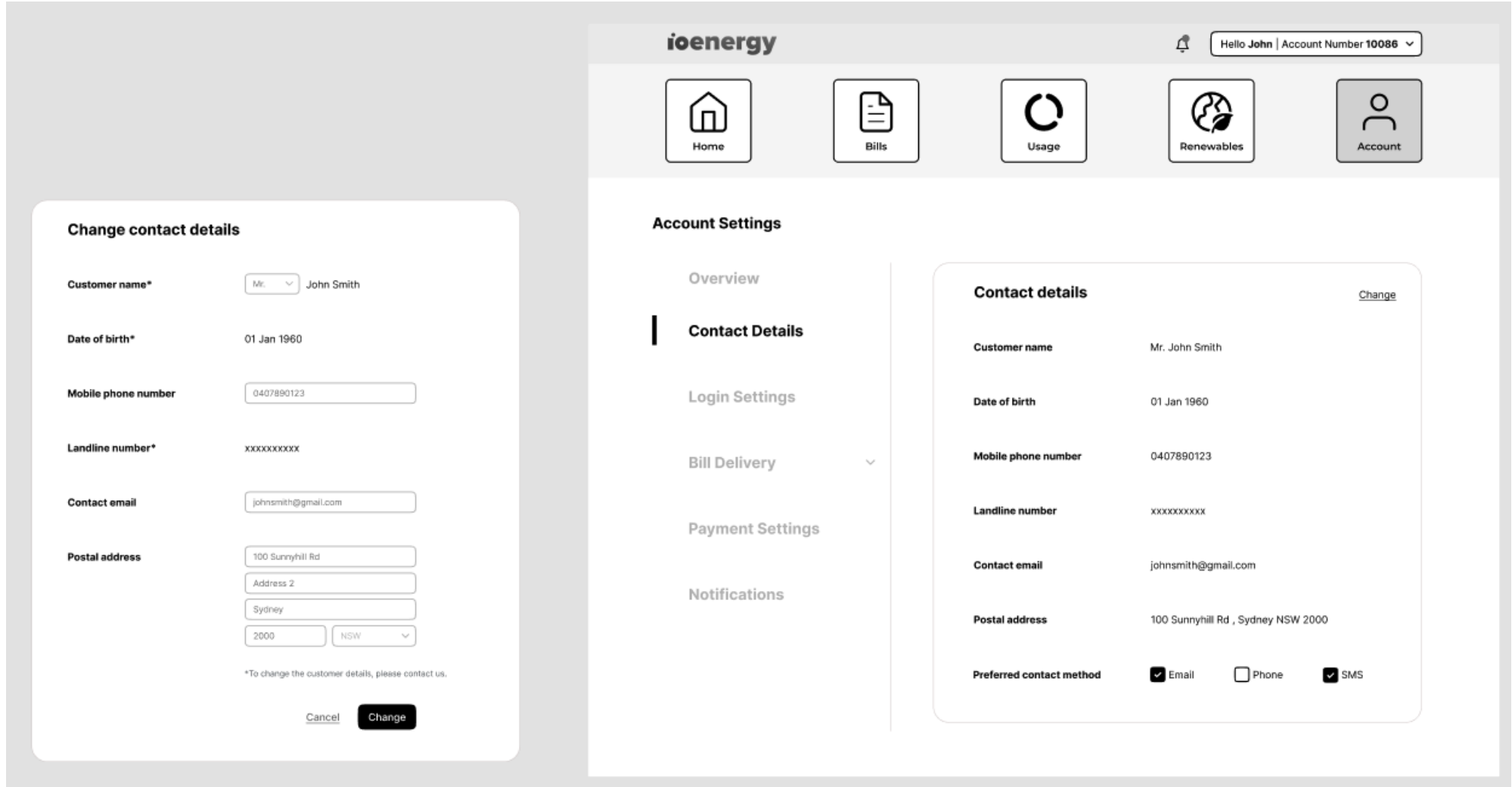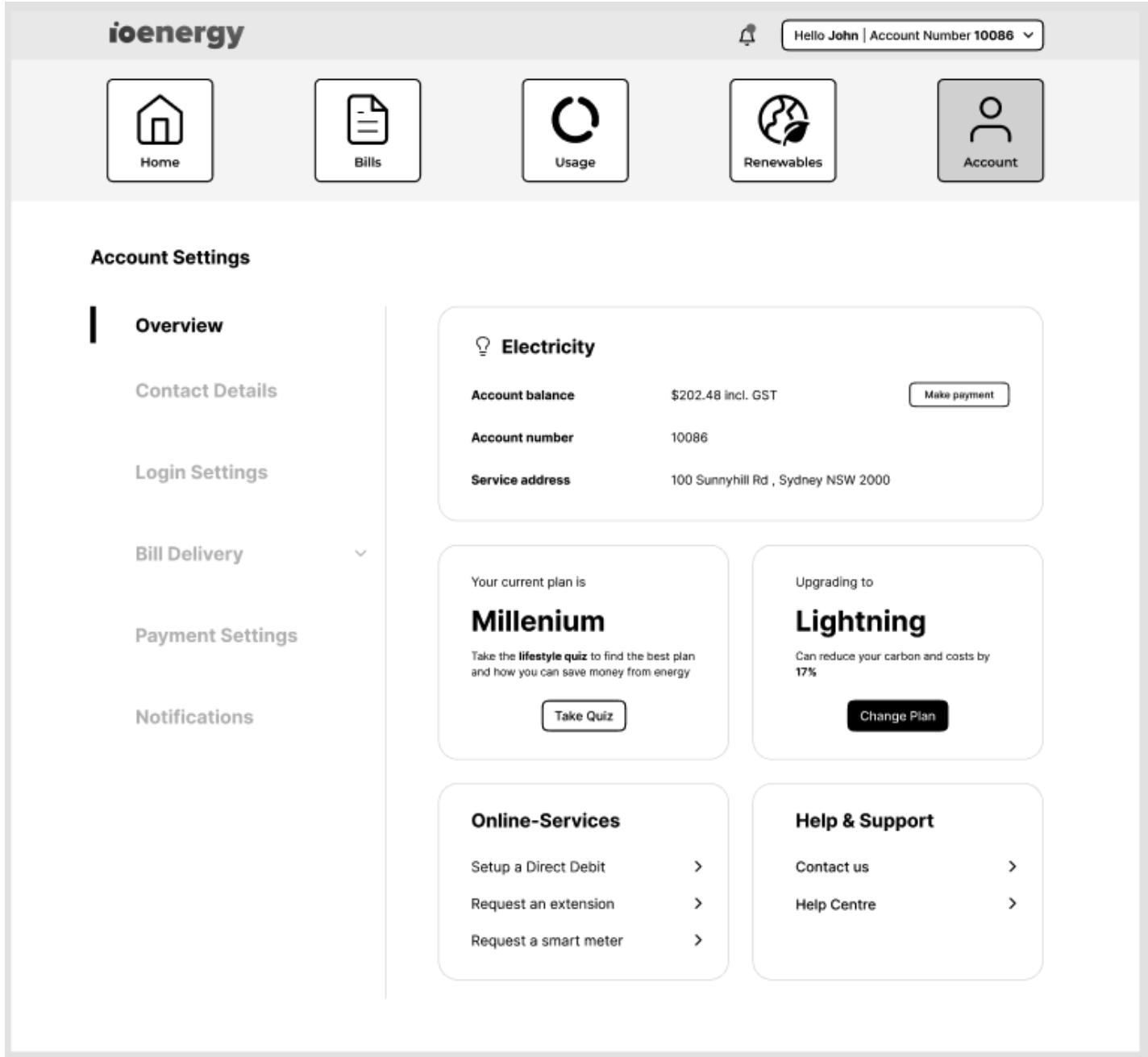
Wireframe Accounts

How might we ensure the dashboard experience is predictable to the user?

Linking back to our research, notification settings are one of the important details that users will pay attention to. Therefore, we designed custom reminders for due payments, usage goals and limits, where users can set their preferences to receive notifications from ioEnergy
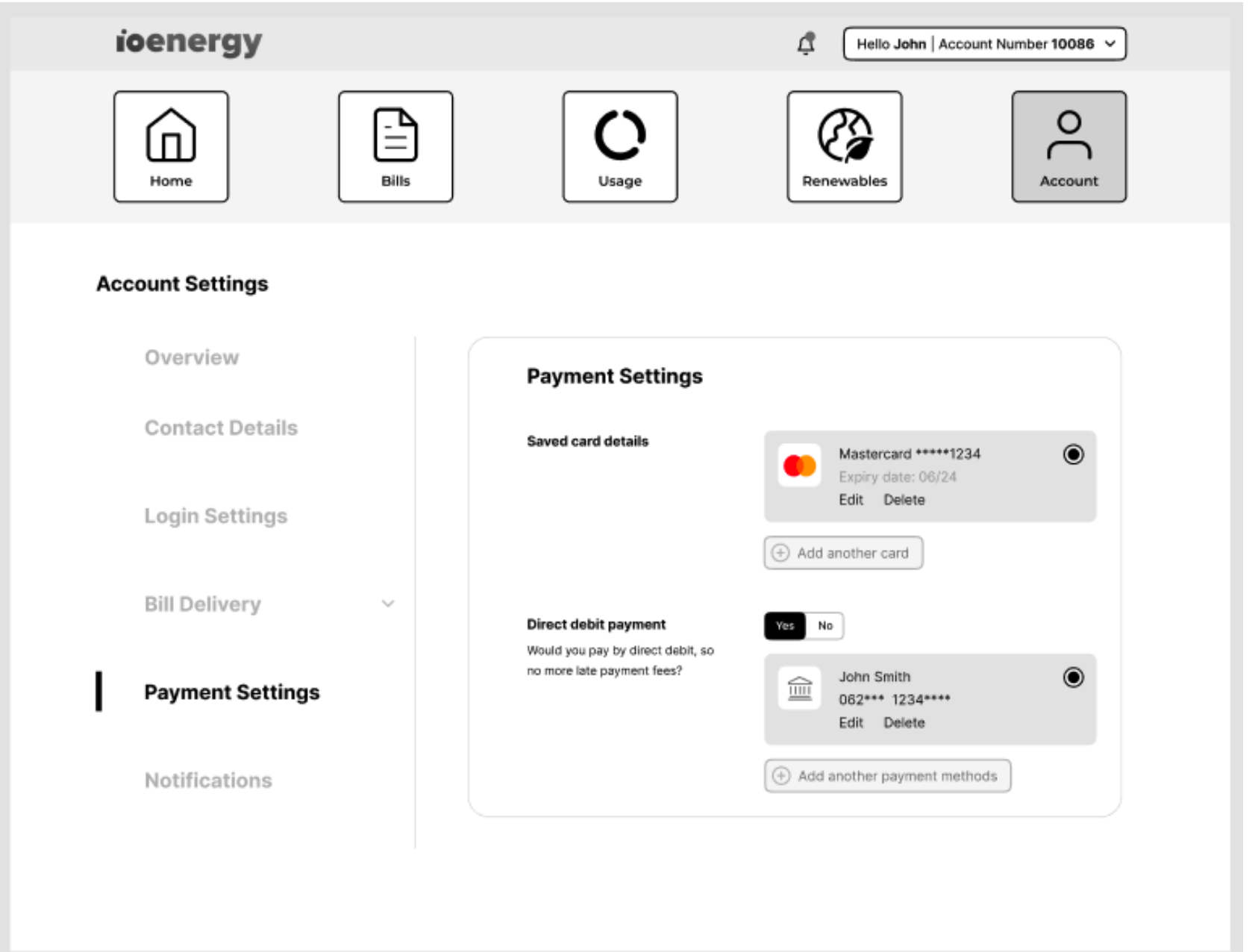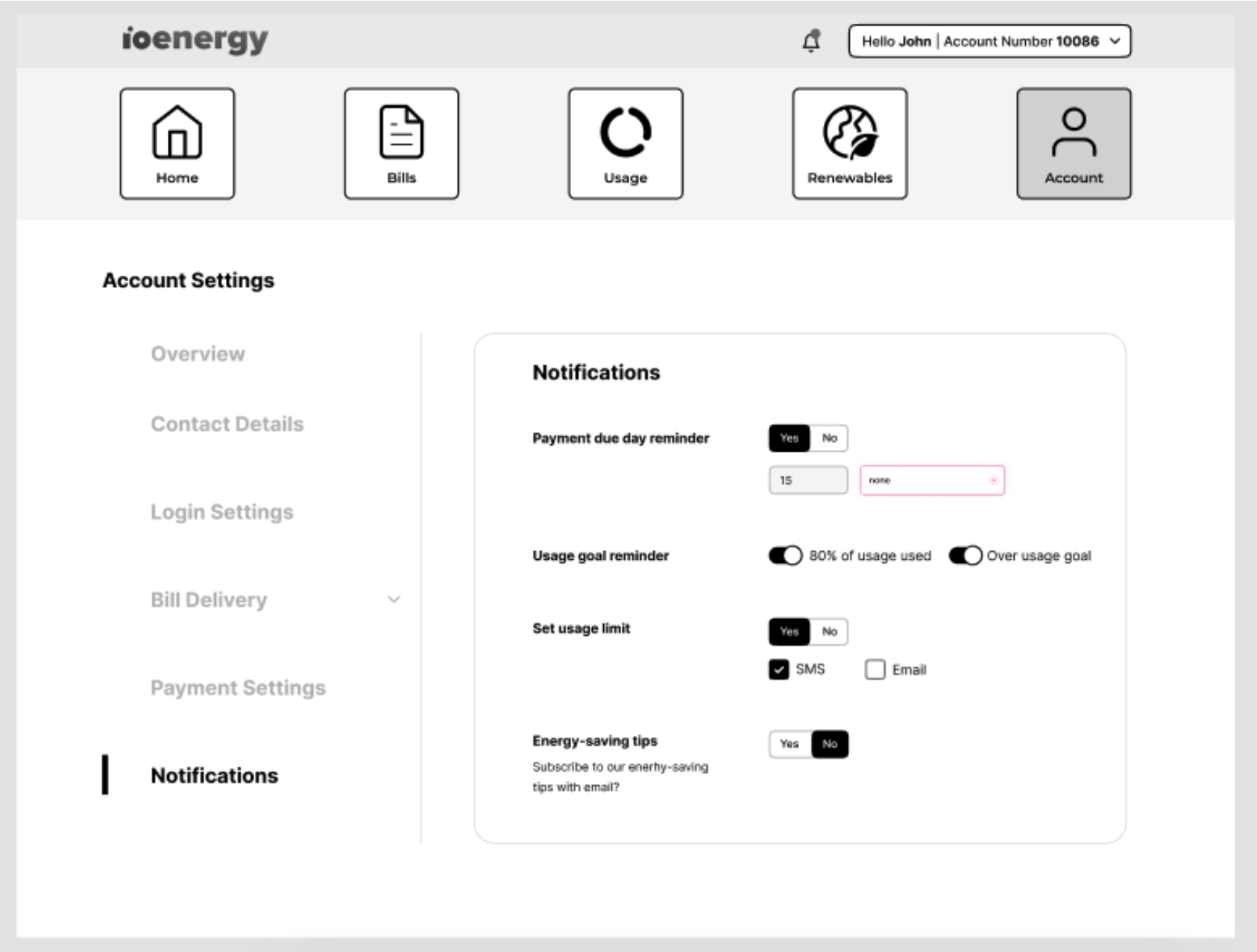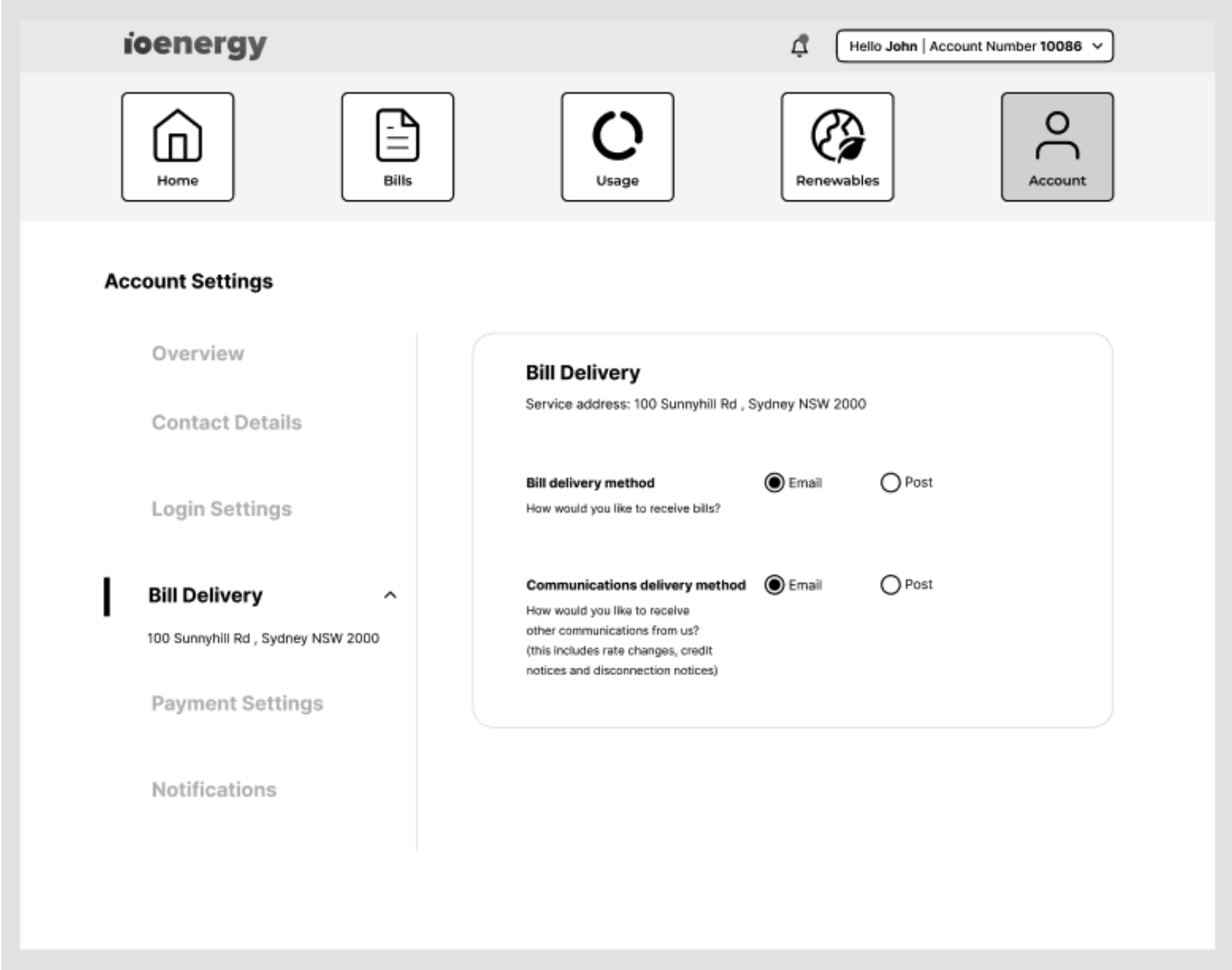
Wireframe
Lifestyle Quiz

How might we inform users of the benefits of better plans?

Adding and creating a Lifestyle Quiz to the customer portal, the aim is to help users either find a better plan or find ways to save on their next bill. This would then be determined by a set of questions that the users answer. If a user was to step aside for something, they would simply be able to save their progress and come back to it at a later time.
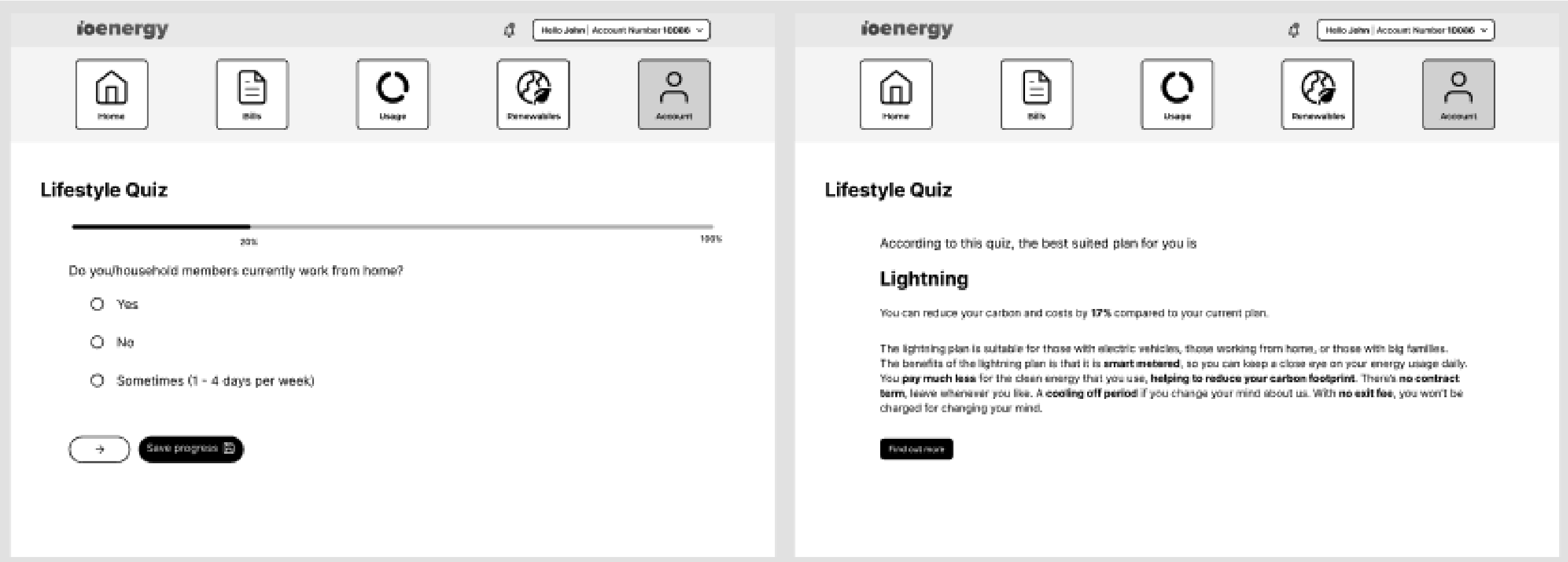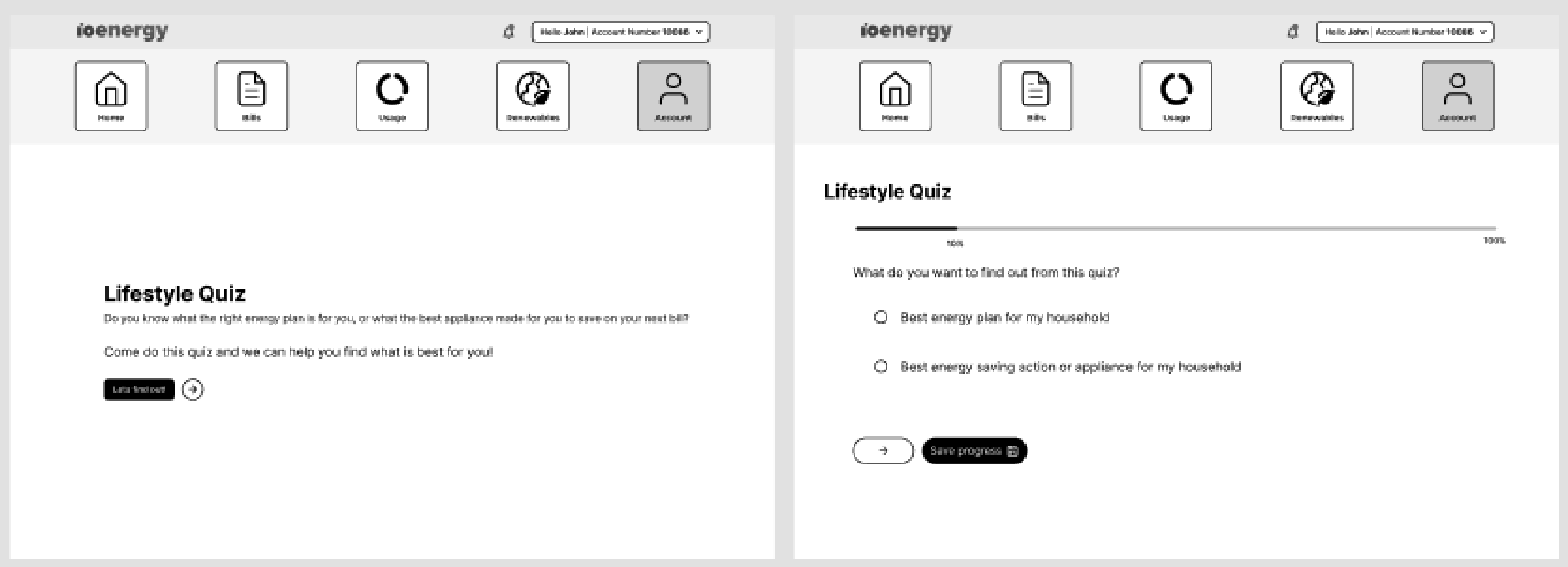
Wireframe
Smart Meter Request

How might we encourage efficient energy consumption through improved usage habits?

We included a smart meter request option to make it easy for users to request a new smart meter by completing a few simple questions. The smart meter enables electricity usage to be easily tracked to allow users to make more informed decisions about their energy consumption.

Screen 1

ioenergy

🔔 Hello John | Account Number 10086 ▾

🏠 Home   📄 Bills   ⟳ Usage   🌐 Renewables   👤 Account

New smart meter request

Requestor's details
What's your relationship to the property?
- ⚫ Property owner
- ○ Tenants or resident
- ○ Builder or developer
- ○ Electrician
- ○ Plumber
- ○ Other

Your details
First name _____ Last name _____
Phone number _____
Email address _____

Property address
Property location
- ○ Australian Capital Territory
- ⚫ New South Wales
- ○ Queensland
- ○ South Australia
- ○ Victoria

Property type
- ⚫ Residential
- ○ Commercial

Residential address
100 Sunnyhill Rd , Sydney NSW 2000

[Agree and submit]

Screen 2

ioenergy

🔔 Hello John | Account Number 10086 ▾

🏠 Home   📄 Bills   ⟳ Usage   🌐 Renewables   👤 Account

New smart meter request

New connection type
Energy type
- ⚫ Electricity

Connection type
- ⚫ Permanent
  When the property's mains and metering facilities are installed in their permanent position.
- ○ Temporary
  For construction purposes, this temporary connection will be removed when a permanent connection is made.
- ○ Temp in perm
  For construction purposes, when the property's mains and metering facilities are installed in their permanent position.

Meter requirements
Preferred meter installation date
dd/mm/yyyy

Preferred meter provider
- ⚫ iO Energy

Solar energy
Is a solar energy system installed?
- ○ No
- ⚫ Yes ↗
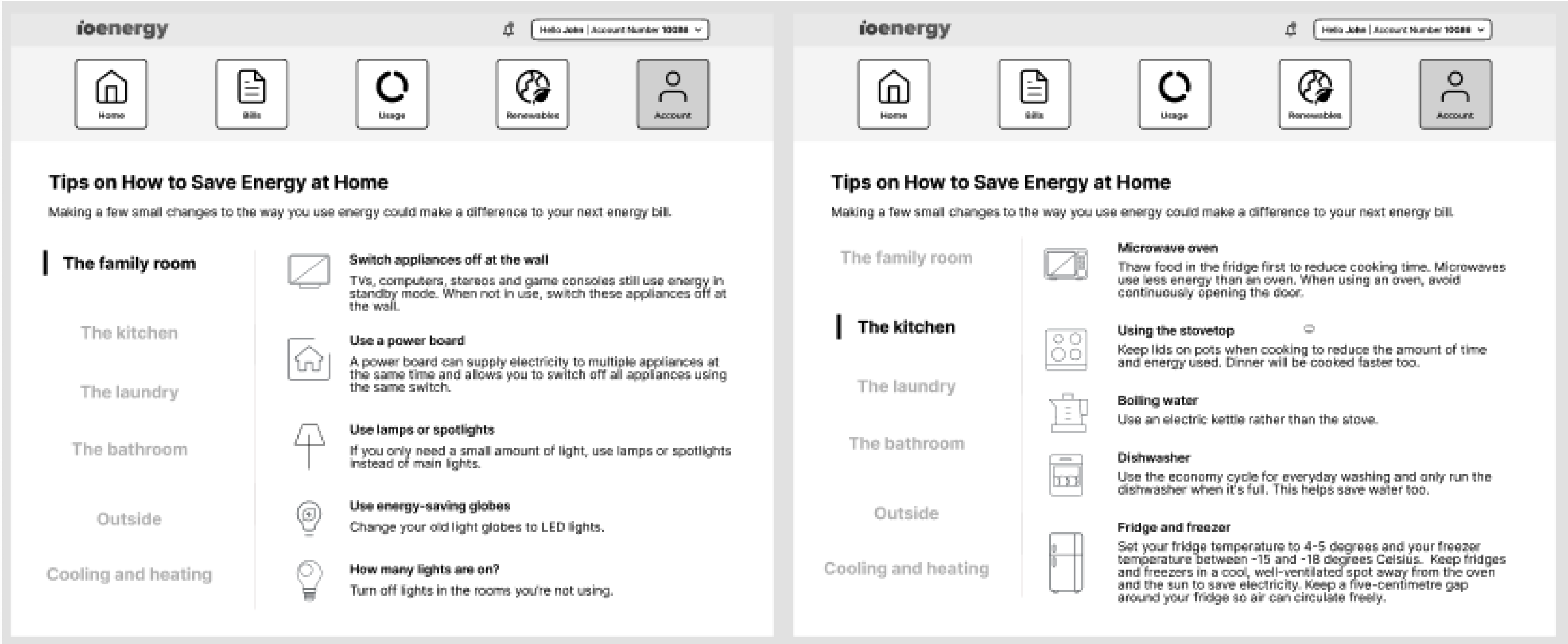
Your privacy ↗ ○
Account holder agreement ○

[Agree and submit]

Wireframe
Tips to Save Energy

How might we educate users on how to save costs and their reduce carbon footprint?

We formulated a summary of useful energy saving tips to allow users to change their behaviours at home to minimise energy consumption. The tips have been categorised based on different areas of the home, making it easy for users to quickly identify a range of actions that can be implemented to make a signficant difference to saving electricity.

---

ioenergy Hello Jake | Account Number 10088

Home | Bills | Usage | Renewables | Account

Tips on How to Save Energy at Home

Making a few small changes to the way you use energy could make a difference to your next energy bill.

The family room

The kitchen

The laundry

The bathroom

Outside

Cooling and heating

Switch appliances off at the wall
TVs, computers, stereos and game consoles still use energy in standby mode. When not in use, switch these appliances off at the wall.

Use a power board
A power board can supply electricity to multiple appliances at the same time and allows you to switch off all appliances using the same switch.

Use lamps or spotlights
If you only need a small amount of light, use lamps or spotlights instead of main lights.

Use energy-saving globes
Change your old light globes to LED lights.

How many lights are on?
Turn off lights in the rooms you're not using.

---

ioenergy Hello Jake | Account Number 10088

Home | Bills | Usage | Renewables | Account

Tips on How to Save Energy at Home

Making a few small changes to the way you use energy could make a difference to your next energy bill.

The family room

The kitchen

The laundry

The bathroom

Outside

Cooling and heating

Microwave oven
Thaw food in the fridge first to reduce cooking time. Microwaves use less energy than an oven. When using an oven, avoid continuously opening the door.

Using the stovetop
Keep lids on pots when cooking to reduce the amount of time and energy used. Dinner will be cooked faster too.

Boiling water
Use an electric kettle rather than the stove.

Dishwasher
Use the economy cycle for everyday washing and only run the dishwasher when it's full. This helps save water too.

Fridge and freezer
Set your fridge temperature to 4-5 degrees and your freezer temperature between -15 and -18 degrees Celsius. Keep fridges and freezers in a cool, well-ventilated spot away from the oven and the sun to save electricity. Keep a five-centimetre gap around your fridge so air can circulate freely.

Deliver

Build our solution.

Set Tasks

6 questions from initial usability test in user research + 3 additional questions to test new features

1. Could you **sign in** to the customer portal?
2. Could you **find your latest bill** and tell me if you have any **outstanding amount(s)** due?
3. Could you tell me what **charges and usage** you have in the **current billing period**?
   a. Could you be on a **better plan**?
4. You remember **using the new dryer today at 4pm**. What did it **cost you to run the dryer**? ($ and kW)
5. You're interested in your **environmental impact.** What **renewable energy sources** are **part of your plan**?
   a. What **percentages of each source** (e.g. wind/solar) are **visible** in your plan?
6. Is there a **recommended plan** that could **save you money**?
   a. Could you change your plan and what would you choose?
   b. Or can you find a way to **find a better plan/habit**?
7. You need to **change the phone number** that is linked to your energy account. **Can you find where to change your phone number**?
8. Your billing cost has been going up and you're wanting to **compare** your last couple of bills. How would you **compare your last 2 billing period bills**?

Usability Testing

Following the design of our customer dashboard wireframes, the team conducted a second round of user testing in order to validate our designs.

Round 1: Wireframe
Round 2: Prototype

6 x Participants
(3 x each round)

Same questions as initial usuability test
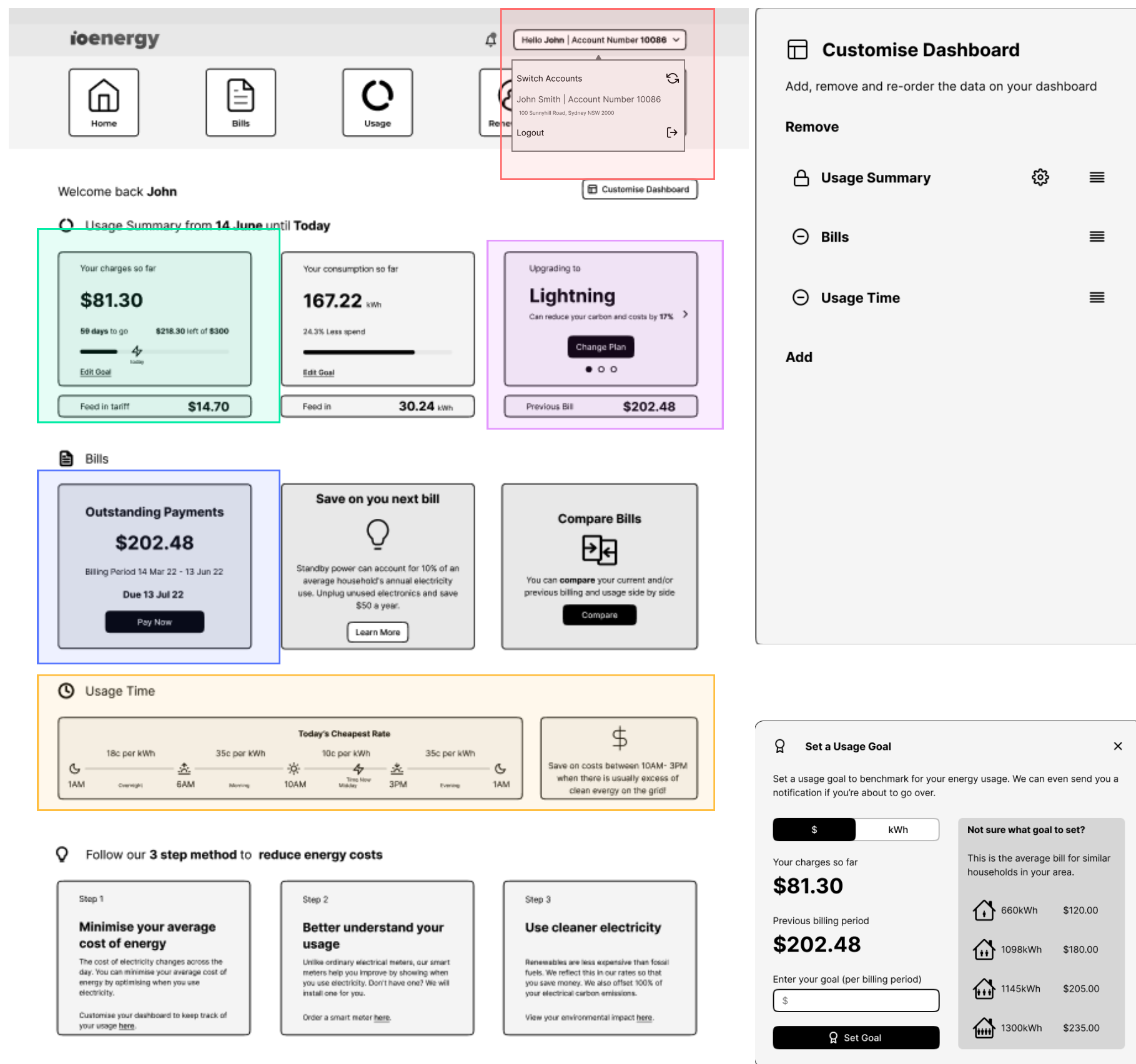+ 3 additional questions to test new features
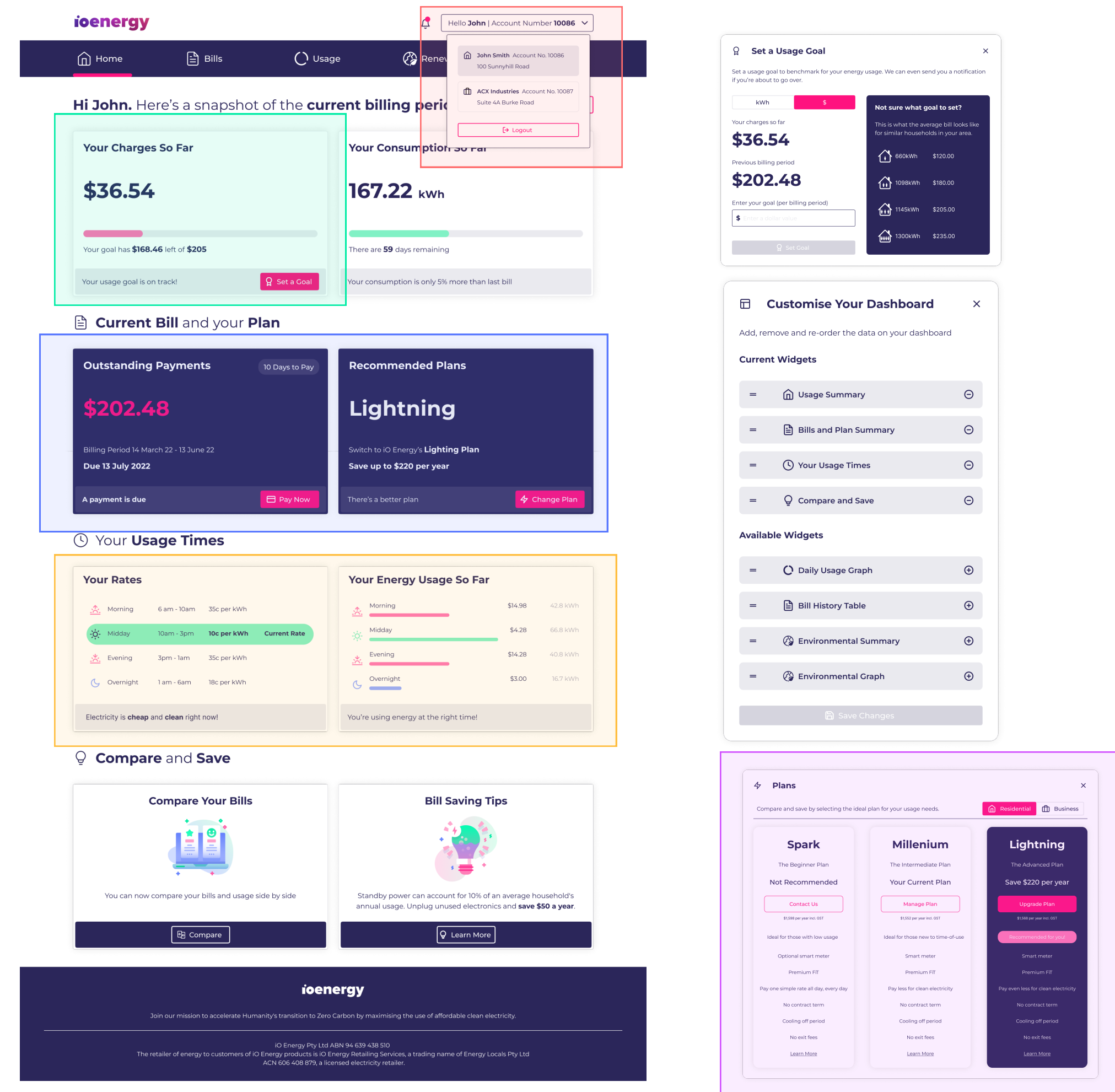
Link to Usability Testing Feedback
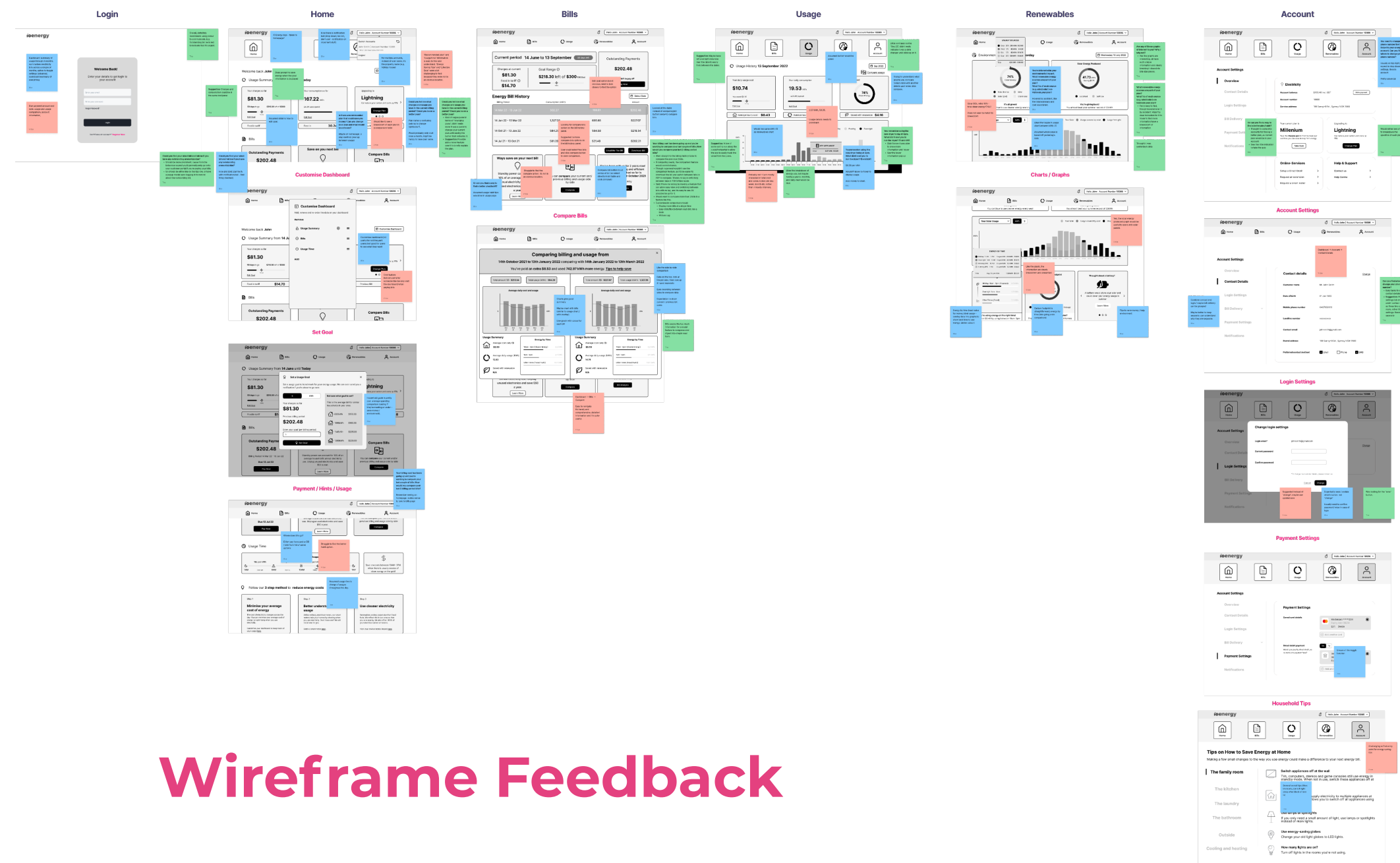
Wireframe Feedback
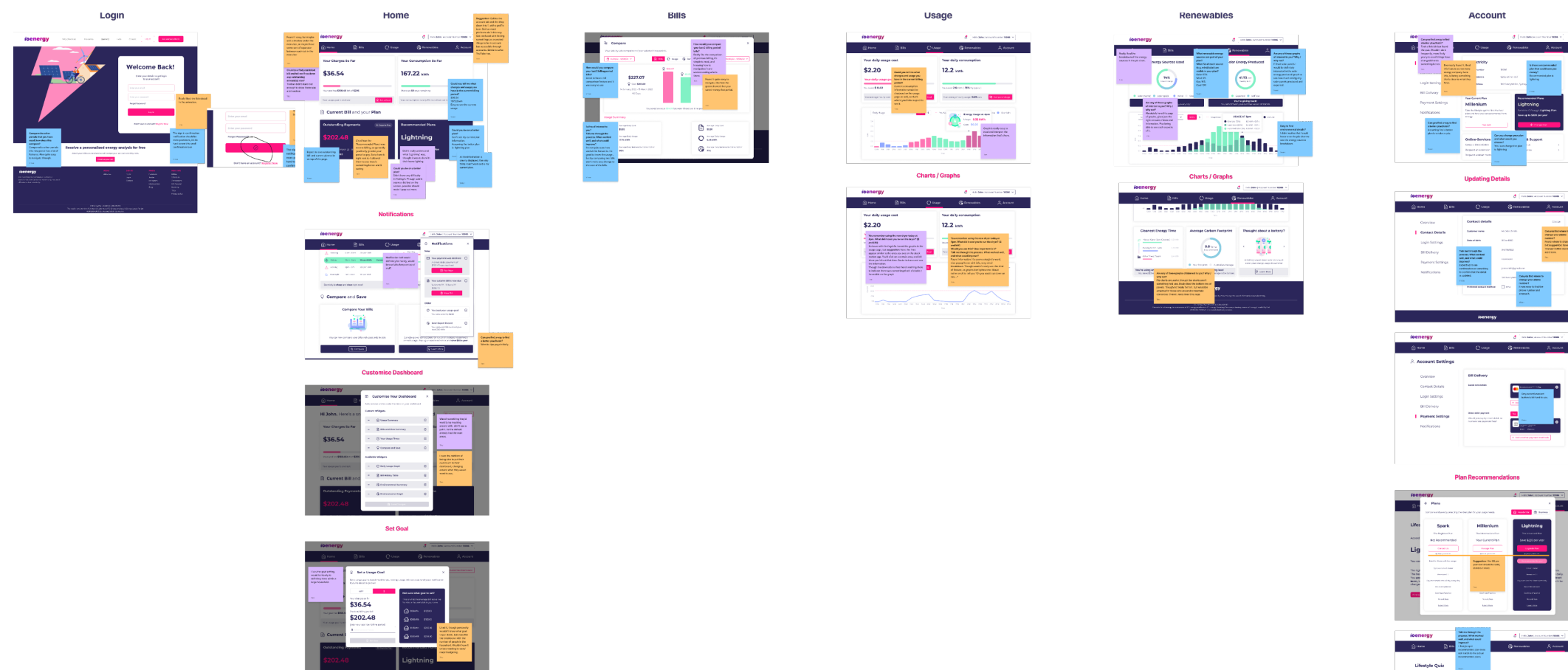
Prototype Feedback

Iterations | Dashboard / Home

Feedback
Property name not user name

Iteration
Changed account naming

Feedback
Mistook usage time as daily usage

Iteration
Updated chart style

Feedback
Assumed indicator was goal editor

Iteration
Removed date indicator

Feedback
Should be more prominent

Iteration
Reduced panels / changed colour

Feedback
Would like plan comparison

Iteration
Included plan comparison modal

Iterations | Billing

Feedback
Wanted to selected 2 bills and click "Compare"

Iteration
Added checkbox option for bills within history and compare button

Feedback
Compare panel not in an obvious location

Iteration
Added imagery within a bigger panel

Iterations | Usage

Feedback
Didn't konw it was a date selector

Iteration
Change it to say "Select Date"

Feedback
An indicator line should run along the x-axis, for easier tracking

Iteration
Added indictor line that will appear across the chart
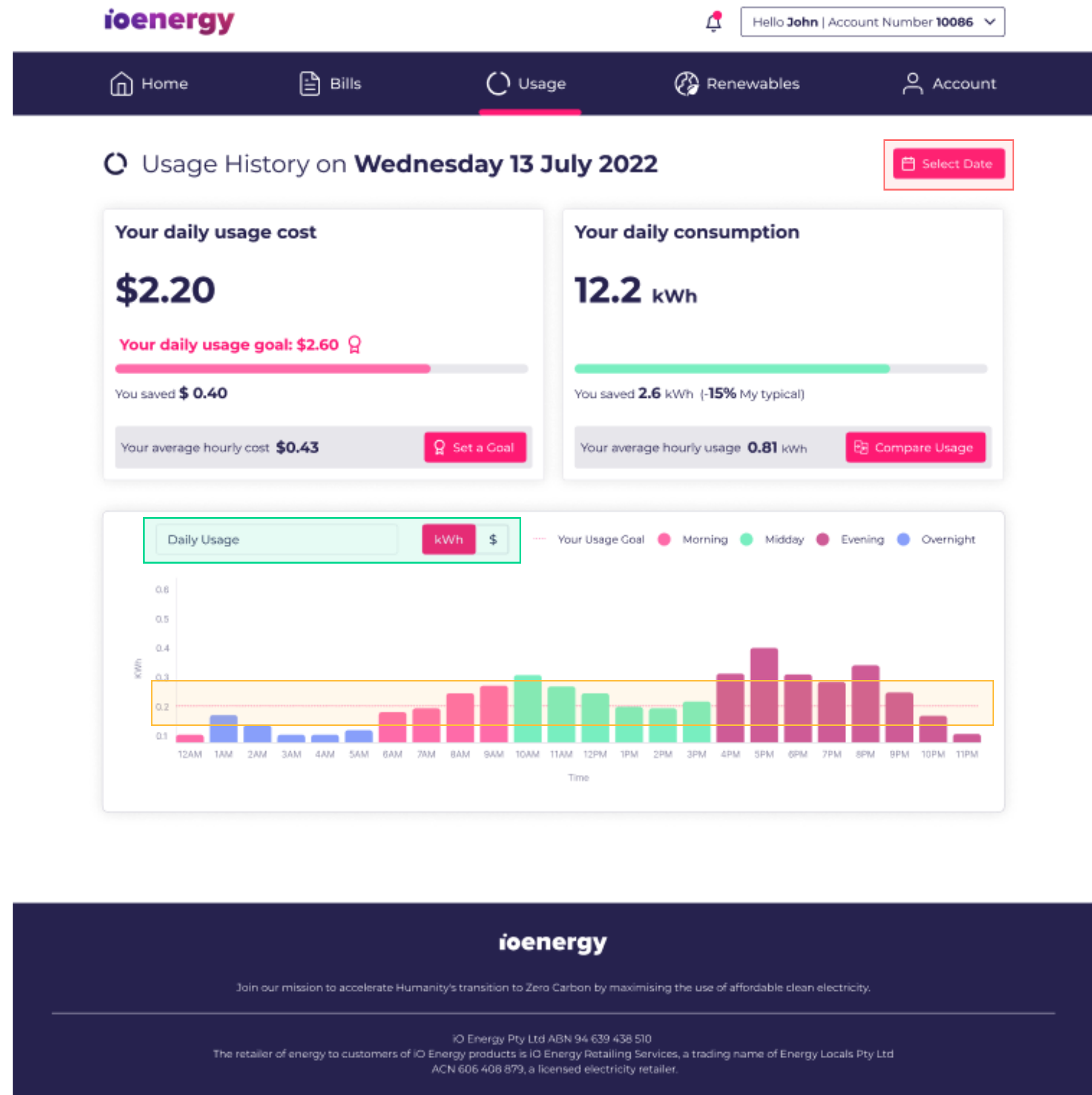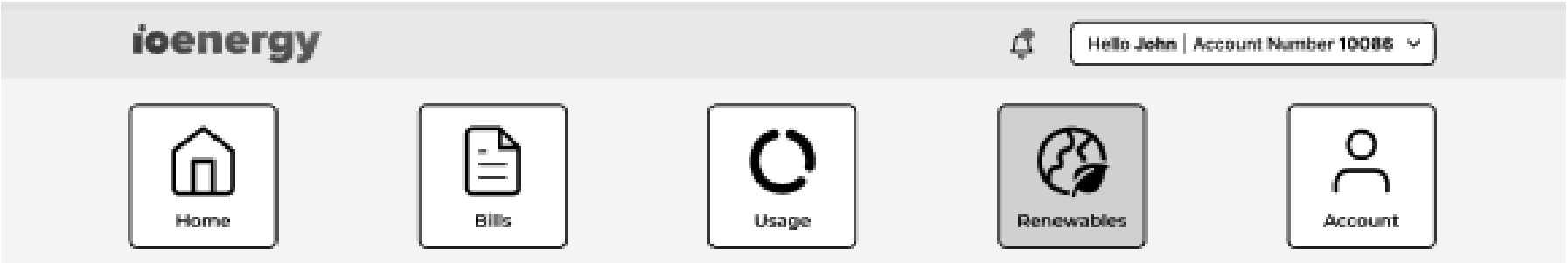
Feedback
Same toggle as renewables chart

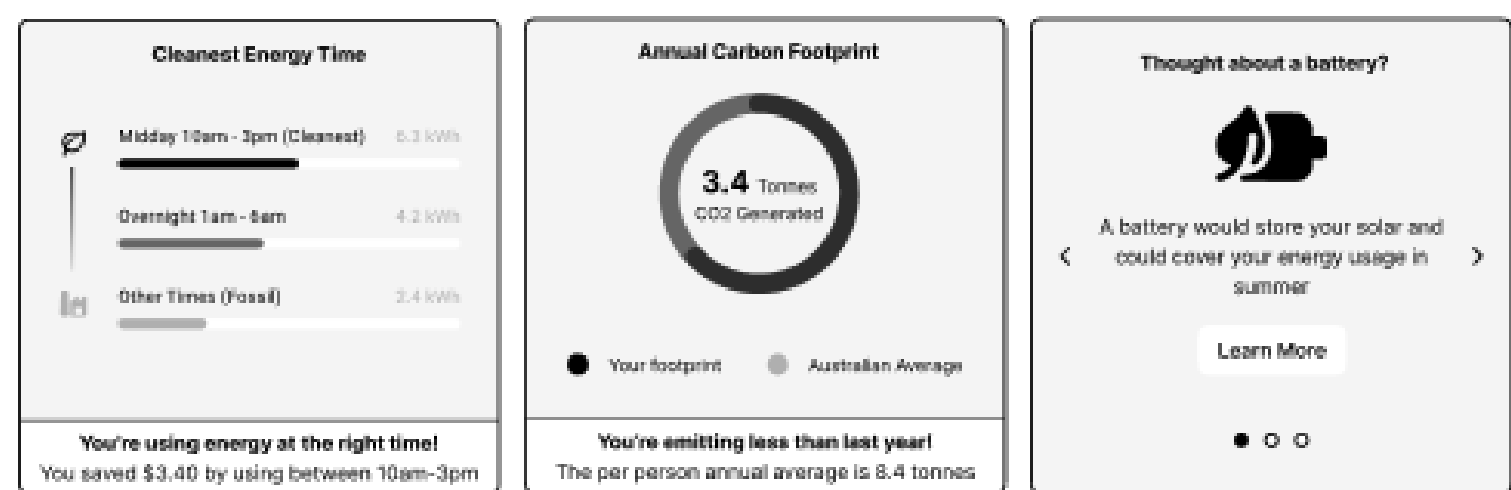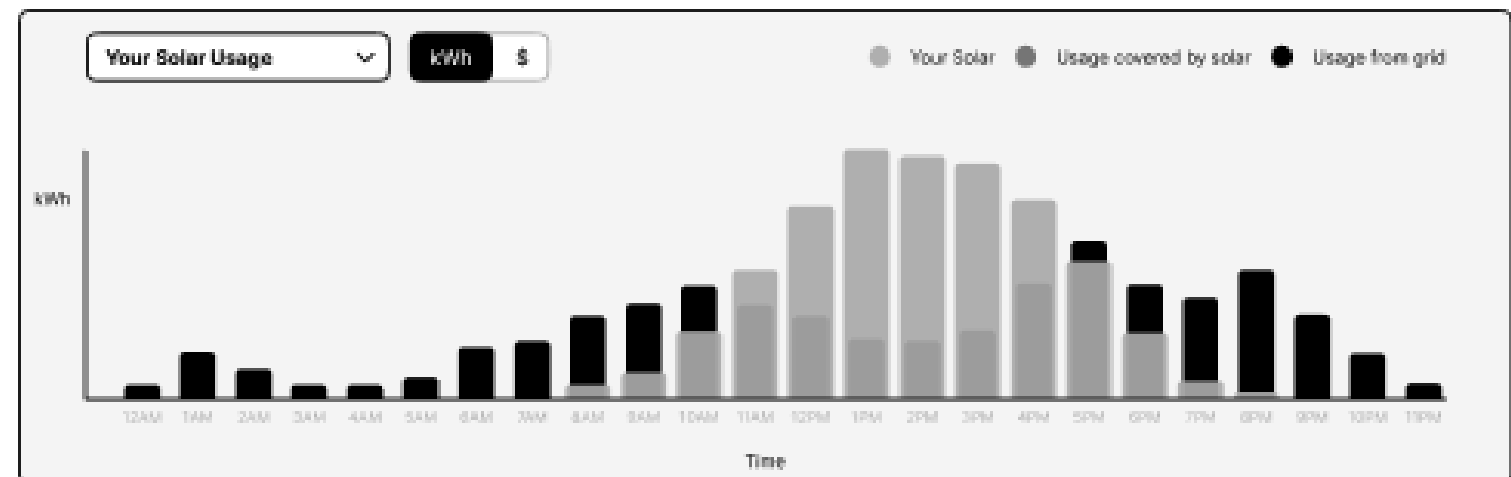Iteration
Added a kW/$ toggle

Iterations | Renewables
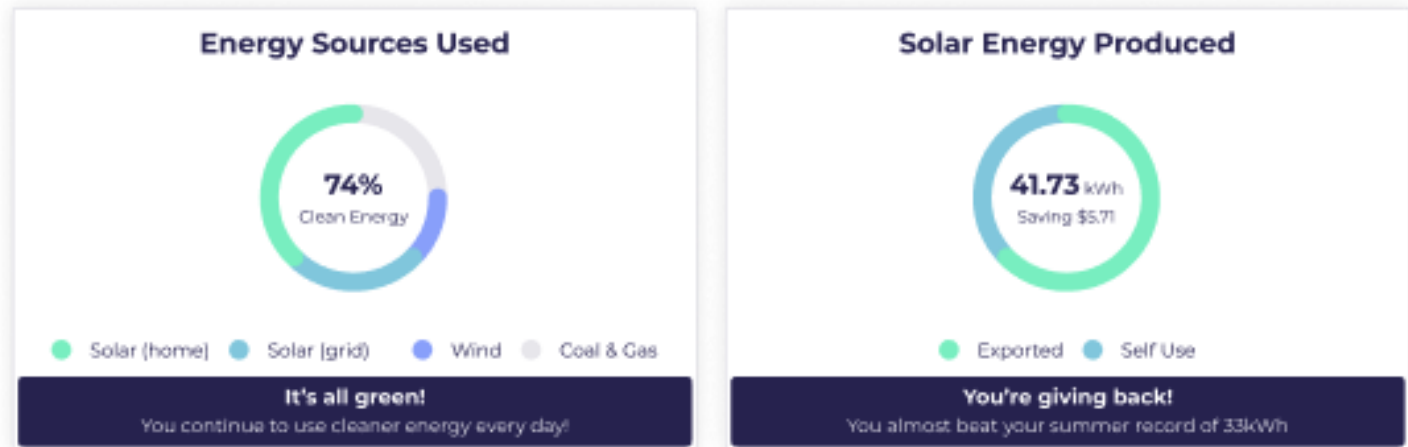
Feedback
Thought it was yesterdays date

Iteration
Specified the date
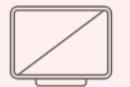
Iterations | Tips to Save Energy

Wireframe

Prototype

ioenergy
Hello **John** | Account Number **10086**

Home | Bills | Usage | Renewables | Account

Tips on How to Save Energy at Home

Making a few small changes to the way you use energy could make a difference to your next energy bill.

The family room

The kitchen

The laundry

The bathroom

Outside

Cooling and heating

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Use lamps or spotlights
If you only need a small amount of light, use lamps or spotlights instead of main lights.

Use energy-saving globes
Change your old light globes to LED lights.

How many lights are on?
Turn off lights in the rooms you're not using.

← Feedback
Difficult to find any entry point for "Tips"

Iteration →
Entry point on the dashboard

---

ioenergy
Hello **John** | Account Number **10086**

Home | Bills | Usage | Renewables | Account

Overnight 1 am - 6am 18c per kWh

Electricity is **cheap** and **clean** right now!

Overnight $3.00 16.7 kWh

You're using energy at the right time!

💡 **Compare and Save**

Compare Your Bills

You can now compare your bills and usage side by side

Compare

Bill Saving Tips

Standby power can account for 10% of an average household's annual usage. Unplug unused electronics and **save $50 a year**.

Learn More

ioenergy

Iterations | Prototype to Final Design

Prototype

Final Design

Welcome Back!

Enter your details to get login
to your account

Enter your email

Enter your password

Forgot Password?

Don't have an account? Register Now
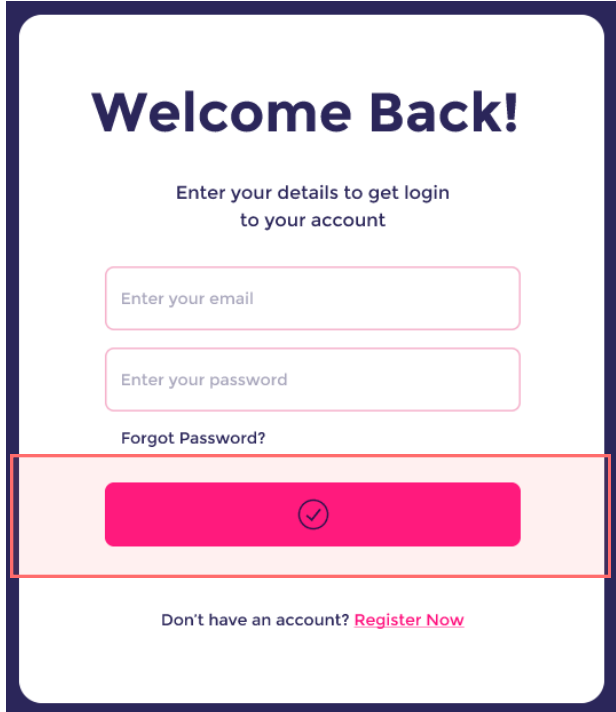
Feedback
Clearer login indicator

Iteration
Changed the login indicator to white →

Feedback
Menu bar not prominent

Iteration
Changed the selected state colour →

Feedback
Expected to see outstanding billing at the top of the page

Iteration
Rearranged the order of panels →

Feedback
Should be more prominent

Iteration
Adjusted text to be larger and bolder →

Welcome Back!

Enter your details to get login
to your account

john.smith@gmail.com

••••••••••••

Forgot Password?

Don't have an account? Register Now

---

ioenergy

Hello John | Account Number 10086

🏠 Home | 📄 Bills | ⟳ Usage | ⊕ Renewables | ⊖ Account

📄 **Current Bill** and your **Plan**

Outstanding Payments — 10 Days to Pay
$202.48
Billing Period 14 March 22 - 13 June 22
Due 13 July 2022

Recommended Plans
Lightning
Switch to iO Energy's **Lighting Plan**
Save up to $220 per year

Contact Us
$1,598 per year incl. GST

Manage Plan
$1,552 per year incl. GST

Upgrade Plan
$1,568 per year incl. GST

---

ioenergy

Hello John | Account Number 10086

🏠 Home | 📄 Bills | ⟳ Usage | ⊕ Renewables | ⊖ Account

Hi John. Here's a snapshot of the **current billing period** — ⊞ Customise Dashboard
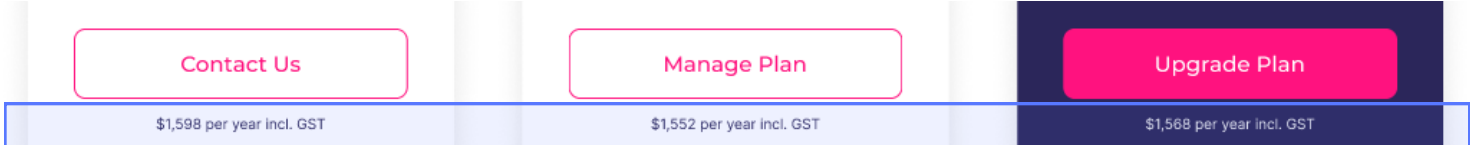
Your Outstanding Payments — 10 Days to Pay
$202.48
Billing Period 14 March 22 - 13 June 22
Due 13 July 2022
A payment is due — 💳 Pay Now

Recommended Plans
Lightning
Switch to iO Energy's **Lighting Plan**
Save up to $220 per year
There's a better plan — ⚡ Change Plan

Contact Us
$1,598 per year incl. GST

Manage Plan
$1,552 per year incl. GST

Upgrade Plan
$1,568 per year incl. GST

Final Design

ioenergy

Hello **John** | Account Number **10086**

Home | Bills | Usage | **Renewables** | Account

Environmental Impact on **Wednesday 13 July 2022**

Select Date

Energy Sources Used

74%
Clean Energy

- Solar (home)
- Solar (grid)
- Wind
- Coal & Gas

It's all green!
You continue to use cleaner energy every day!

Solar Energy Produced

41.73 kWh
Saving $5.71

- Exported
- Self Use

You're giving back!
You almost beat your summer record of 33kWh

Solar Usage | kWh | $

···· Usage Goal ● Your Solar ● Usage covered by solar ● Grid Use

0.6
0.5
0.4
0.3
0.2
0.1
kWh

12AM 1AM 2AM 3AM 4AM 5AM 6AM 7AM 8AM 9AM 10AM 11AM 12PM 1PM 2PM 3PM 4PM 5PM 6PM 7PM 8PM 9PM 10PM 11PM

VIEW FILE

VIEW PROTOTYPE

Other Times (Fossil) 2.4 kWh

● Your footprint ● Australian Average

A battery would store solar and could cover your energy usage in summer

You're using energy at the right time!
You saved $3.40 by using at 10am-3pm

You're emitting less!
The per person annual average is 8.4 tonnes

Learn More

Your Rates

Morning	6 am - 10am	35c per kWh	
Midday	10am - 3pm	10c per kWh	Current Rate
Evening	3pm - 1am	35c per kWh	
Overnight	1 am - 6am	18c per kWh	

Electricity is **cheap** and **clean** right now!

Your Energy Usage So Far

Morning		$14.98	42.8 kWh
Midday		$4.28	66.8 kWh
Evening		$14.28	40.8 kWh
Overnight		$3.00	16.7 kWh

You're using energy at the right time!

	Billing Period	Consumption (kWh)	Vs. Your Goal	Amount Due	Payments	
☐	14 Mar 22 - 13 Jun 22	502.27	Under by $2.52	$202.48	Pay Now	⬇
☐	14 Jan 22 - 13 Mar 22	1,327.26	Over by $22.07	$227.07	Paid	⬇
☐	14 Jan 22 - 13 Mar 22	584.29	Over by $13.54	$218.54	Paid	⬇
☐	14 Jul 21 - 13 Oct 21	501.28	Under by $2.52	$202.21	Paid	⬇

Email Selected Bills | Compare Selected Bills

Set a Usage Goal

Set a usage goal to benchmark for your energy usage. We can even send you a notification

Roadmap

Now   **Next**   **Future**

Basics

Users can access the customer portal to perform the basics, see what they're saving, with renewable information.

Tagging Appliance

Allowing users to tag their appliances in their household, to properly account for specific usages in the household.

Gamification

Incorporate gamification features (ie. reward points, incentives) to further help users to become more environmentally aware.

Comparison Modal

A direct side-by-side comparison, allowing users to see a straight comparison to certain billing periods, seasons, or specific dates.

Lifestyle Quiz

Giving users an opportunity to see if they're on the correct plan, or could have better habits and appliances.
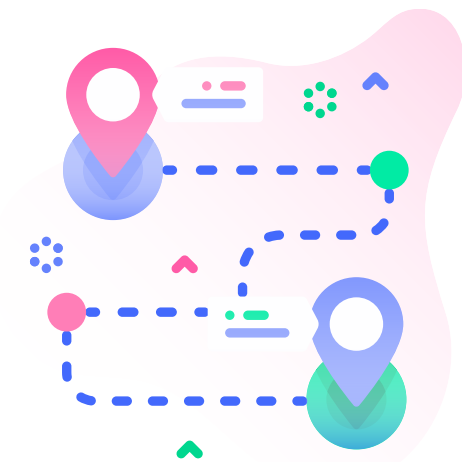
Dashboard Customisation

A more customisable dashboard in the customer portal, having personalised panels, and toggle switching graphs to accomodate certain users knowledge.

Project Recap

Design a customer dashboard

Allow customers to view energy consumption and account data

Improve Usability

Improve usability by minimising friction of the user flow

Maximise Customer Delight

Recommend better plans and having a 'viral' sharing quality

Reinforce good behaviour

Provide knowledge and tools that reinforce good behaviour

Thank You!