

San Diego Gas
& Electric
Need-finding
Discovery

February 2017

Rate Design Learnings & Opportunities

Daylight

Inspired by people, designed for impact.

*What is the user's voice
in the rate plan redesign?*

**We applied the human centered design
process to address this question.**

What you told us

SDG&E has been tasked by the California Energy Utilities Commission to undertake a rate plan redesign. The goal of the redesign is to incentivize residential users of energy to switch their time of use towards non-peak hours.

SDG&E has asked Daylight to help understand the user's experience around energy rate plans to more effectively design and communicate the TOU rate plan and/or an alternative which accomplishes the distributed load goals of the time of use plan.

Daylight's job was to bring out the user's voice in the rate plan redesign process and to make these learnings actionable through key design principles and potential paths forward.

Our process

Research

Uncovering needs through one-on-one qualitative interviews in users' homes.

Synthesis

A process of transforming research into essential insights and opportunities.

Ideation

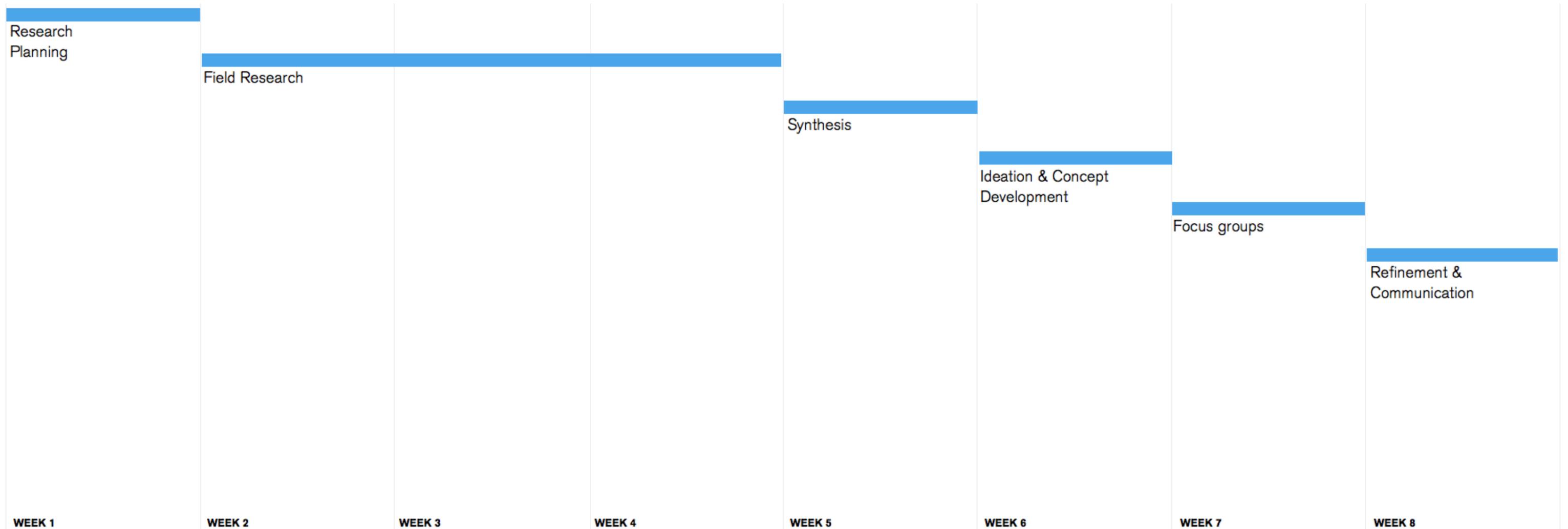
Idea generation and concept development.

Testing

Soliciting feedback from focus groups, generating new ideas in co-creation sessions and iterating our point of view.

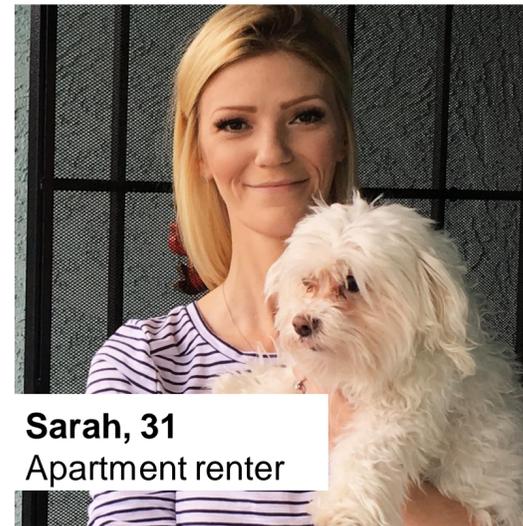


Process



Who we met

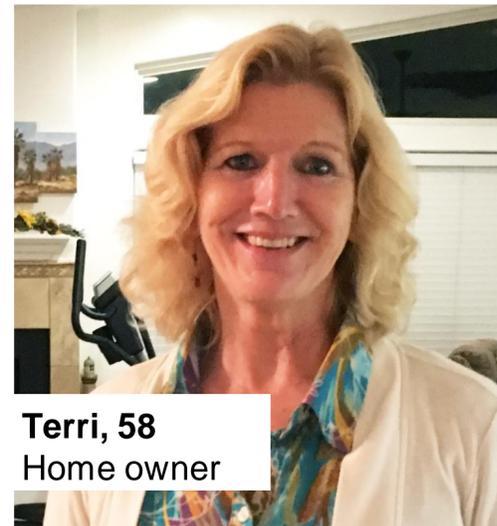
Extreme and
inspiring users



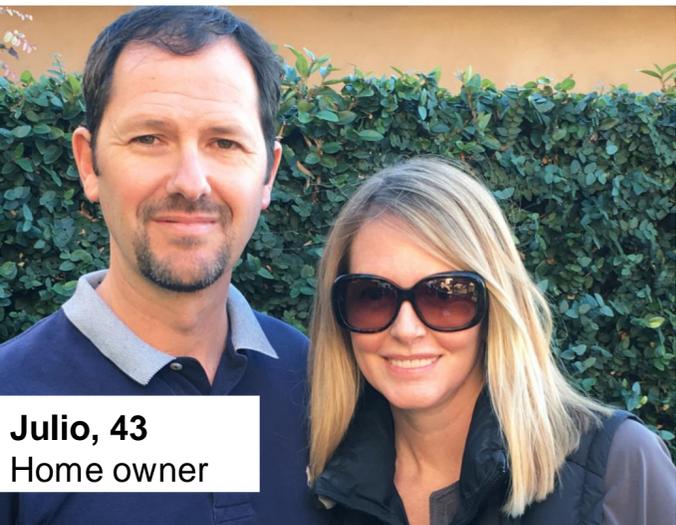
Sarah, 31
Apartment renter



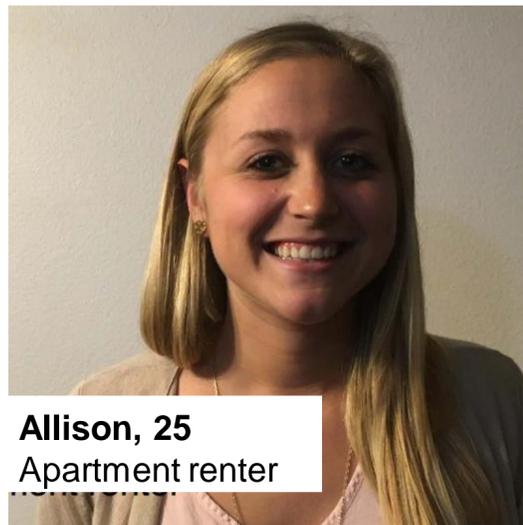
Tracy, 48
Home owner & renter



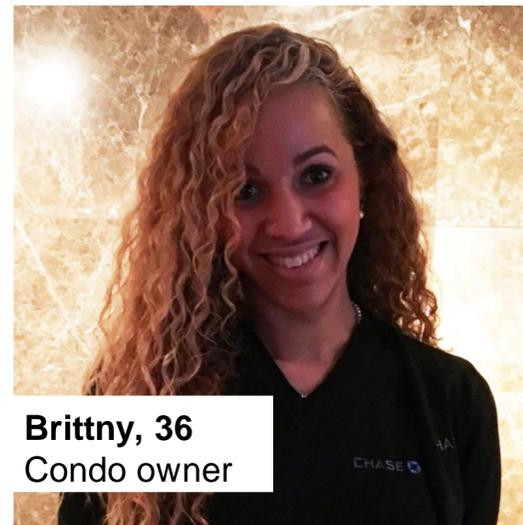
Terri, 58
Home owner



Julio, 43
Home owner



Allison, 25
Apartment renter



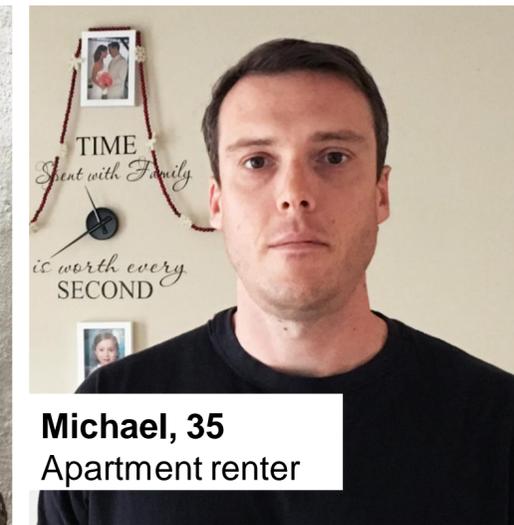
Brittney, 36
Condo owner



Gary, 44
Home renter



Catharine, 58
Home owner



Michael, 35
Apartment renter



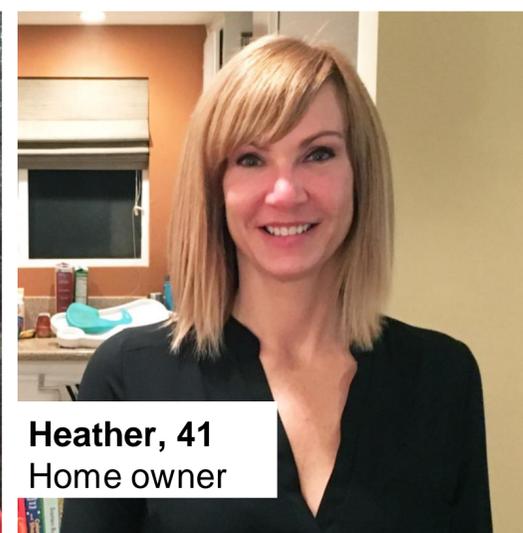
Rafael, 50
Home owner



Danielle, 47
Apartment renter



Albert, 51
Home owner



Heather, 41
Home owner



Laura, 60
Home owner



Michelle, 54
Home owner

RESEARCH
INPUT

What we saw and heard

INSIGHT

What it means

ACTIONS /
DESIGN PRINCIPLES

What we can aim to do

HOW
MIGHT WE?

Provocations for ideation

1.

Opportunity Areas



TIME OF USE

BEYOND RATE PLANS

PERCEPTIONS OF SDG&E

[TOU] would give me more control. I know that if I waited until after 5pm to do a certain thing the consequence would be good. On the other hand, the tier is this invisible barrier that I never know if I've even crossed.



Terri, 58, Home owner



TOU gives you more clarity because you can see the exact times and costs. Tiers are like going into a restaurant and being given a menu with no numbers. Why is tier 1 X and not Y?

Julio, Home owner

TOU can be viewed as opportunity for more control and predictability over bills.

1. Frame TOU as an added variable for cost control.

People are just too busy with their lives. Whoever gets through their to-do list analyzing when it makes the most sense to do something based on the best rate?

*Julio's wife,
Home owner*



I don't want to be thinking how to best manage TOU. I can see it getting very exhausting to be constantly thinking about the times and the rates.

*Brittney, 36
Condo owner*

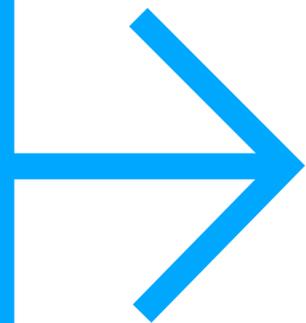


Most people won't follow through with it and get stuck paying the more expensive rates. You have to understand that people have schedules that are difficult to work around.



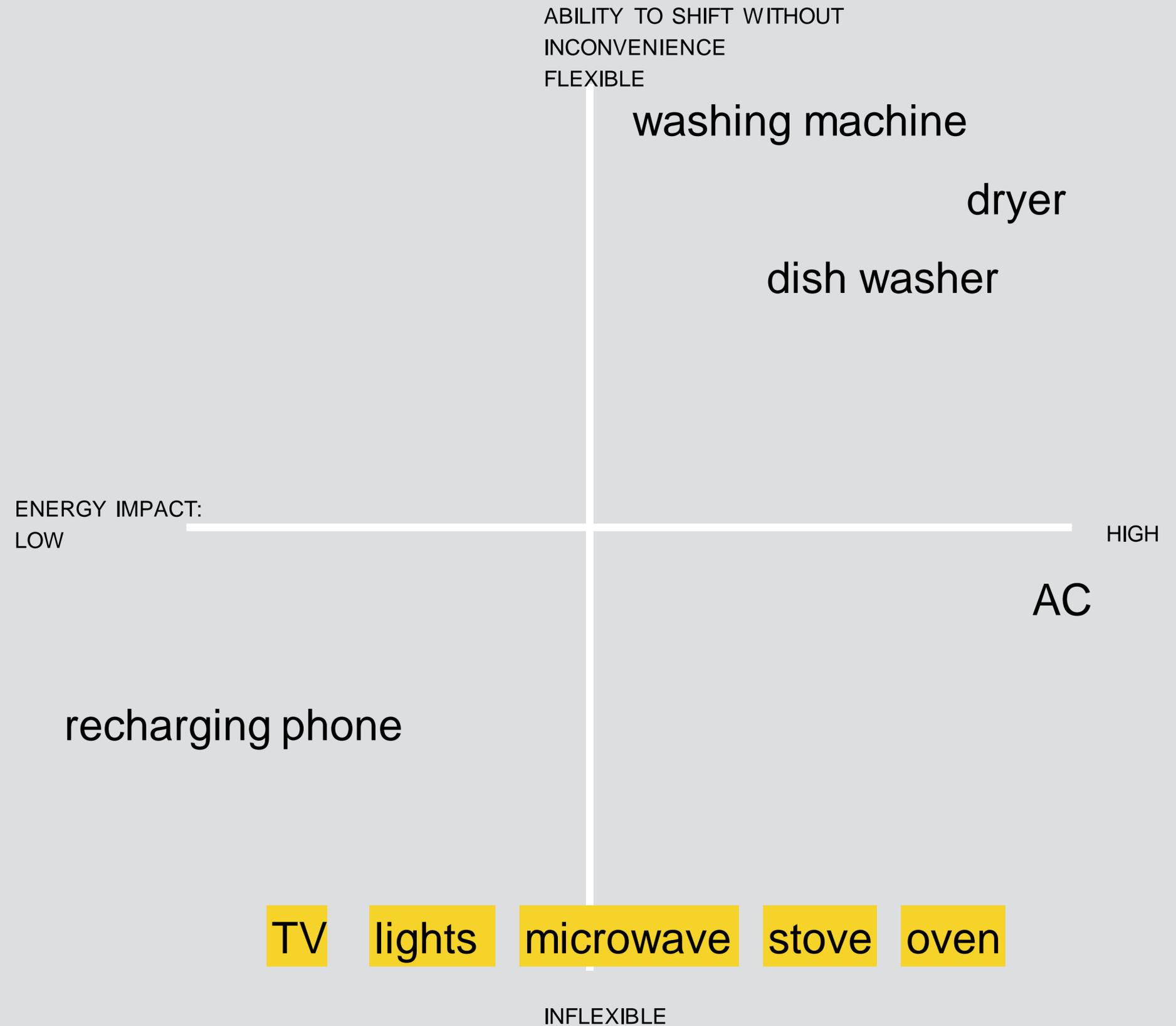
Rafael, 50, Home owner

Many perceive TOU
as a costly and
unfair burden.

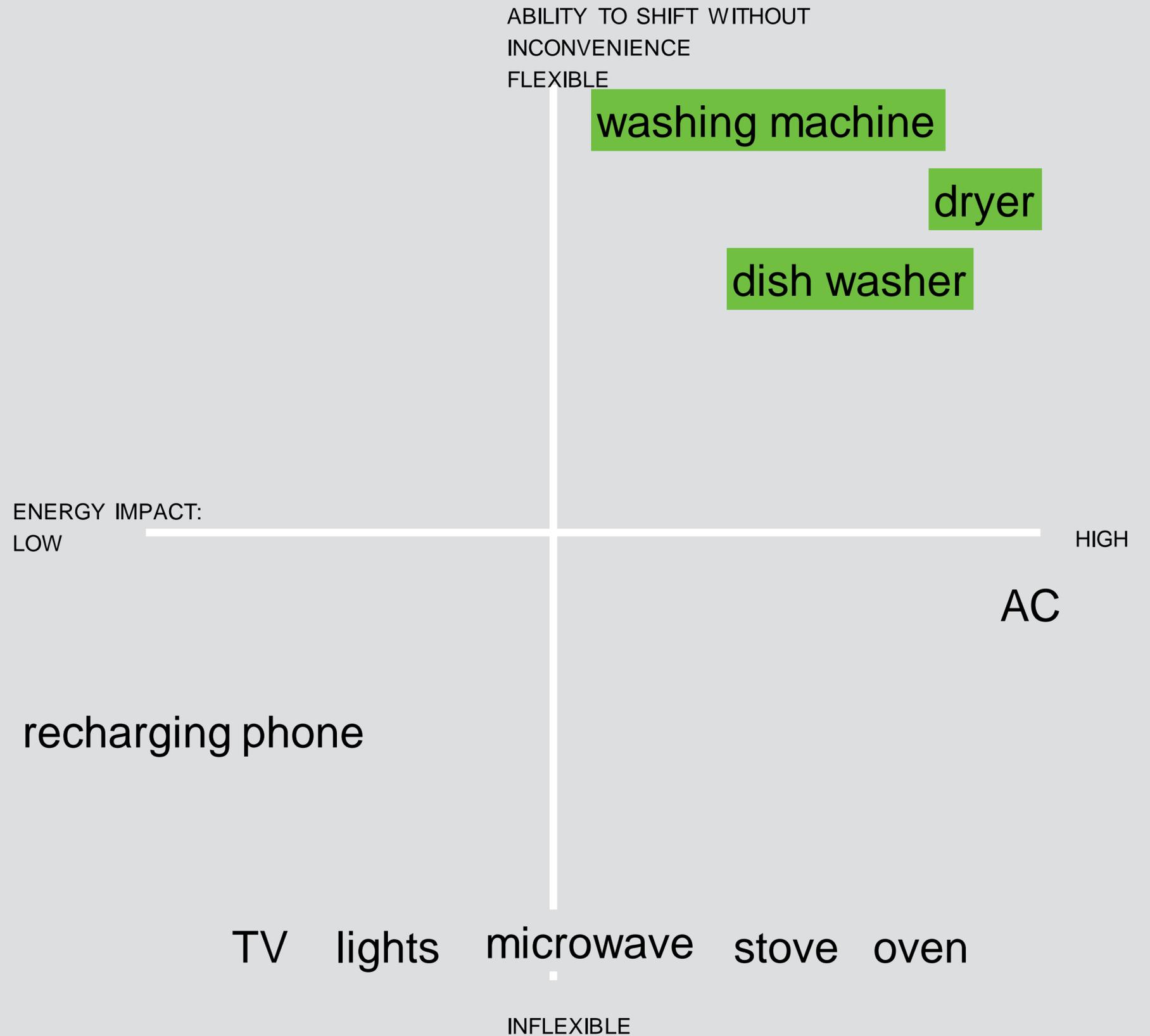


2. Show customers that TOU
doesn't require changing
inflexible routines, only flexible
ones.

Cooking dinner and watching TV represent a range of energy consumption but are both inflexible because changing the time these activities occur would be a big compromise to customers.



Changing the time one starts a load of laundry or the dishwasher is a nominal inconvenience and has significant energy impact



HOW MIGHT WE...

**Celebrate the
benefits of TOU?**

**Show customers
that TOU doesn't
'punish' working
families?**

**Frame TOU as a
genuine choice with
distinct
advantages?**

No one asked about what rate plan I wanted, just “what’s the address and when do you need it to start.” I’d be interested in having a choice. [Although] I don’t know that I would be informed well enough to make that choice.

Alison, 25

Apartment renter



I would choose whichever would cost me the least. But I think I would have to try them out to get a realistic view. Tell me, how much will I be paying based on my current use?



Brittny, 36, Condo owner

People want the same level of choice in their energy plan as other services they sign up for, but need comprehensive tools for effective choice making.

3. Enable prediction and choice.

HOW MIGHT WE...

provide predictive tools that account for expected behavior change?

leverage rate comparison as a means of introducing TOU?

amplify the sense of choice in a highly restricted setting?



We are consistently going into a higher tier. It feels like I'm doing something wrong but I don't know what I would be doing differently.

*Michael, 35
Apartment renter*

It feels a little disappointing to see that I've gone into the second tier. I would make the first tier higher to a reasonable amount of use.



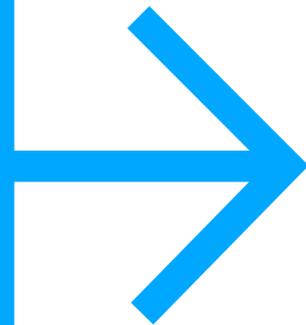
Tracy, 48, Home owner & renter

I used to feel like tier one was not enough to cover my basic needs, so we would always go into the second one. Ideally tier one should cover the basics.



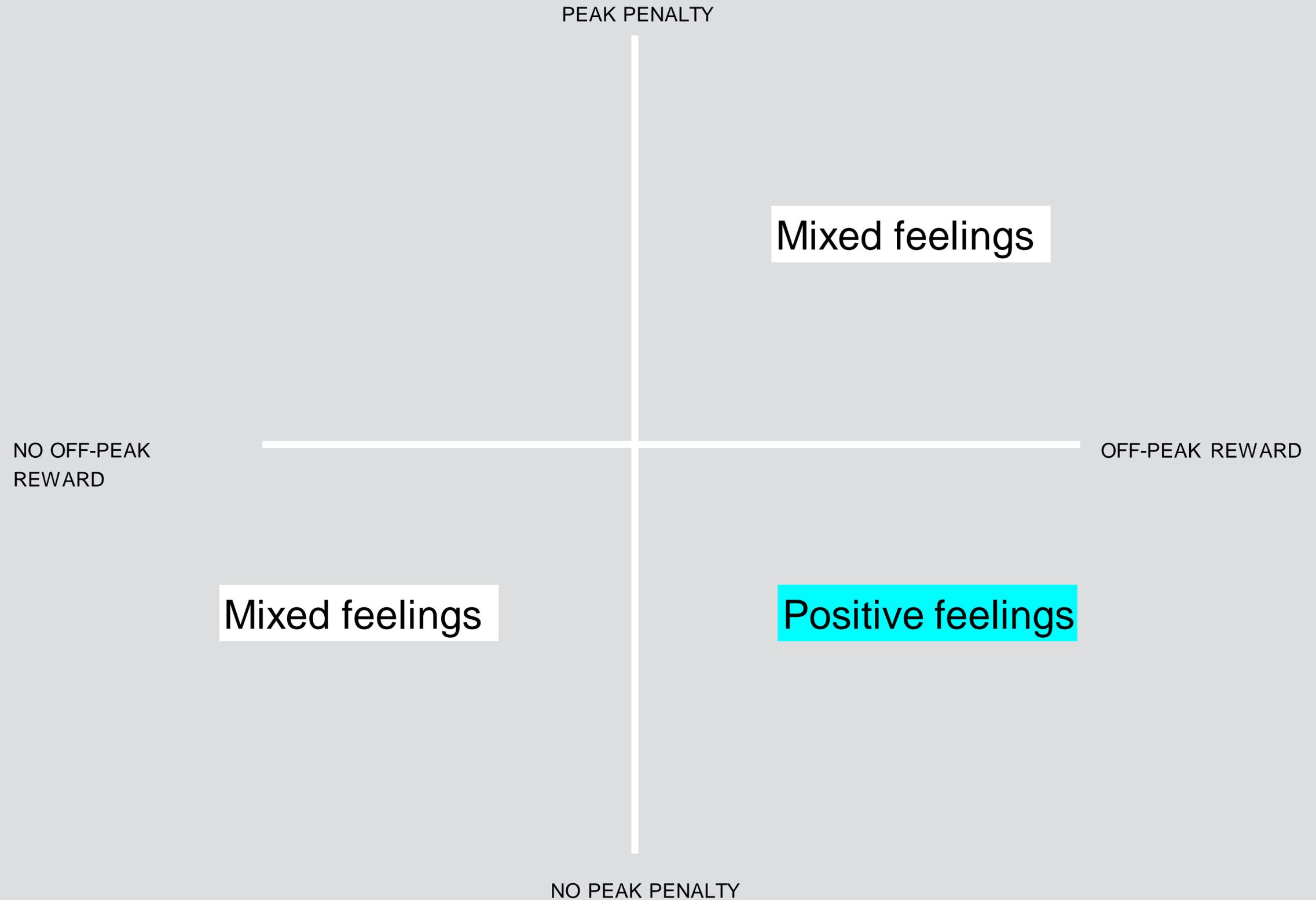
Terri, 58, Home owner

People feel like they are doing something wrong when they go into tier 2.



4. Praise, don't blame.

Off-peak rewards without a peak penalty captures the best of both worlds: the incentive of TOU without the perception of being punished or gouged.



HOW MIGHT WE...

empower different kinds of flexibility, without punishing inflexibility?

reward users for the compromises they are making without punishing them for compromises that they aren't?

frame tier one rates as discounted rather than normal?

Time of Use

1

Frame TOU as an added variable for bill control.

2

Show customers that TOU doesn't require changing inflexible routines, only flexible ones.

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Enable prediction and choice.

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Praise, don't blame.

TIME OF USE
BEYOND RATE PLANS
PERCEPTIONS

When I cook, I boil my pasta, make hard boiled eggs and cook broccoli all in the same pot to use less energy! Like, what I else can I do?!



Catherine, 58, Home owner

It would be cool if they could break down my bill...If they could narrow it down to see exactly what is using the most energy.



*Danielle, 47
apartment renter*

I can just see the total and guess what is was that changed the cost.

*Tracy, 48
home owner*

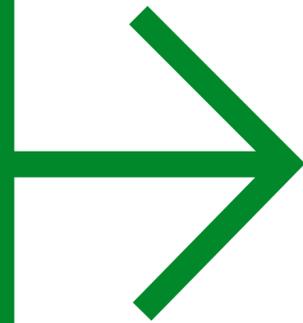


It's a 24 hour thing that I keep thinking about...and I just don't understand how my efficiency is so below my neighbors.

*Catherine, 58
home owner*



People don't know how or where to reduce usage, leading to frustrating, ineffective compromises.



5. Make the bill accessible and actionable.

HOW MIGHT WE...

**explain spikes on
the basis of energy
use?**

**make energy more
tangible, less
invisible to people?**

**show what changes
have the most
impact?**



I don't think I would be willing to compromise any of the things I do now. I do a normal amount of laundry, a normal amount of cooking, a normal amount of everything else.

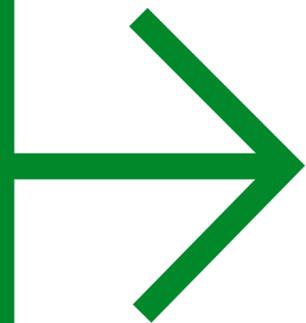
Tracy, 48, home owner & renter

I feel like I've already minimized my usage. If I have to do it even more I would be very frustrated.



Brittny, 36, Condo owner

Everyone thinks
their use is
“normal”, which
inhibits their
flexibility.



6. Show customers that TOU
is a way to do the right thing
without consuming less.

HOW MIGHT WE...

**Re-design the
“neighbor
comparison” to
achieve its intended
purpose.**

**help users identify
“luxuries” without
imposing a
judgment from
outside?**

**promote the
appreciation of the
value of necessary
energy use?**

It's cool when they come and bring lightbulbs. It shows that they are not just a company coming for your money.

Sarah 31
Apartment renter



**I would love it if
SDG&E would be
more consumer
oriented, but I
understand the grid
is their focus.**

*Michelle, 54,
home owner*



**They should do an evaluation
when you move in. If they
could tell me 'hey this old
fridge is taking up a lot of
energy'.**

*Tracy, 48, home
owner & renter*

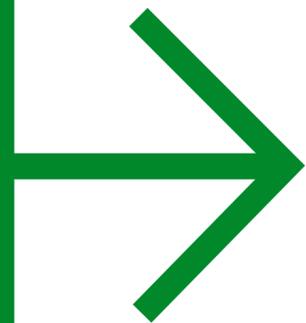


My impression of SDG&E is a good one. They have a very educated customer service.



Julio, 43
Home owner

Personal involvement (which users are open to) is an effective way to turn around negative perceptions of SDG&E.



7. Get more personally involved.

I like information but if there isn't enough of it, or the right kind, I don't know how to act.

*Michael,
Home owner*



If I could have real-time information about MY home, that would be very beneficial to me. I was hoping would could come to my house when I was having issues.

*Gary,
Home renter*

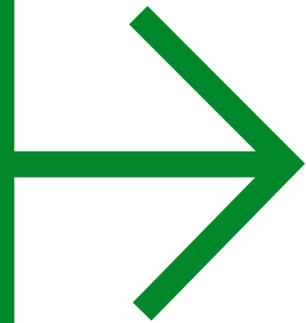


Just tell me what specifically I can cut back on. I don't care about my neighbor that is single and has one dog. I don't feel its appropriate for them to tell me I'm less efficient.



Catherine, Home owner

**Overgeneralized
information for bill
reduction may
cause more harm
than good.**



**7b. Personalize messaging
and feedback.**

HOW MIGHT WE...

**make suggestions
home specific?**

**make the energy
experience a
partnership
experience?**

**capture a home's
specific use?**

Time of Use

1

Frame TOU as an added variable for bill control.

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Show customers that TOU doesn't require changing inflexible routines, only flexible ones.

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Enable prediction and choice.

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Praise, don't blame.

Beyond Rate Plans

5

Make the bill accessible and actionable.

6

Do the right thing without consuming less.

7

Get more personally involved.

7b

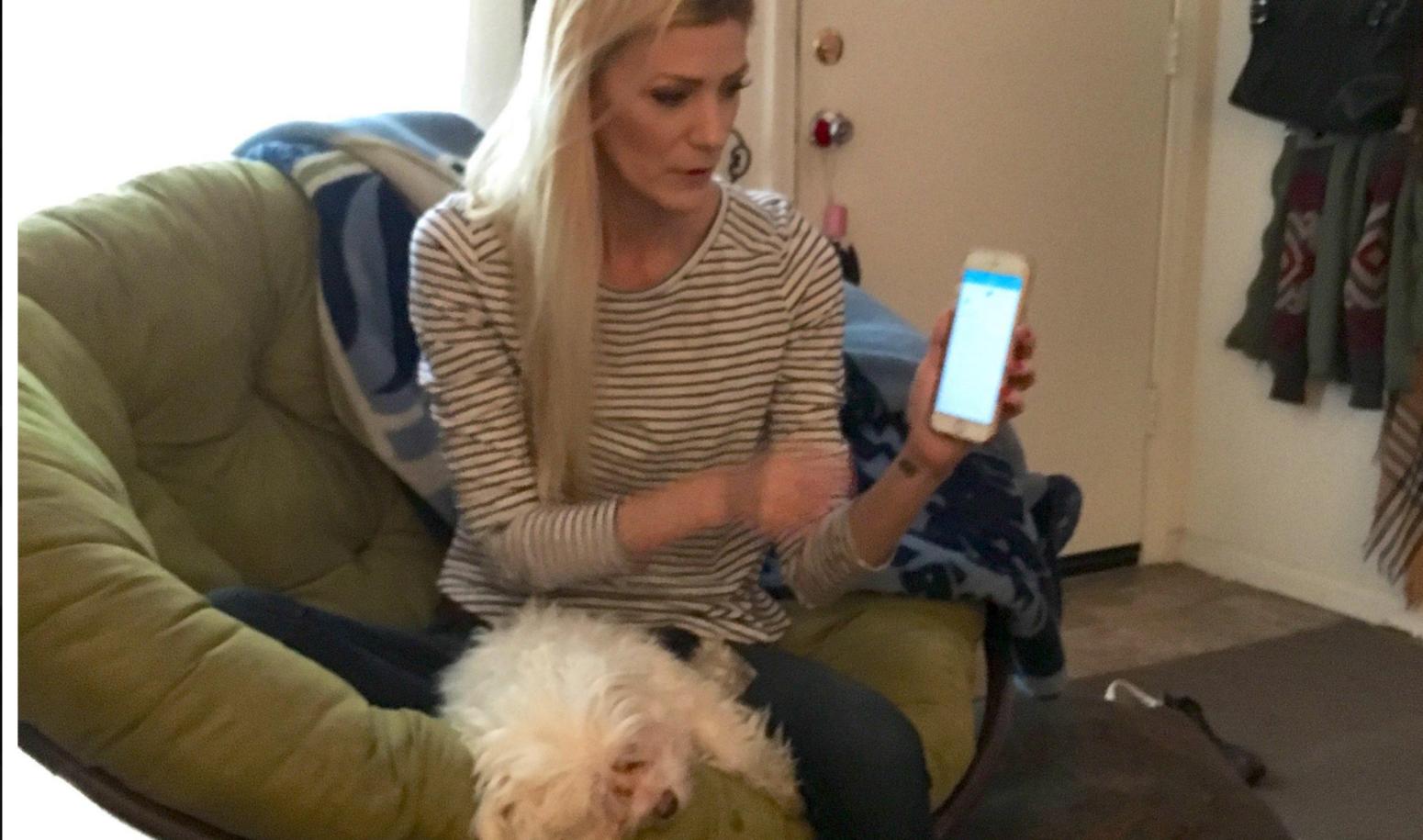
Personalize messaging and feedback.

TIME OF USE
BEYOND RATE PLANS
PERCEPTIONS



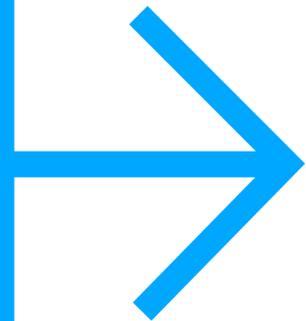
I went online and they could give me more accurate data than SDG&E. I would of thought the water company was lower tech.

*Michelle, 54
Home owner*



Like Nest and futuristic houses, they really need to catch up.
They are reading meters – that’s ridiculous, it seems very 1995.
Sarah, 31, apartment renter

**SDG&E is
perceived as
behind the times
technologically and
environmentally.**



8. Be the utility of tomorrow.

HOW MIGHT WE...

Express a vision of the future that customers want to collaboratively work towards?

highlight SDG&E's hidden technologies and experts?

make SDG&E a hub for lifestyle innovation?

People here are environmentally aware and do their part. SD saved the most water in the state during the drought. If they are rewarded for it, I don't see why they would be opposed.



Terri, 58, Home owner

We already went through this with the water. Because we cut our usage so much they had to increase the price. I understood it [they have fixed expenses].

*Albert, 61
Home owner*

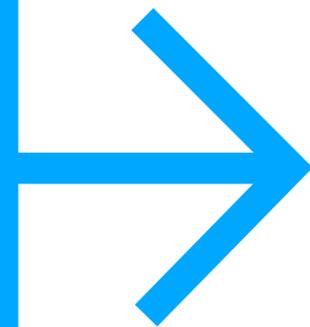


SDG&E should be promoting energy reduction for the region.

*Laura, 60
Home owner*



San Diegans
already feel a
shared
participation in
environmentalism.



9. Harness San Diego's
environmentalism to
motivate TOU.

HOW MIGHT WE...

**frame TOU as the
environmental plan?**

**Facilitate
opportunities for
citizens of San
Diego to volunteer
or contribute to
environmental
issues?**

**make SDG&E a hub
for lifestyle
innovation?**

Why would they want to help people reduce? Then people would be using less electricity and paying a lot less.



Sarah, 31, Apartment renter

If I was the CEO of SDG&E,
TOU definitely sounds like the
best deal.

Rafael
Home renter



It's unfair but it's big business so I grudgingly accept...but then again what choice do we have?

Terri, 58
House owner



When our rates go up and their executives continue to make a lot more money, it doesn't seem right to me.

Michael, 35
Apt. renter

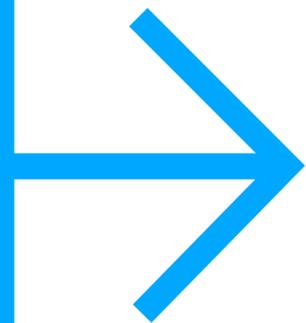


They are just an entity that is watching how much electricity you are using and then wanting money. Like a cyborg.

Sarah, 31
Apartment renter



The perception that SDG&E is a profit driven corporation leads to perceiving TOU as “gouging”.



10. Be transparent that TOU is a state wide mandate.

HOW MIGHT WE...

build empathy by exposing SDG&E employees as customers?

increase awareness of SDG&E's differences from a traditional company?

Show how SDG&E has customized the statewide rollout to fit the needs of San Diegans?

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Beyond Rate Plans

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Get more personally involved.

7b

Personalize messaging and feedback.

PERCEPTIONS

8

Be the utility of tomorrow.

9

Harness San Diego's environmentalism to motivate TOU.

10

Be transparent that TOU is a state wide mandate.

2.



Validation & Evolution

Ideation / Concept development

Develop early ideas on the basis of research provocations; Refine into concepts and visualize to solicit feedback.

Focus Group Sessions

Probe further and challenge our ideas with focus groups. (4 sessions, 8 participants each)

Exercise 1: TOU rate plan selection.

Exercise 2: Present communication and product concepts.

Thought Refinement

Refine our ideas as needed and capture new learnings.

Communication Concepts

Time of use
is an
opportunity
to save.

Using less
is not the
only way to
save.

Be one of
the savers,
not one of
the
spenders.

Time of use:
California's
new
energy plan.

Off-peak
energy is
clean
energy.

Peak
energy is
dirty
energy.
Stop the
"Peakers"

You save a
tree by
washing
before 4P.

Product / Service Concepts

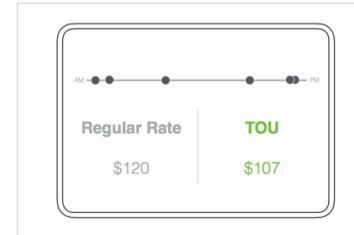
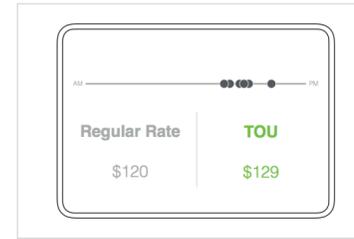
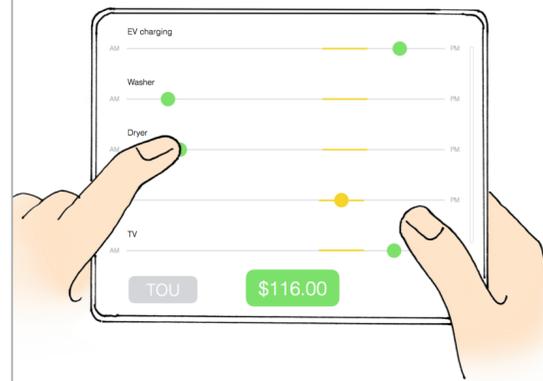
In-depth Learning

A SDG&E representative will install smart meters and other data collecting devices in your home. After a period of X months, the SDG&E will collect the devices and deliver a detailed report of the study.



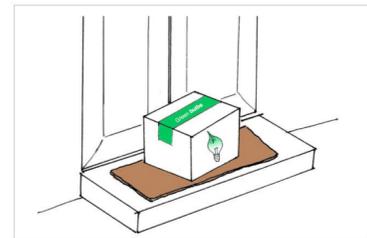
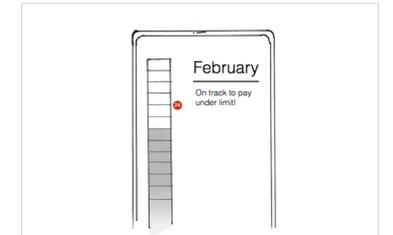
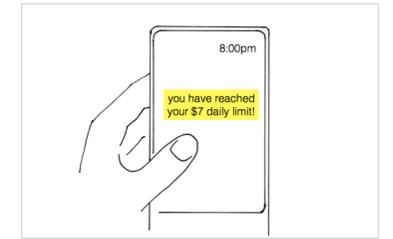
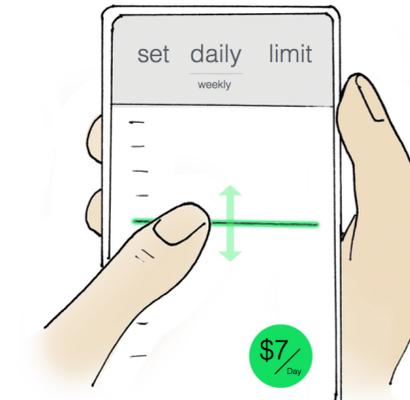
Time Shifting

An app that allows users to drag icons of main energy uses to different times, in order to motivate shifting time of use by showing the savings. The total amount will change according to where each energy use item is placed.



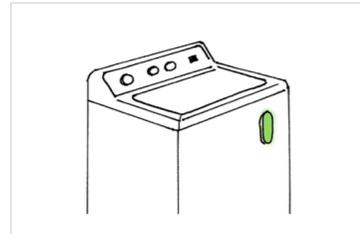
Energy Budgeting

A tool that allows users to set daily or monthly energy limits in \$ to better monitor and manage their energy use. With this tool, users can check their energy real time balance, and predict how much it will be by the end of the month.



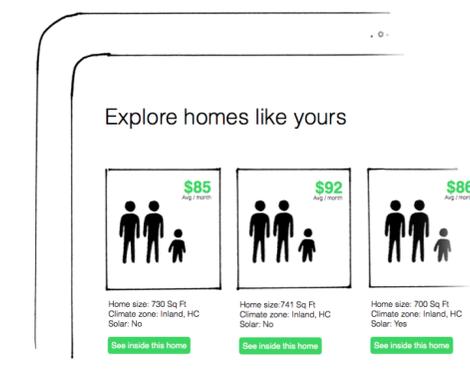
State of the Grid

An alternative to having predefined peak hours. Users can check the state of the grid as they would the weather. The cost of electricity will vary by real time demand.



Community Learning

Take a look inside the homes of people like you to see how they use energy. Learn how families like yours managed to be more efficient.



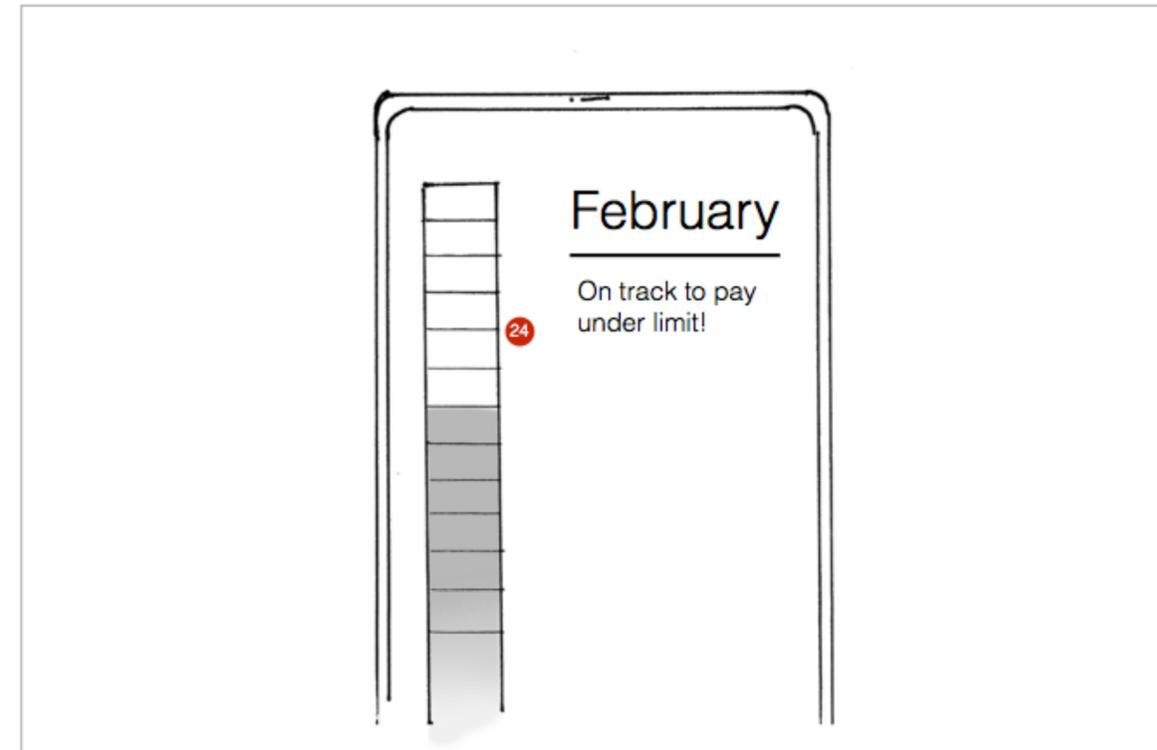
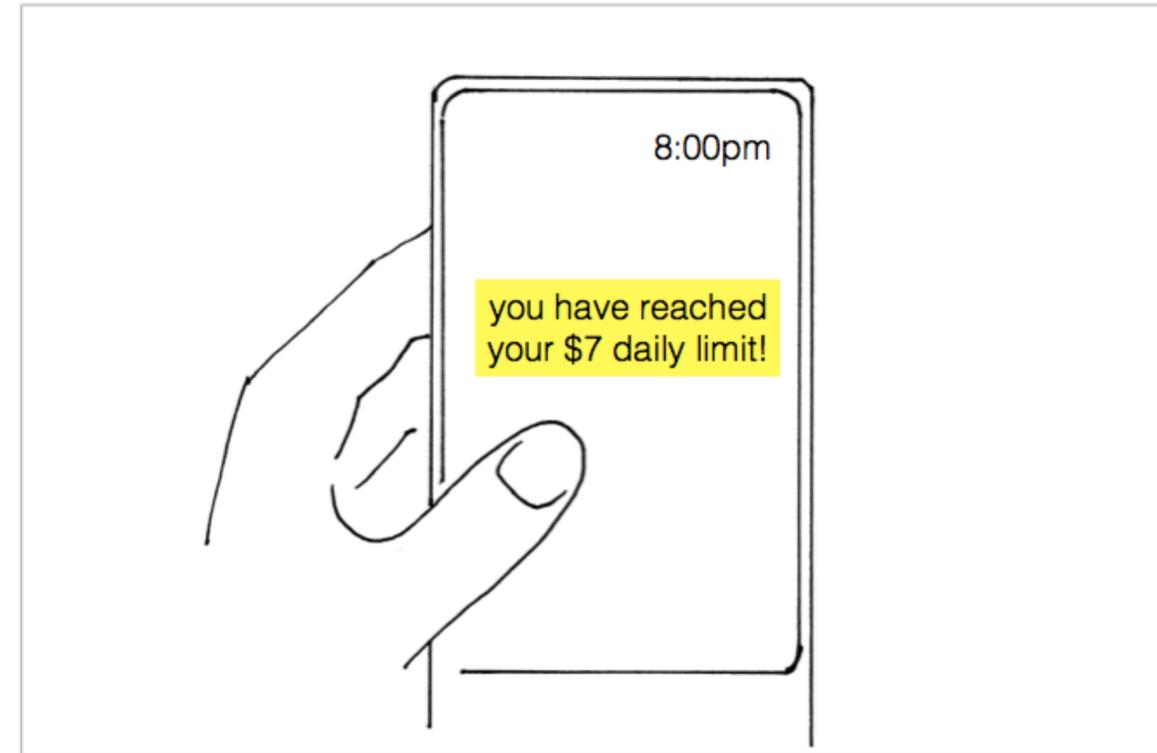
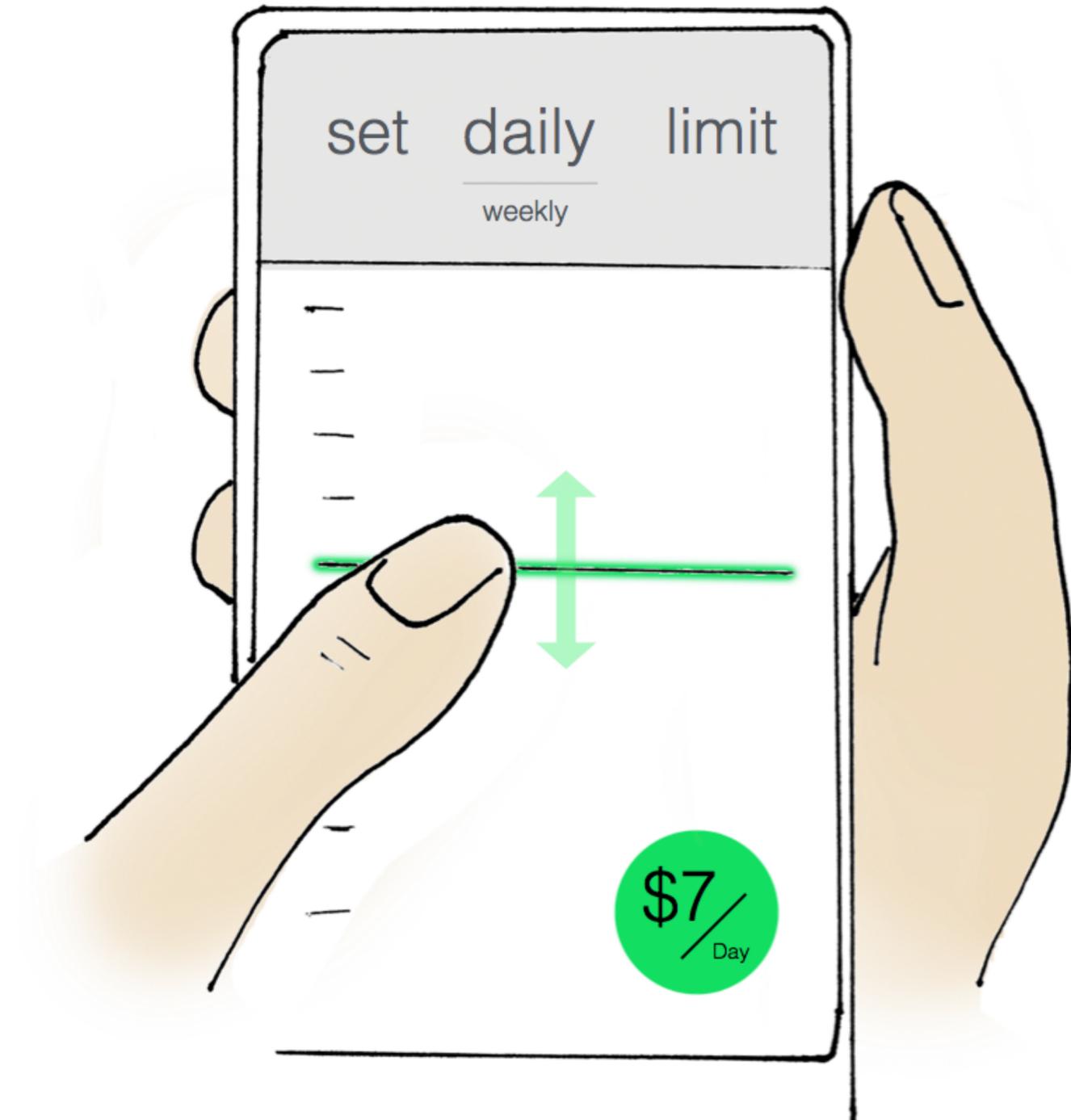
Energy Rewards

A way to encourage and reward people for making the most out of non-peak hours. The less energy during peak hours you use, the more points you earn for free energy or discounted peak-hour rates.



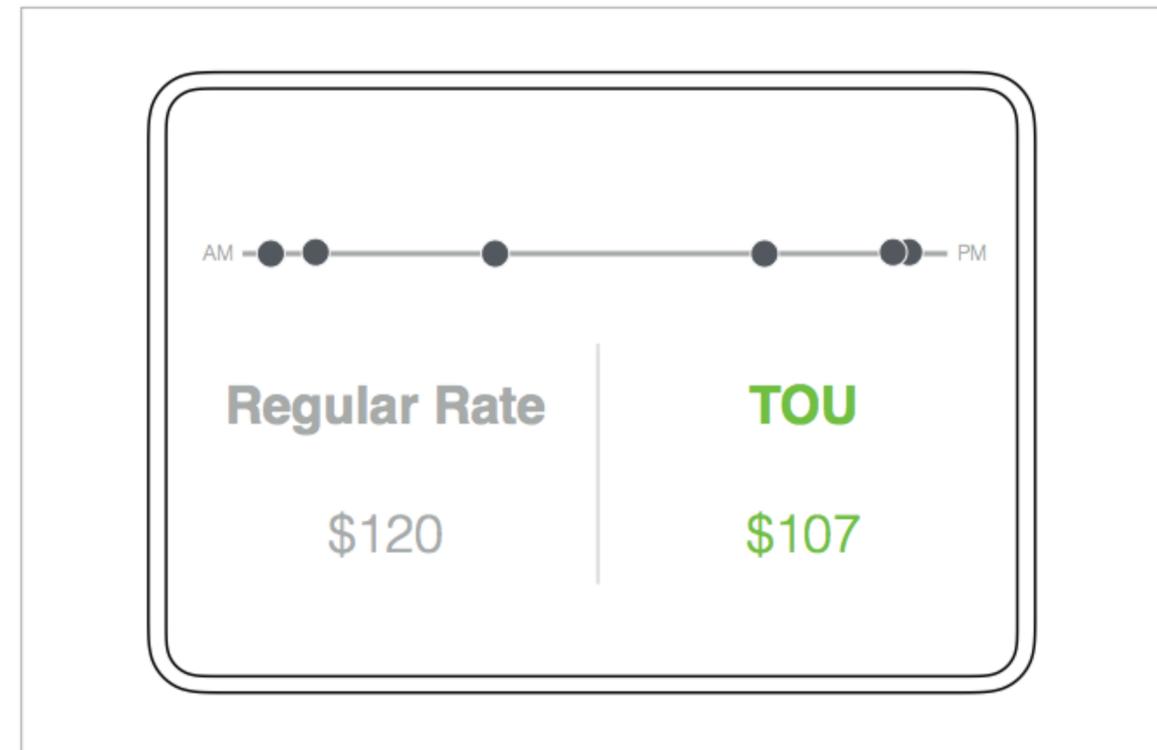
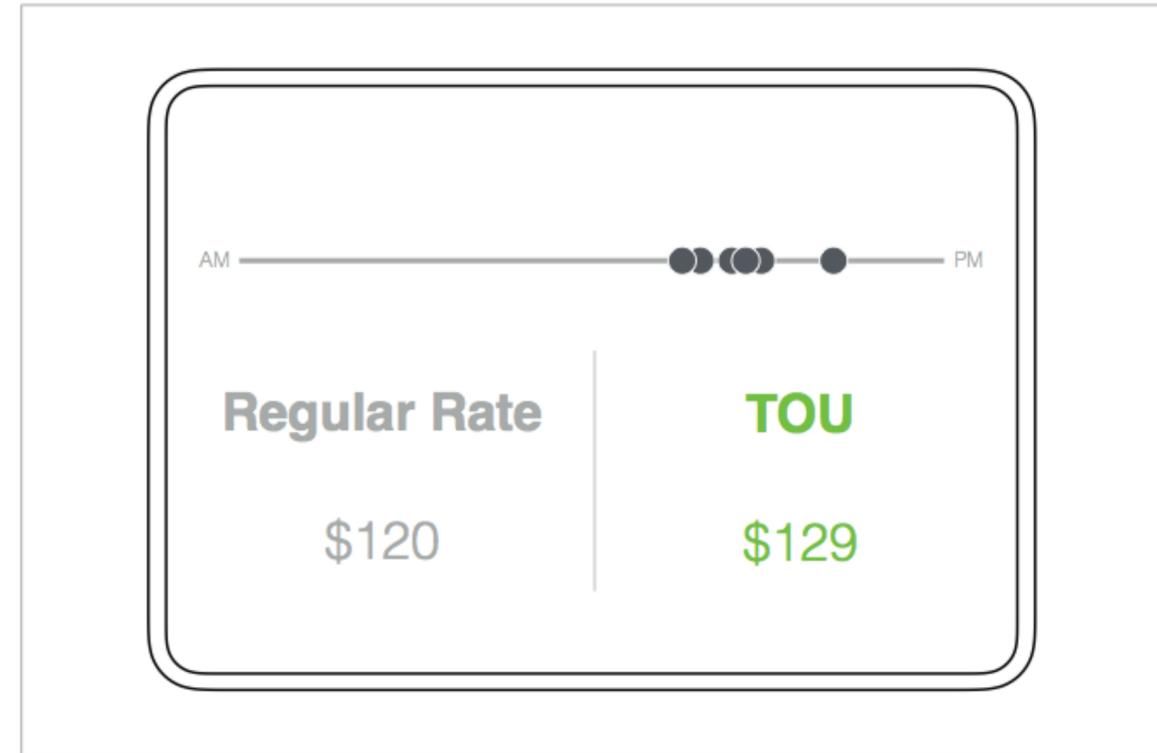
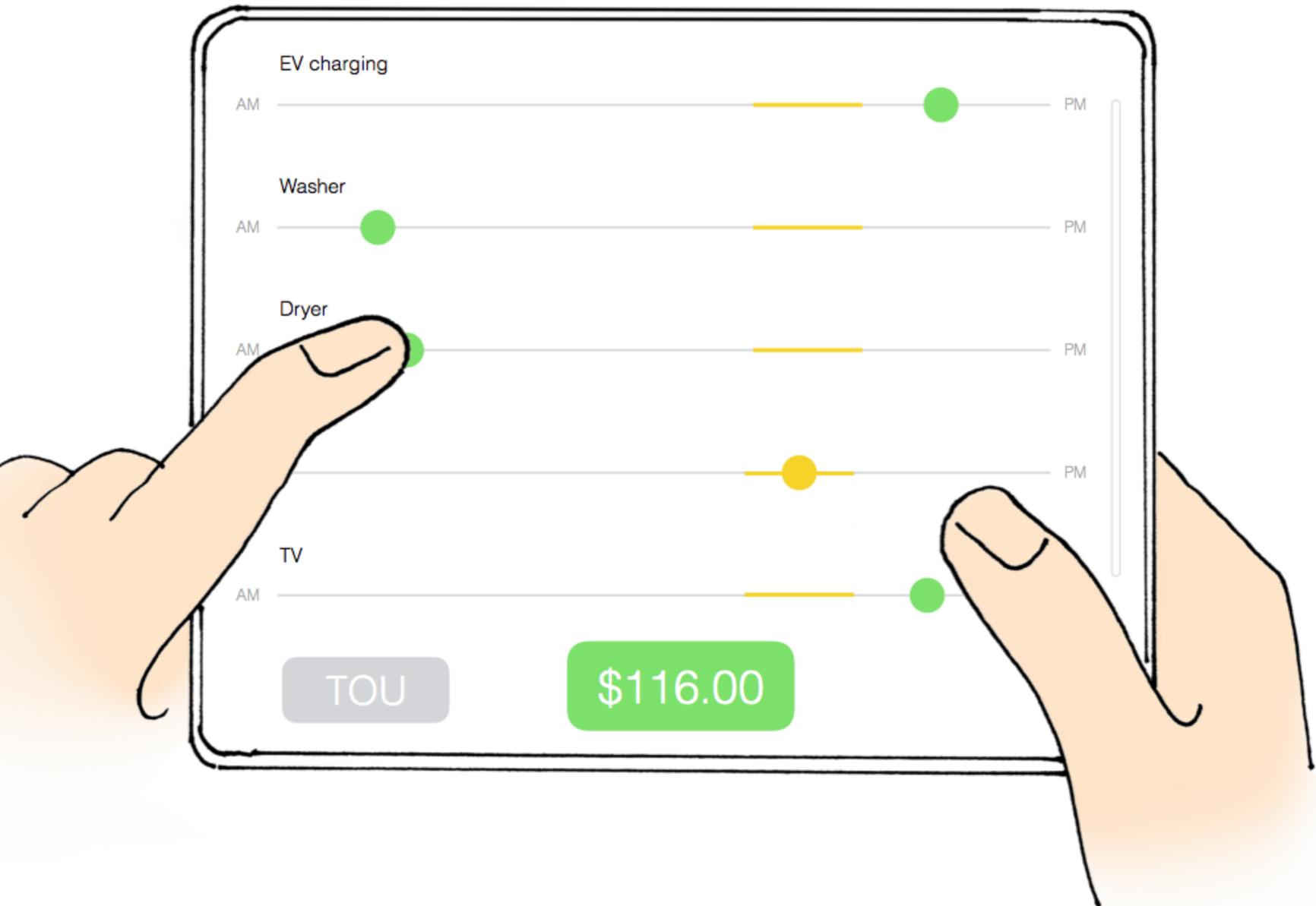
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Community Learning

Take a look inside the home of people like you to see how they use energy. Learn how families like yours managed to be more efficient.

Explore homes like yours



\$85
Avg / month

Home size: 730 Sq Ft
Climate zone: Inland, HC
Solar: No

See inside this home



\$92
Avg / month

Home size: 741 Sq Ft
Climate zone: Inland, HC
Solar: No

See inside this home



\$86
Avg / month

Home size: 700 Sq Ft
Climate zone: Inland, HC
Solar: Yes

See inside this home

APPLIANCES



BILL BREAKDOWN

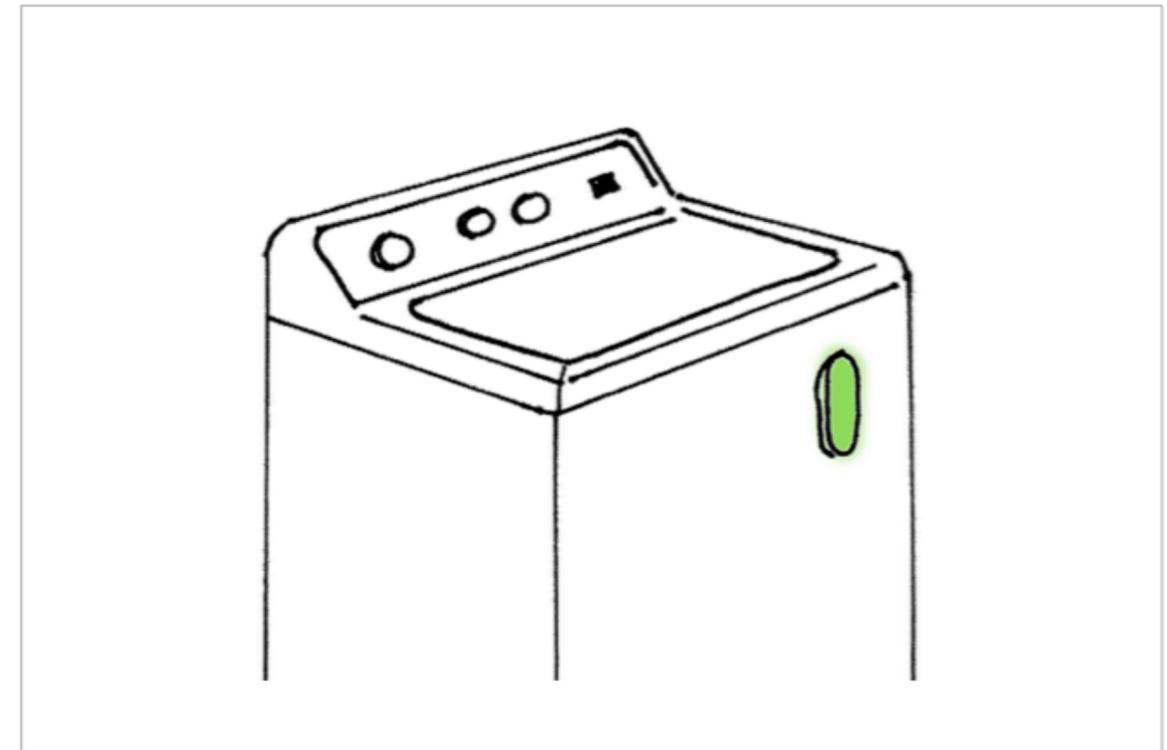
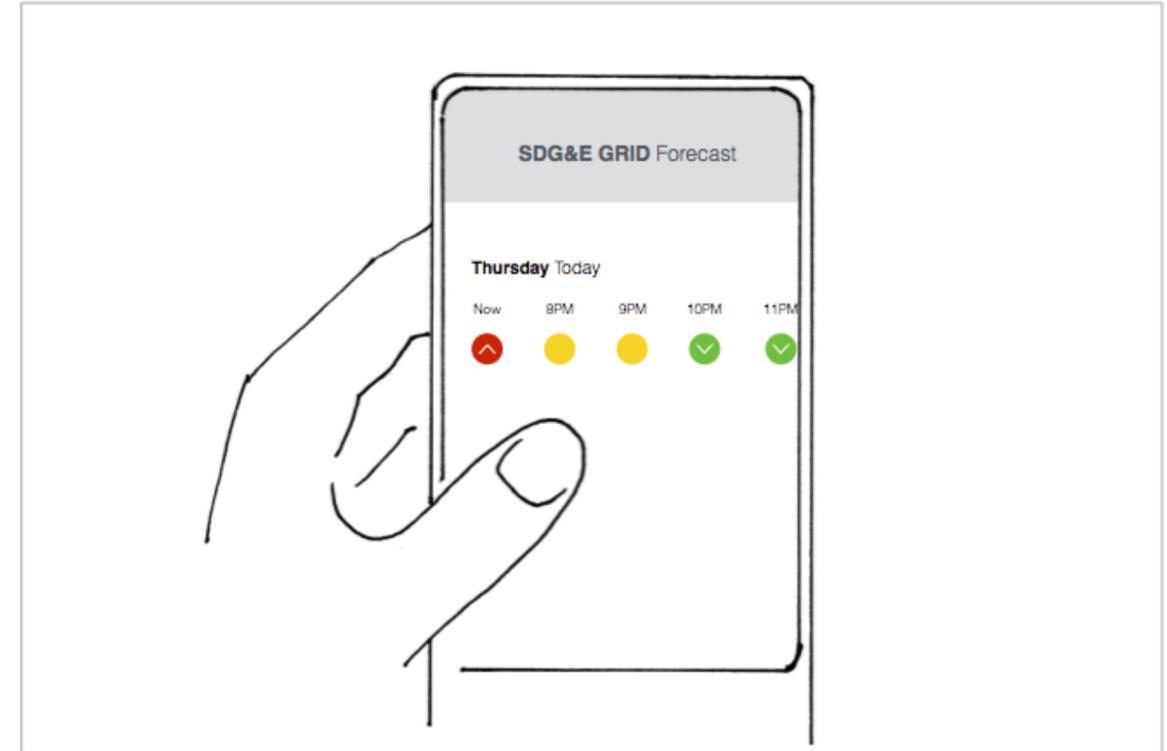
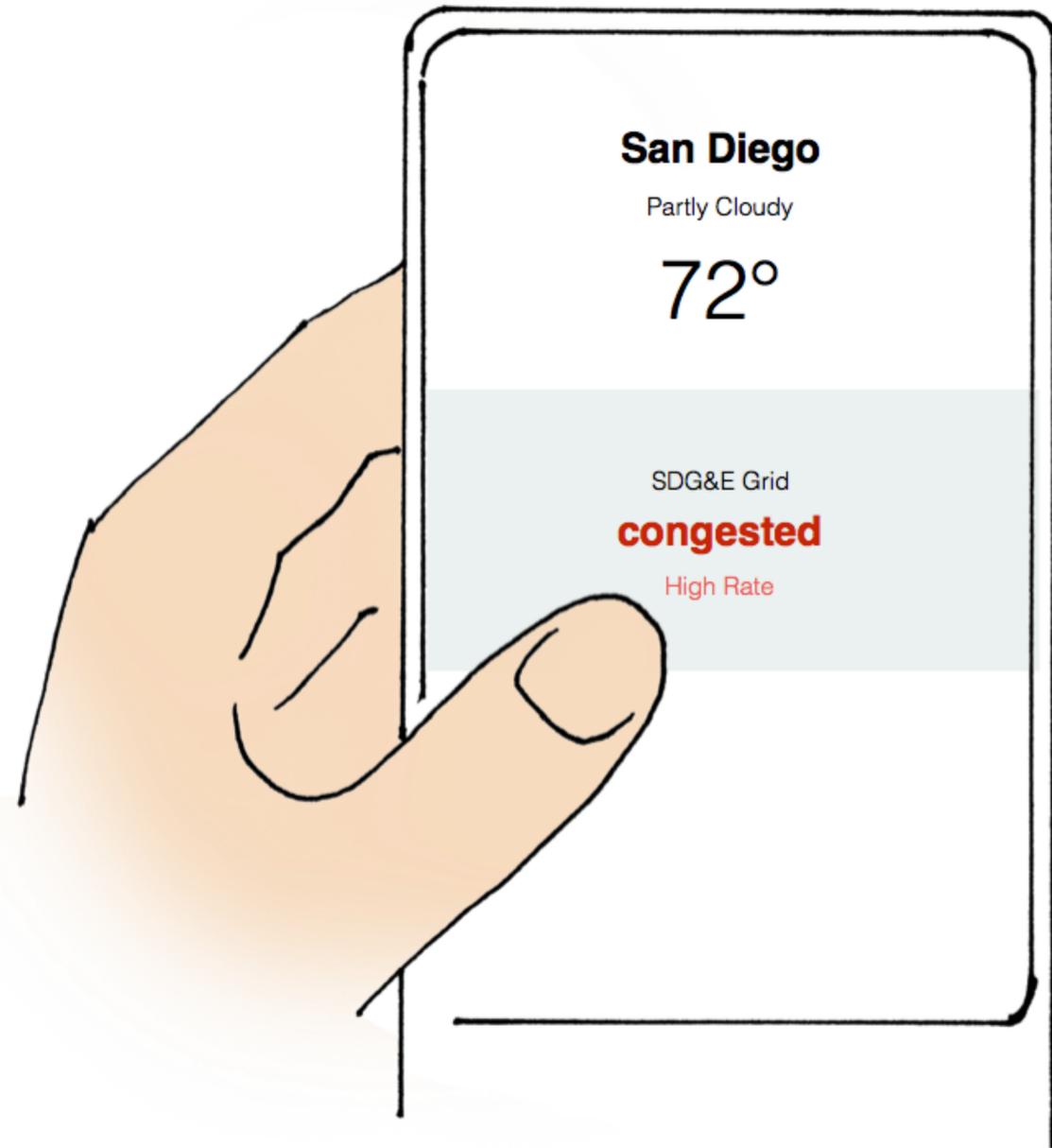


SAVING TIPS

Things that worked for us to lower our bill at home from \$120 > \$86 avg. per month

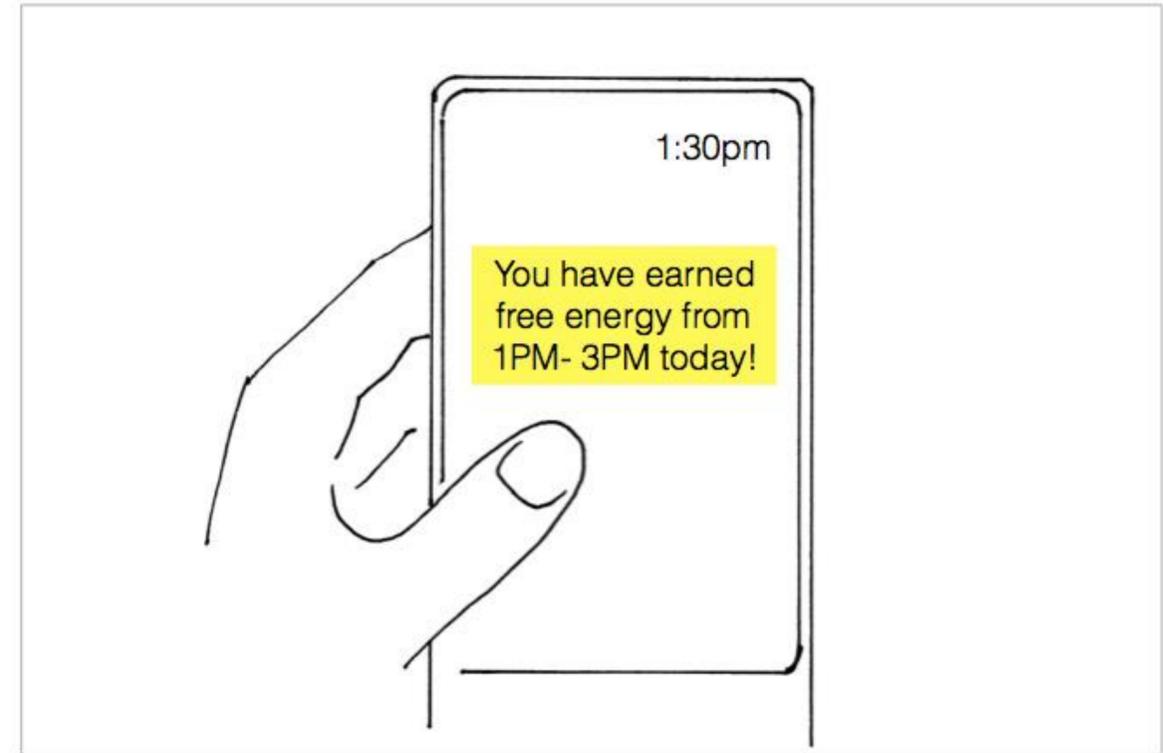
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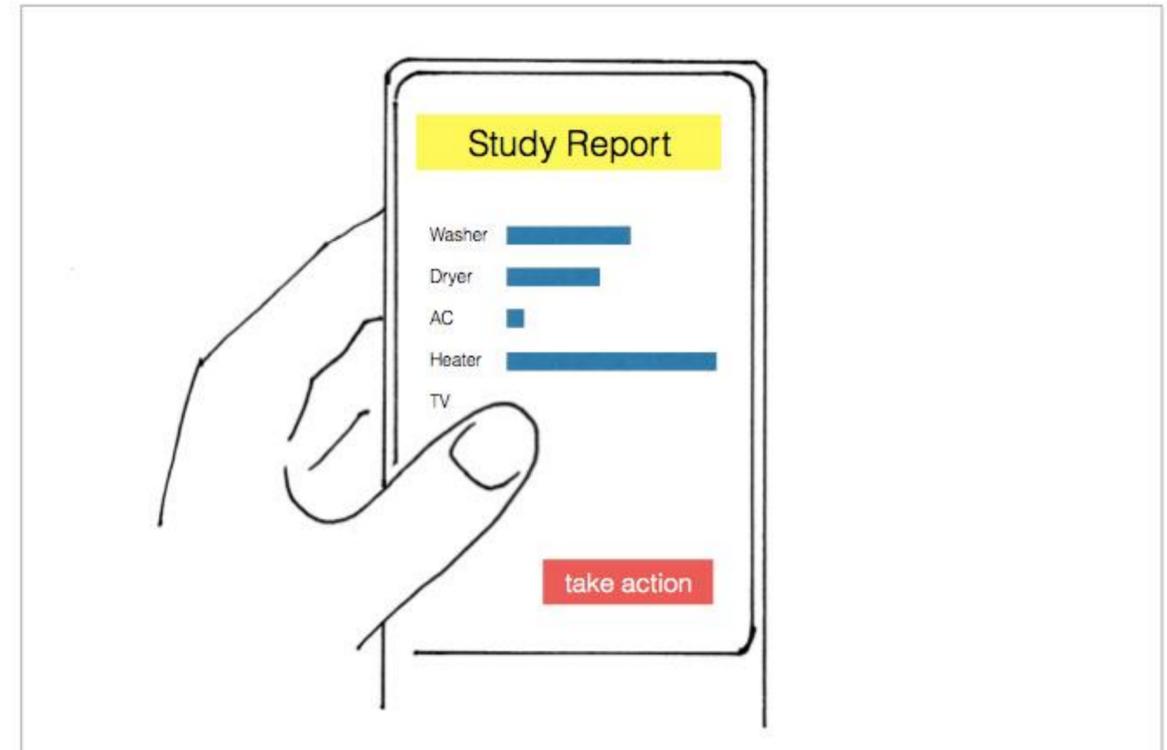
Energy Rewards

A way to encourage and reward people for making the most out of non-peak hours. The less energy during peak hours you use, the more points you earn for free energy or discounted peak-hour rates.



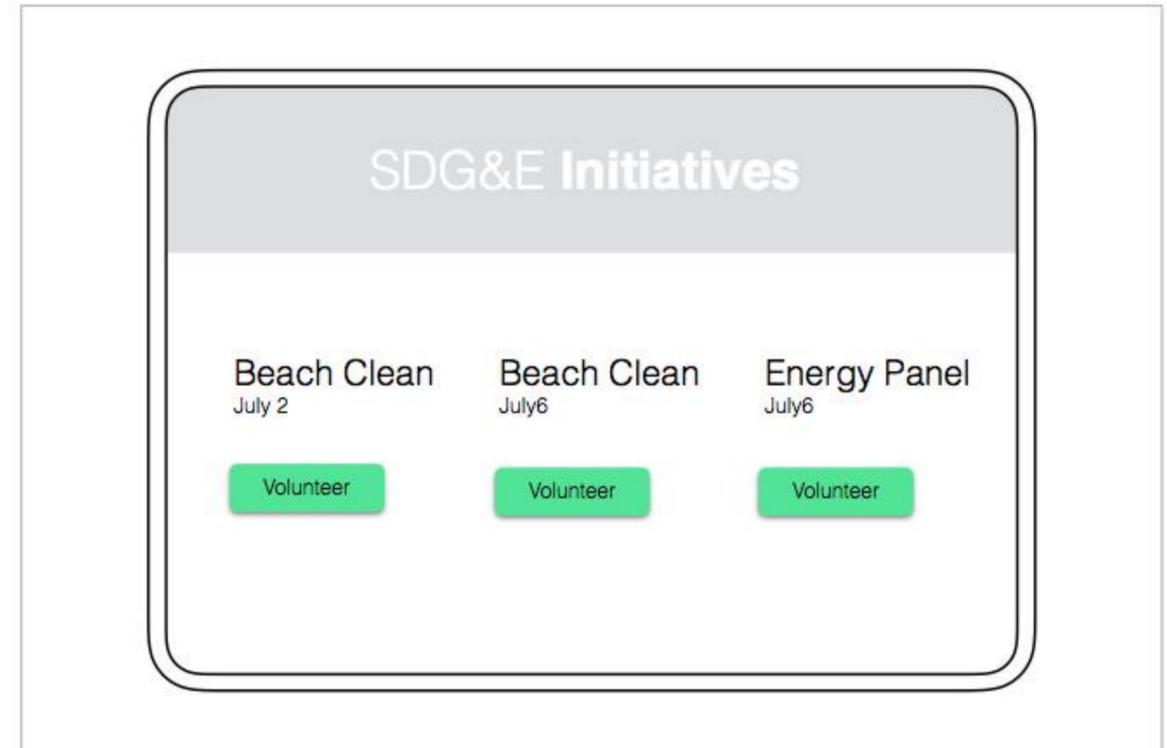
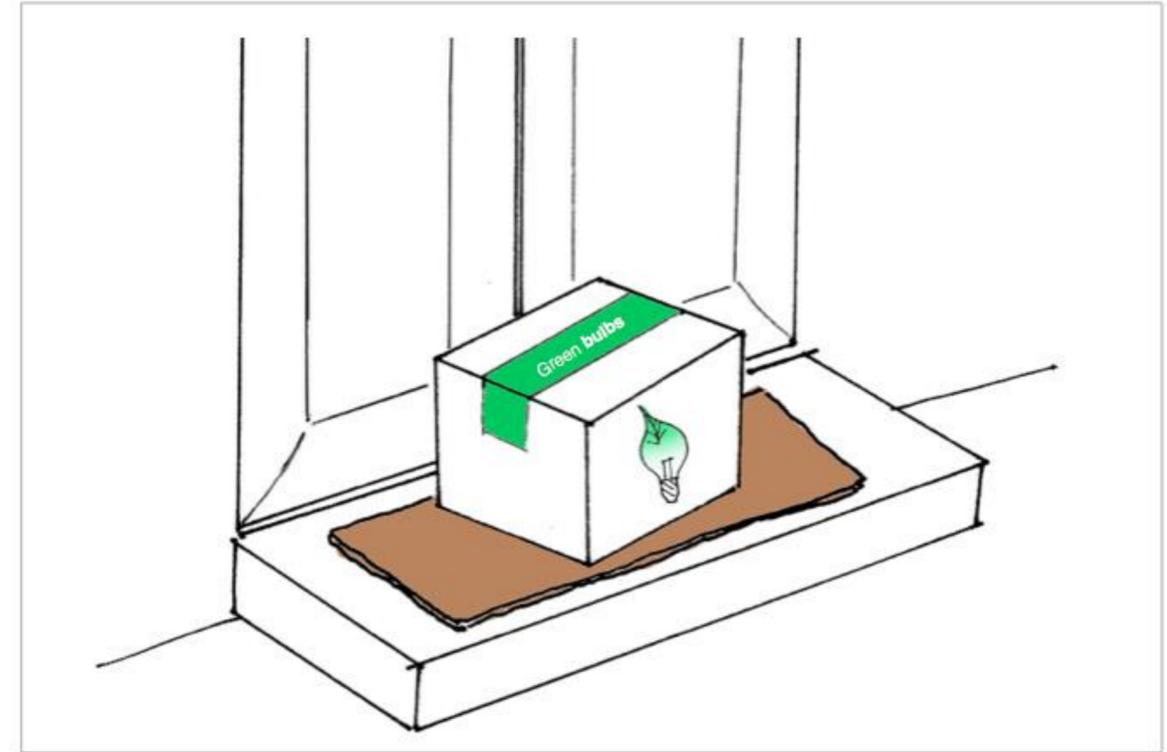
In-depth Learning

A SDG&E representative will install smart meters and other data collecting devices in your home. After a period of X months, the SDG&E will collect the devices and deliver a detailed report of the study.



Green Future

A series of community initiatives that showcase SDG&E's contributions to environmentalism and facilitate community member involvement in energy education and action.



The feedback from the focus groups validated the design principles we arrived upon and exposed new learnings.

1

Frame TOU as and added variable for bill control.

5

Make the bill accessible and actionable.

8

Be the utility of tomorrow.

2

Show customers that TOU doesn't require changing inflexible routines, only flexible ones.

6

Do the right thing without consuming less.

9

Harness San Diego's environmentalism to motivate TOU.

3

Enable prediction and choice.

7

Get more personally involved.

10

Be transparent that TOU is a state wide mandate.

4

Praise, don't blame.

7b

Personalize messaging and feedback.

Constantly unplugging things to save a little energy would be huge pain, especially if it only saves you very little money!

*Michael, 35
Apt. renter*



We are at a stage in life where we aren't going to change for a few dollars.

*Christina,
Focus Group Participant*

By how much does your
bill need to change for
you to take action?

35% average

15 - 30%: 13 ppl

30 - 40%: 6 ppl

40-50%: 2 ppl

50-60%: 2 ppl

80%: 1 per

100%: 1 per

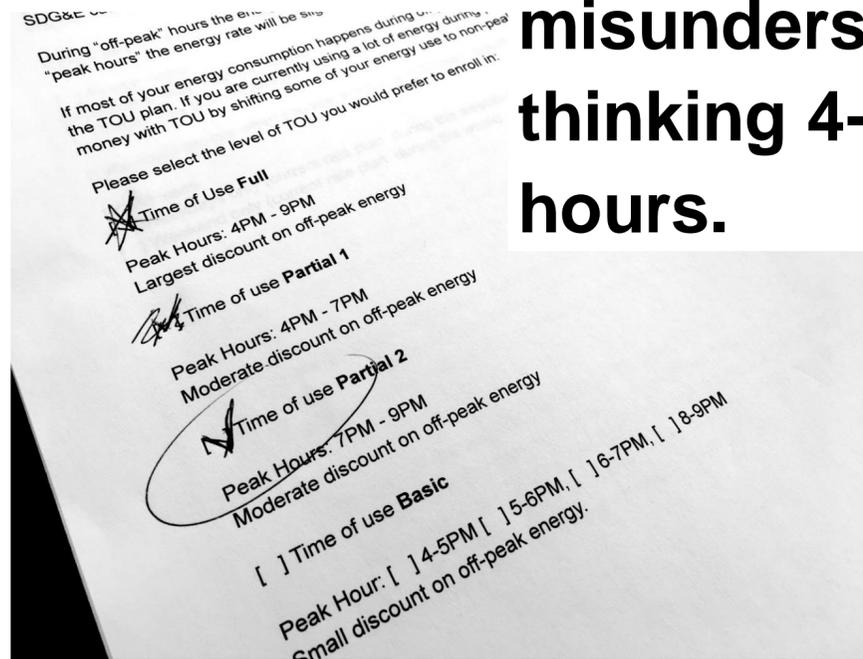
A small financial
incentive or penalty
will not motivate
behaviour change
under TOU



11. Provide significance to the
financial incentive through
environmentalism.

Observation

Participants sometimes misunderstood the exercise thinking 4-9 where non peak hours.



4-9?! That does surprise me because you would think that most of the domestic work gets done during the day. I would of thought peak hours to be 12-6 at most.. but after 7?

Catherine, 58
Home owner

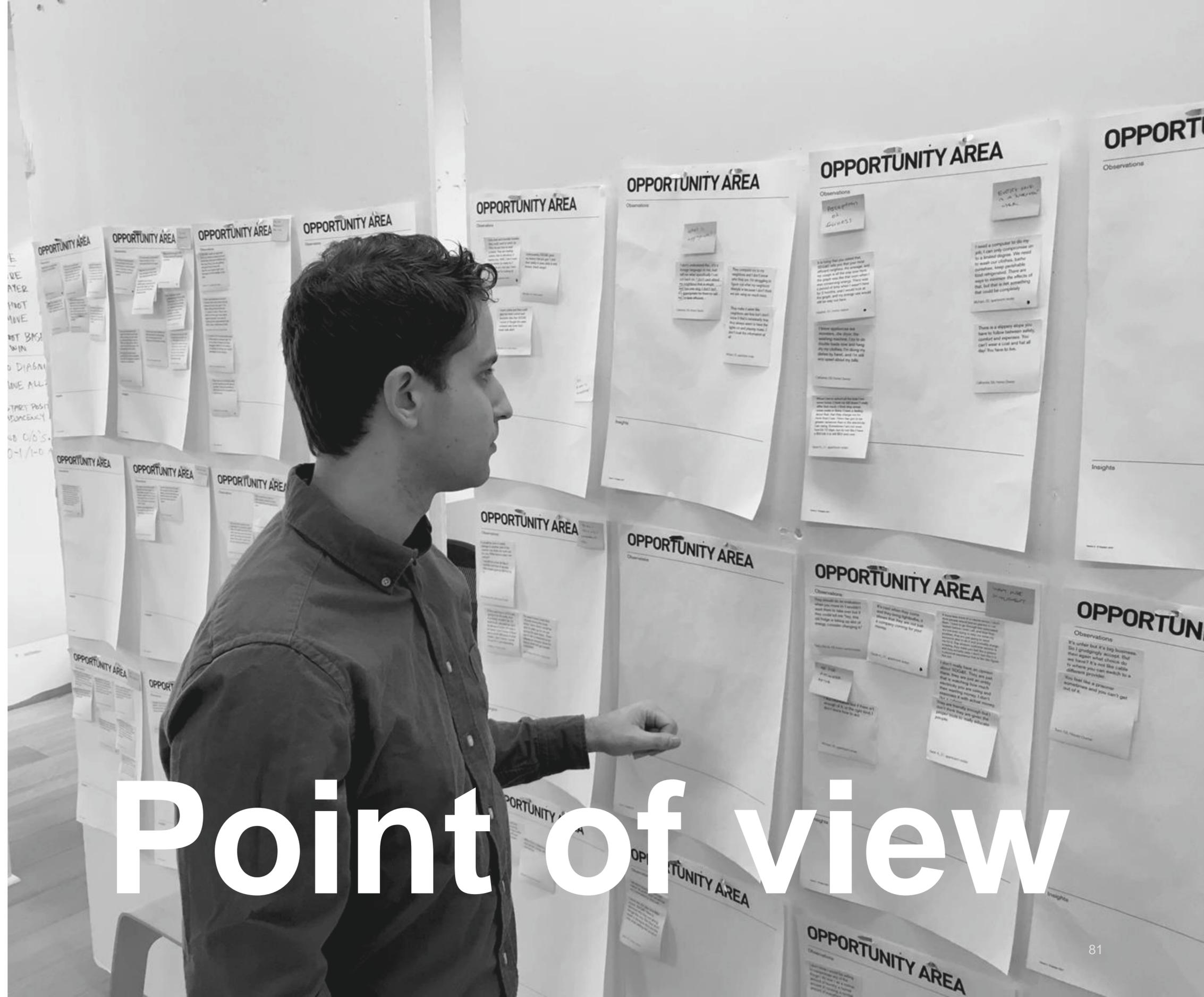


4-9PM challenges
the current
perception of peak
hours, making TOU
difficult to grasp.



12. Help customers understand
the new peak hours by
messaging the impacts of
rooftop solar.

3.



Point of view

1.

All incentive TOU.

Praise, don't blame. Different from the original TOU plan in that it only involves a reward for non-peak use, and no punishment for peak use.

- No change in peak rate.
- Discount during non-peak hours.
- Frame as environmental with a reward for good behavior.
- Fiscally neutral after behavior change, so utility income remains the same.
- Steady state in the future will be identical to raising peak rate but without the customer frustration.

2.

Targeted TOU.

Act only where there is high impact and low inconvenience.

- Identify three high impact, high flexibility appliances (eg. dishwasher, dryer & AC)
- Incentivize off peak use applying TOU to only these devices.

3.

TOU choices.

Similar to TOU with the added ability to choose your own peak hours and level of commitment.

- Users select what hours they want to count as peak.
- The discount on non-peak hours is proportional to the amount of peak hours selected.
- Provide predictive tools that enable customers to identify the best plan based on expected behaviour change.

Thank you.

Daylight

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San Francisco + Seoul + Munich

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