Department of Energy

Case Study Web Responsive Design

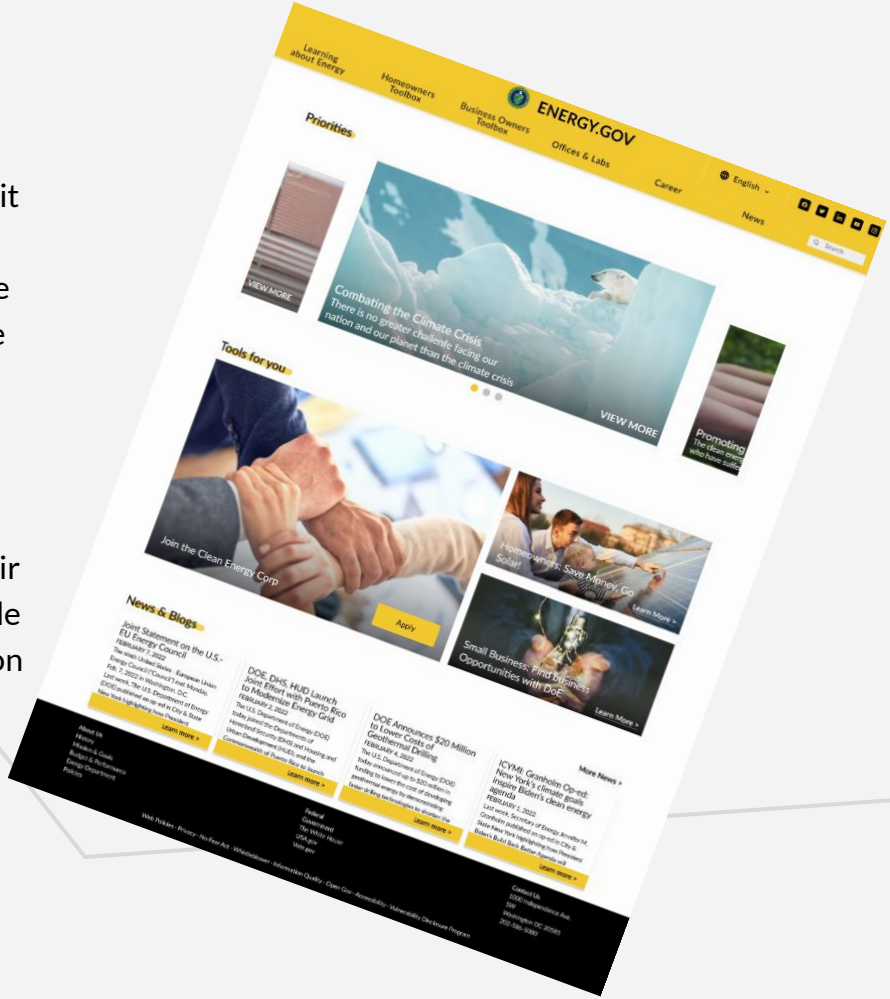
PROJECT OVERVIEW

THE PROBLEM:
Although the Department of Energy website looks pretty modern, it is **lacking clarity** and **information organization** for users who become quickly **lost** and **frustrated** through their journey and leave the website without being able to locate the information they were looking for.

THE SOLUTION:
Create a new **information architecture** and **navigation system** to make the content **accessible** to users, and help them achieving their goal when visiting the Department of Energy website. Create a style guide to help users navigate as easily on the desktop version than on mobile version of the website.

MY ROLE: UX/UI Designer: Research, Information Architecture, Wireframes and Testings, UI design

TOOLS: Figma, Miro, Trello



01

USER INTERFACE ANALYSIS
Homework 8

Solar Data in the US

01

The cost to install solar **dropped by more than 70%** over the past decade, according to the Solar Energy Industries Association (SEIA).

02

One out of every 600 US homeowners is now **installing solar each quarter**.

03

In case of passage of the Build Back Better (BBB) Act legislation, an **increase of 31%** of **solar capacity** is **forecasted between 2022 and 2026.**

Source: SEIA Solar Market Insight Report 2021 Q4

Proto Persona

Devon Williams, 45

Demographics

- Has a wife and kids
- Homeowner
- Lives in a sunny area
- Ecological concerns

Goals

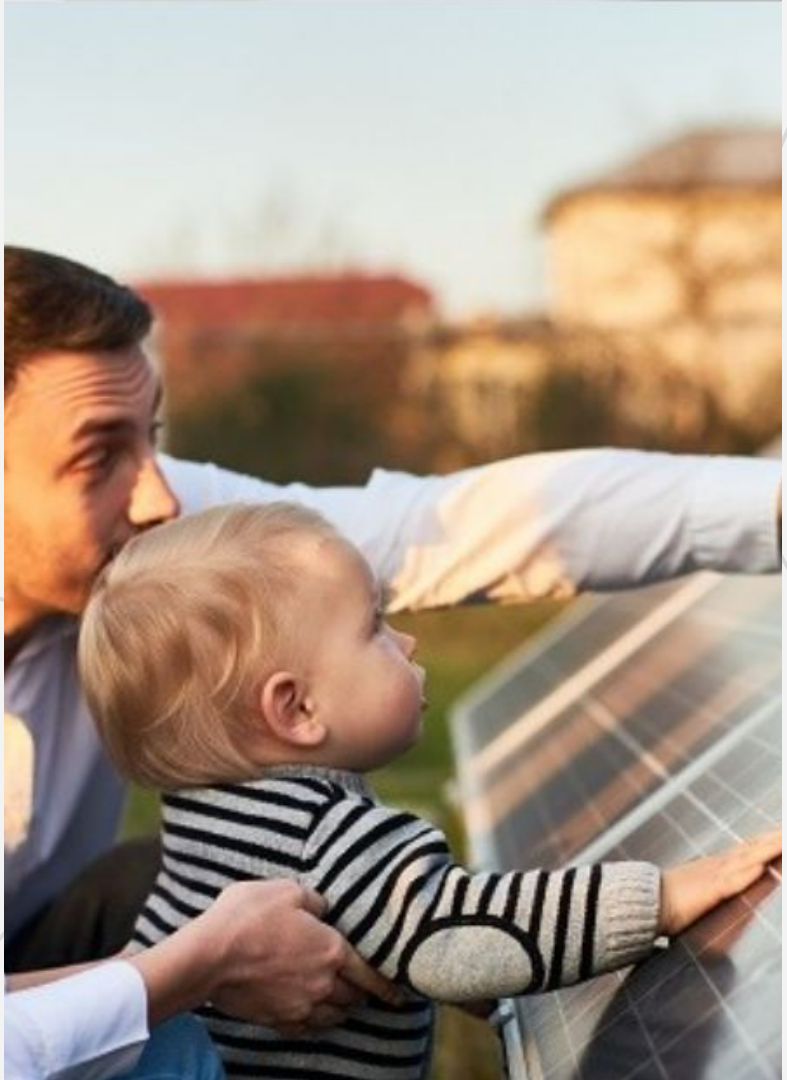
- Going solar
- Save money
- Save energy
- Build a more sustainable future for his children

Pain Points

- Difficulty to get an estimation about cost/savings
- Difficulty to find info about eligibility
- Browsing multiple webpages to get one information

Assumptions

Both Devon and his wife wanting to live a more sustainable life, they decided to start their family in an **environment that would provide a ecological lifestyle** they could afford and would accommodate this value.



Settling in sunny Arizona, Devon and his family now have a home they want to set up to be totally powered by solar energy. This family **needs more information** to get started in **understanding what kind of investment does it take to capitalize on the solar powered life they look for** in Arizona.

Usability Test

How solar can help users to save money & energy?

01

Find the solar technology office page

(SETO) mission is to fund research done on solar technology to be publicly available as a resource to learn about how the technology works.

02

Find the homeowners guide about going solar

This page brings value to homeowners because it outlines key pieces of information to prepare for solar panel installation.

03

Find the "Homeowner's Guide to the Federal Tax Credit for Solar Photovoltaics"

This page is a resources for people to be able to learn from and understand federal credits, guidelines and subsidies for solar investments.

Defined user path

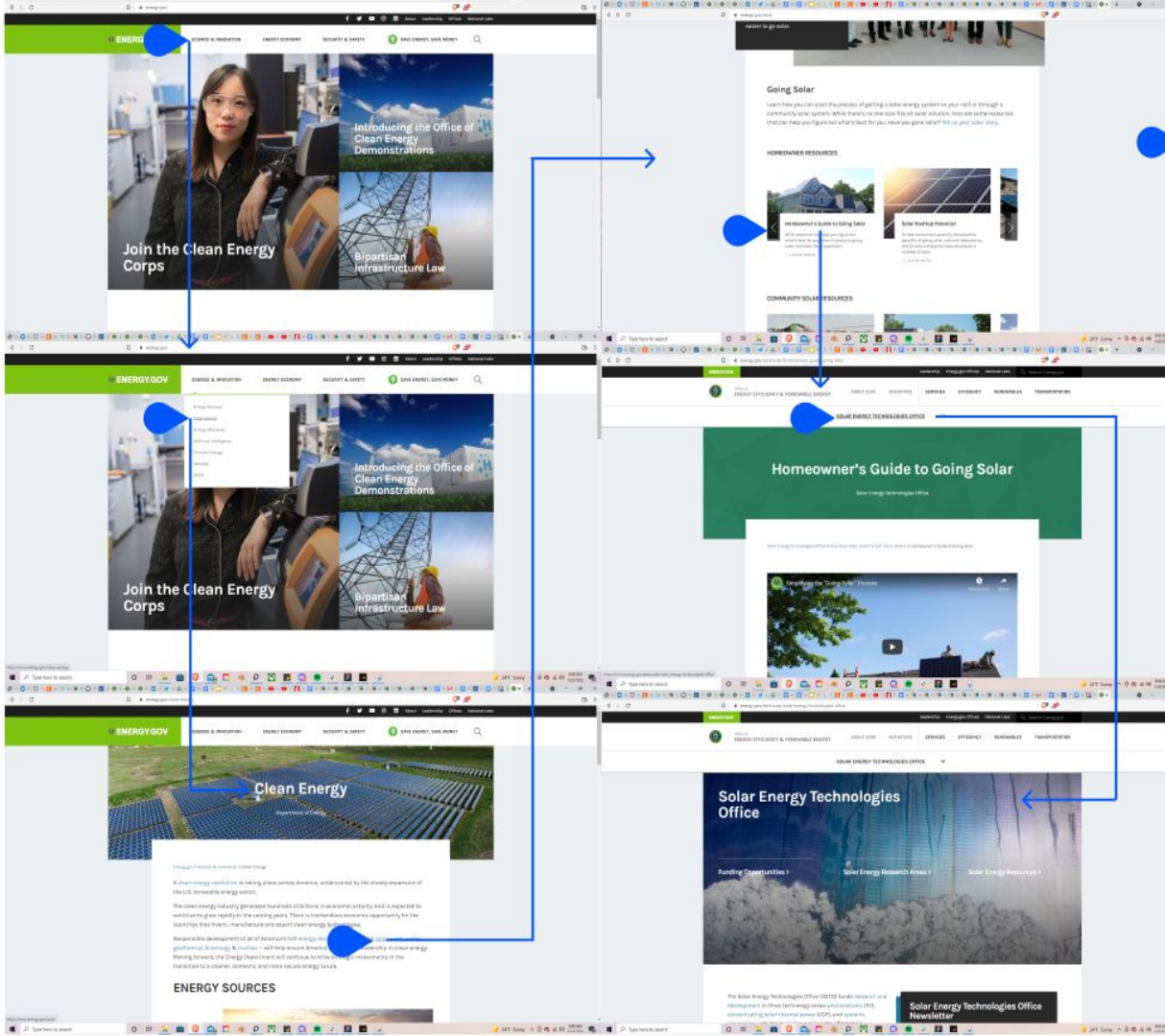
For beginner-users starting their journey into the Department of Energy website, or users without technical knowledge, we felt that it could be **hard to find the relevant information**.

From **multiple paths available** to links located in **technical labeled categories**, the process of getting information seemed **overwhelming**.

We raised some concerns while working on defined the most **straightforward user path**, and will be investigating further during the Usability tests.

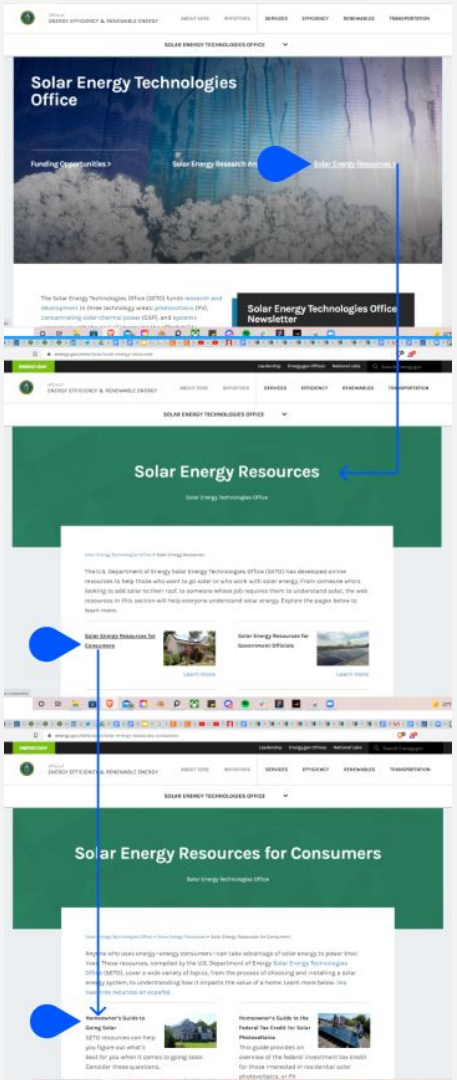
Task 1:

Find the solar technologies office webpage



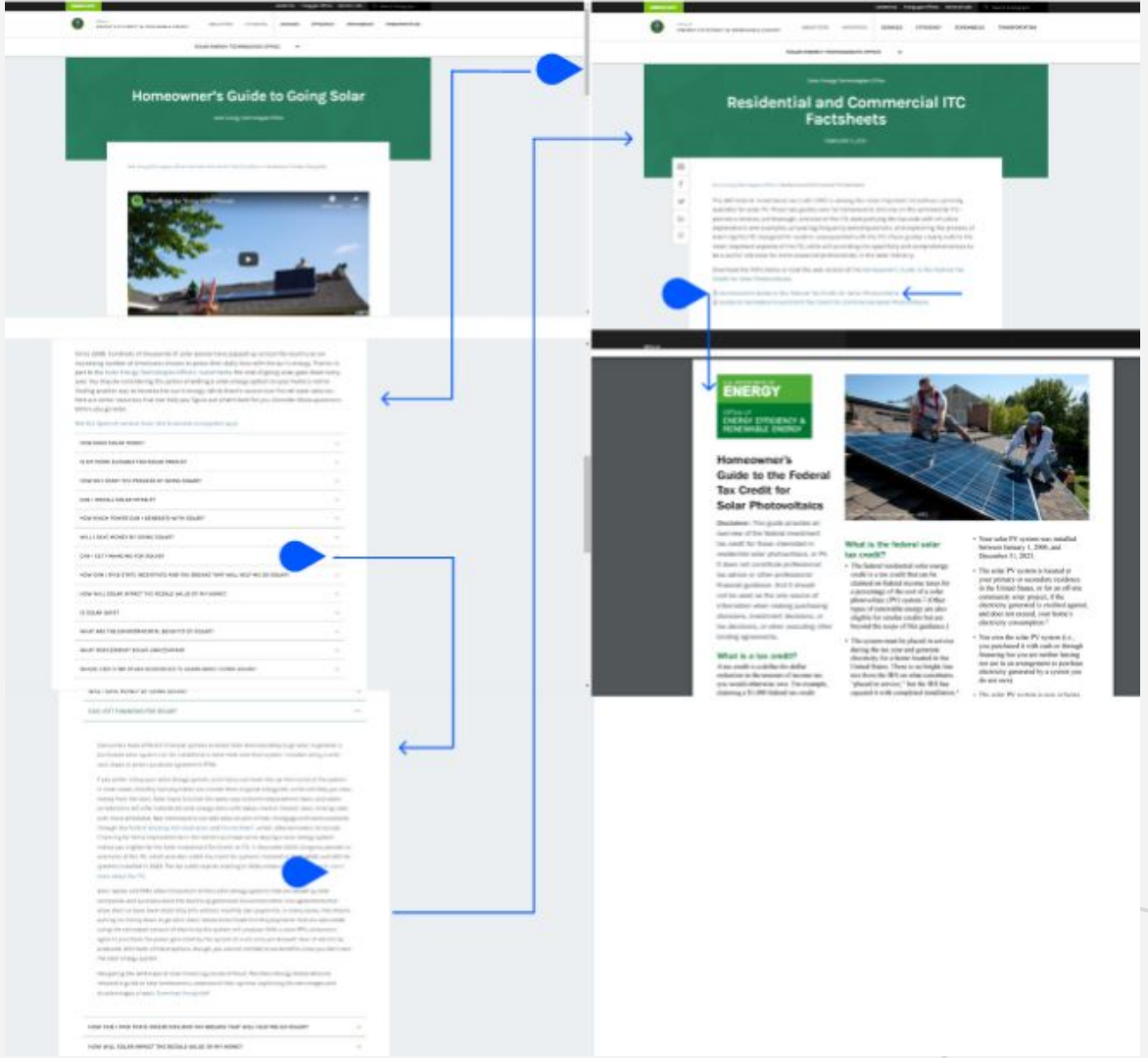
Task 2:

Find the homeowners guide



Task 3:

Find the "Homeowner's Guide to the Federal Tax Credit for Solar Photovoltaics"



Usability test analysis

We tested 5 users to better determine what their **difficulties** would be in finding information about going solar and the money they could save.

A **convoluted path** to find information, **links hard to locate**: our users became **frustrated quickly** with their ability to find the right information about going solar.

The **technical wording of categories** and sections of the website made this process even more **overwhelming** for our users, making it difficult for them to **remember** their path and the task to be performed.

Heuristic and user testing analysis

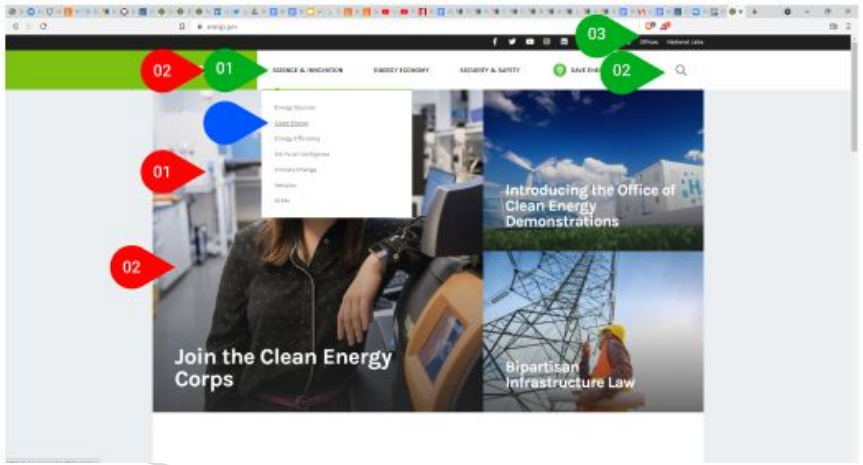
Here are some key insights we received from our usability tests:

*"My user **immediately scrolled past the initial banner/header** with nav buttons on it. Perhaps 'Resources' is too gray when talking about things like Energy? Eventually after perusing the page she came back up and immediately chose this option."*

*"**User never clicked on any of these options when looking for intended content**. I believe she did not see the labels or that she was confused by the lack of context [regarding the] link."*

*"**What we found as the most useful place for users to start, the SETO, is placed all the way at the bottom of the 'Solar' Page**. That seems like it should be changed."*

Heuristic and user testing analysis



Annotations

01 Confusing homepage

User tries to click on the pictures because doesn't know where to start the search

My user clicked around on all of the top nav labels before finally finding 'Science and Innovation'. She thought it would be labelled 'Energy' in some way

02 Pictures are not clickable

User tries to click on the pictures but only the text leads to a new page

03 Confusing navigation labels

My user first went to Energy Efficiency and then was thoroughly confused. Once on that page, she did manage to find a link to 'Solar' on a 'Renewables' drop down nav menu.

01 Global Navigation

User immediately attempts to go to offices tab in the tab in the global navigation. Solar Technologies Office wasn't able to be found by user on offices page

02 Primary Nav Bar

User attempts to use Nav bar but sturggles to follow correct steps due to confusing Categories. The user did not click on intended link through nav bar. They eventually found goal page in a link while going through the 'clean energy' page after we progressed to different parts of the usertesting.

03 Search Bar

User makes only succesful attempts to find goal pages when using the global search bar. Even when using search bar, the user struggled to find goal pages without knowing exact terms to input.

Moodboard


Energy is the capacity for doing work.
It may exist in potential, kinetic, thermal, helectrical, chemical, nuclear, or other forms.
Solar energy is radiant light and heat from the Sun that is harnessed using a range of technologies such as solar power to generate electricity, solar thermal energy
The sun is a star, a hot ball of glowing gases at the heart of our solar system. Without the sun's intense energy and heat, there would be no life on Earth.
ON
Standard Button
Standard Button
Standard Button
Standard Button

02

INFORMATION ARCHITECTURE

Homework 9

Navigation Analysis

of the Department of Energy website

01

Findability issues
It is hard to locate information

02

Usability issues
It is hard to achieve a goal. It is frustrating to perform tasks

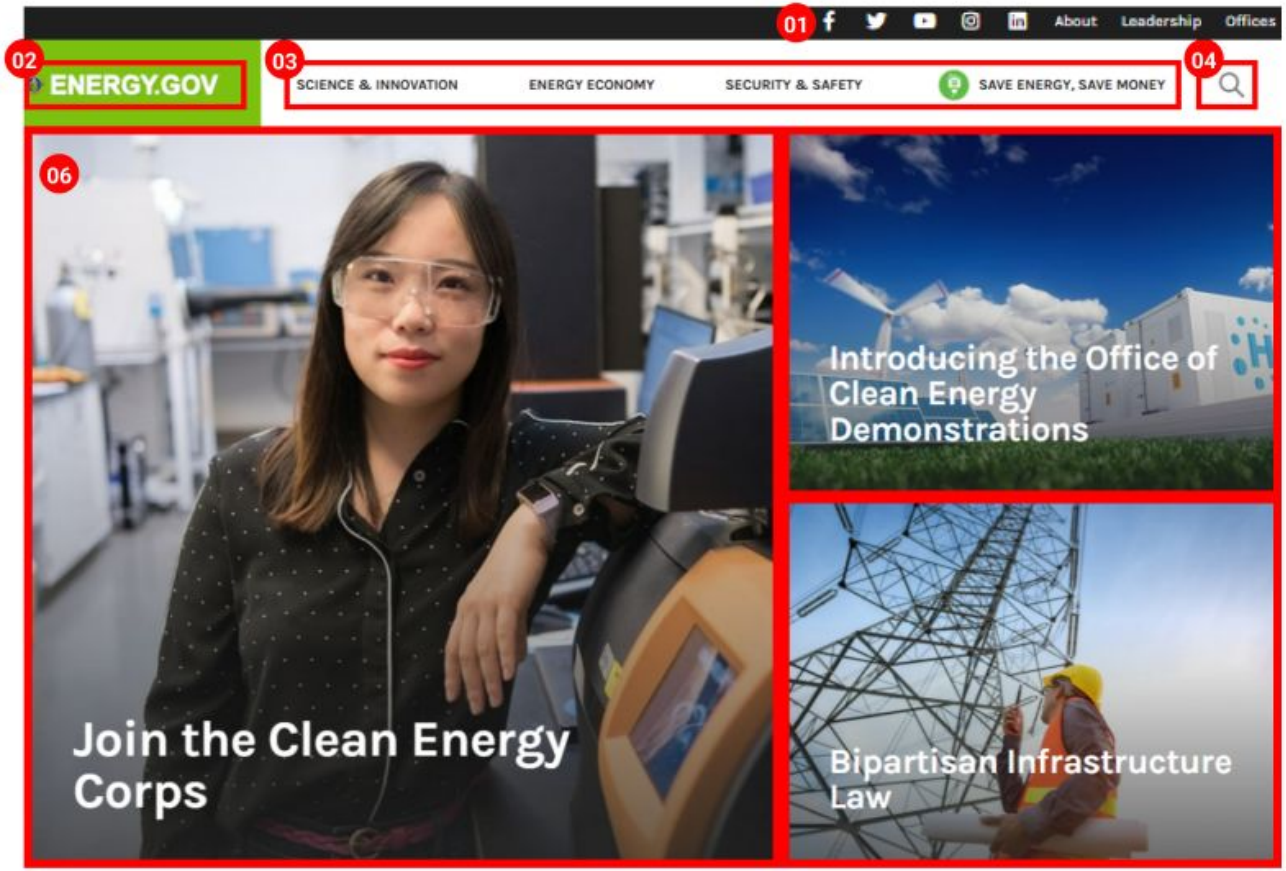
03

Confusing Labeling system
The label sometimes does not reflects the content, or is too technical to be understood easily by non technical users

04

Lots of information, very long pages. This leads the users to scroll excessively down, making it harder to find any relevant information

[Link to full Navigation Analysis]



Annotations

01 Primary navigation bar
Links don't open in a new window, they take away users from DoE Site
Redundant "about" category (also found in the footer)
Why "offices" category is here?
Very small

02 Home Button
It is not clear that this button is clickable and that it leads to the home page

03 Top Menu
Organized by category. Labeling system is confusing for users

04 Search Icon
Search bar pops up when user clicks on it

05 Hierarchy in this webpage

06 Category
Pictures are not clickable (only the text)
This is where users tend to click on when they don't know where to find the information
Pictures take a lot of space in the webpage
Are the picture relevant
No separation between text & picure makes it hard for users to read

07 Category
User can click on picture, title or learn more

08 Category
User can click on title or view more, not on picture

09 Footer

Usability test analysis

Our users became quickly **frustrated** when navigating on the government website.

From **multiple paths available** to **links located in technical labeled categories**, the process of getting information seemed overwhelming.

Here are the **major issues** our users encountered when navigating on the Energy.gov:

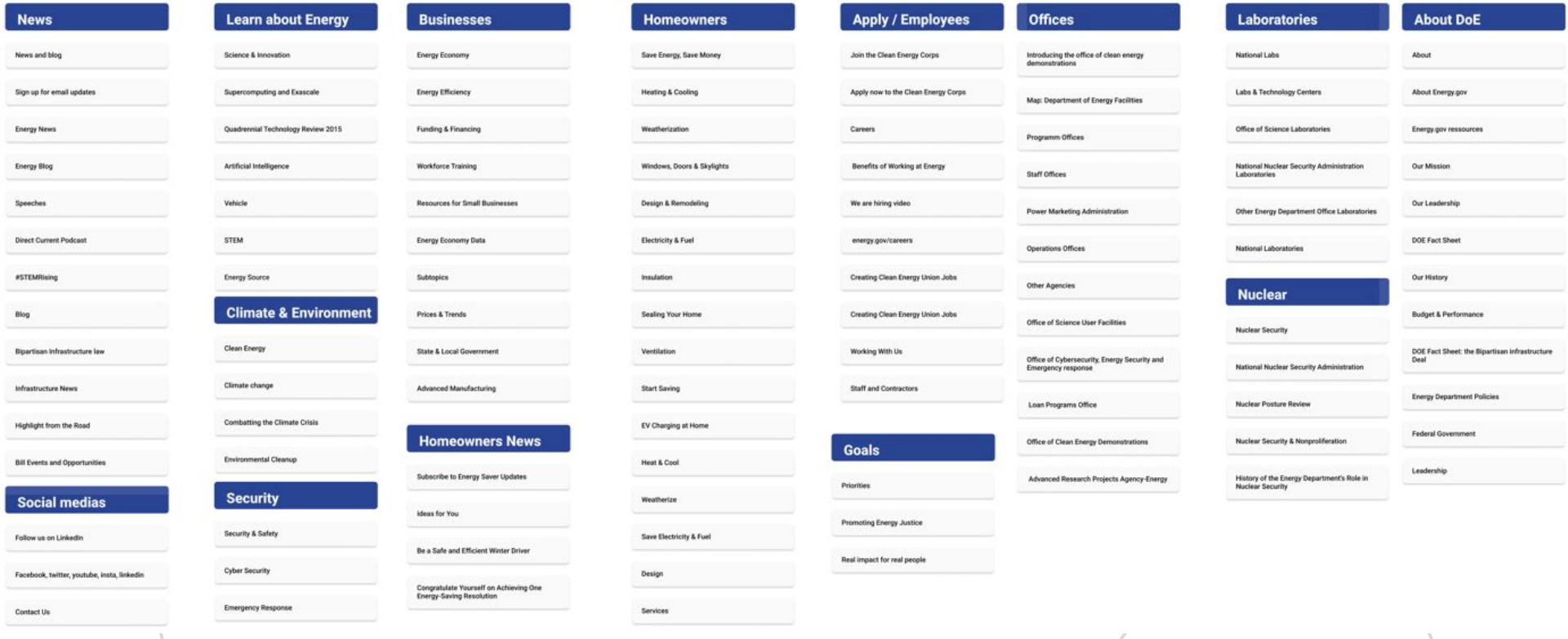
- **Drop down menus are confusing** because text and arrows are leading to different webpages
- Users **do not remember their paths**
- They feel lucky and relieved to find the information but **do not understand how they landed on the right webpage**
- Mobile navigation is even more confusing than the desktop navigation
- Even when on the right webpage, it takes time to users to **locate the information** they were looking for: because of the layout and the technical labels

Card Sorting

When listing the content of the Department of Energy website, I found a lot of **duplicates**. I also found information that was not directly related to the category it was contained in.

The open card sorting was crucial to **untangle this complex site map** and **generate ideas** for how to structure and label the website information.

Card Sorting

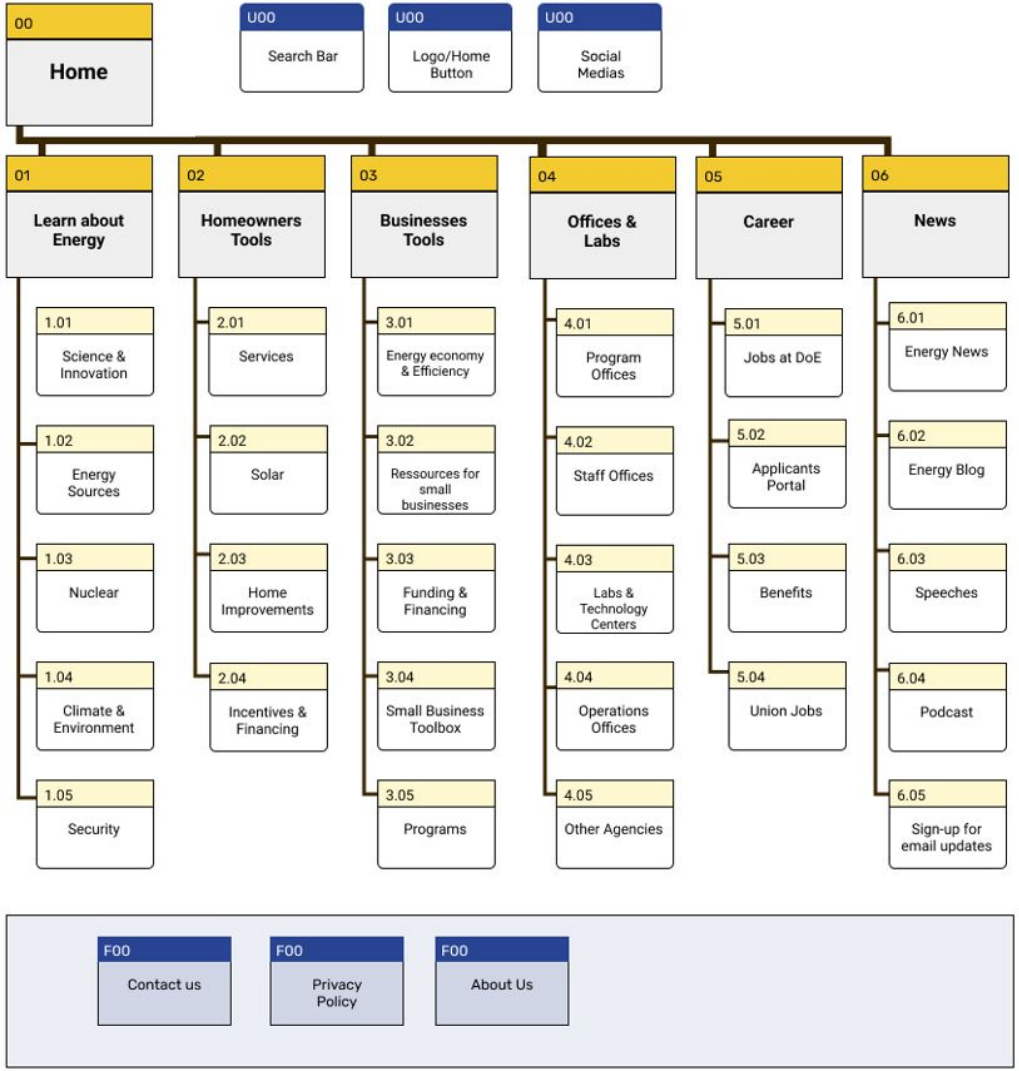


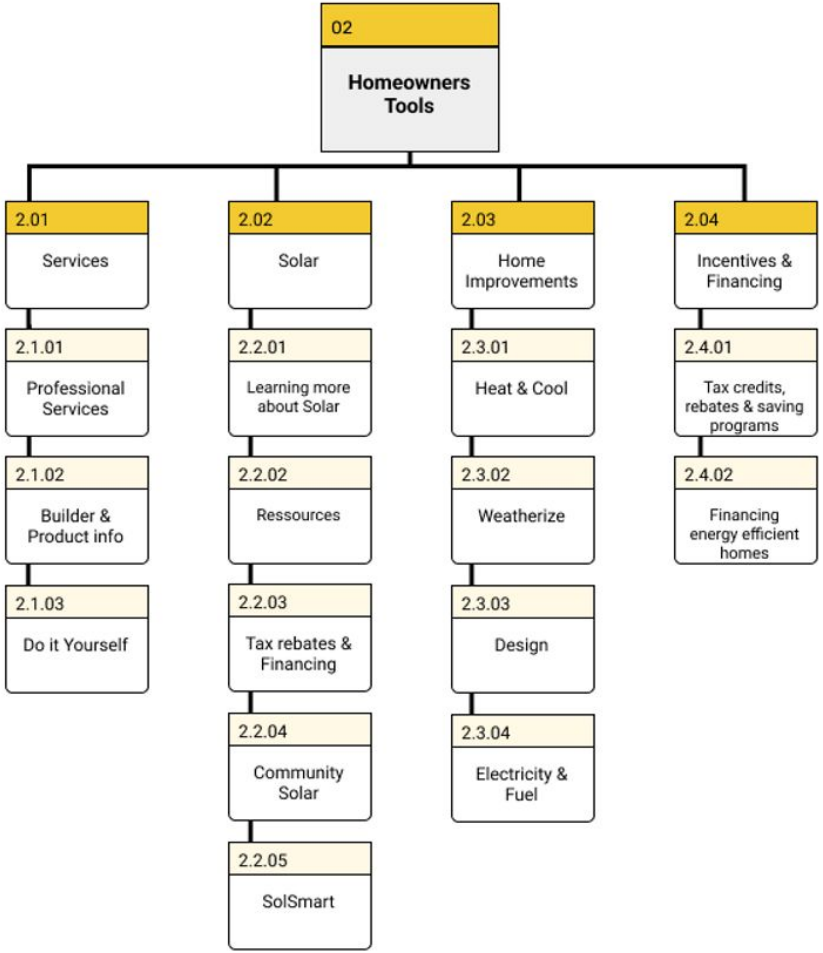
Sitemap

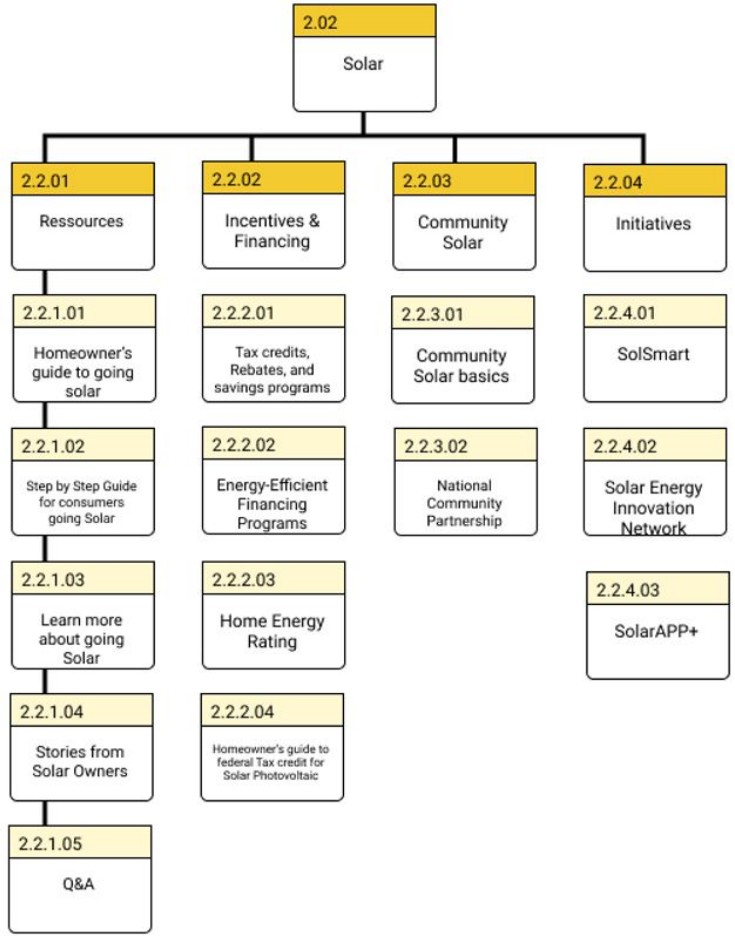
To create a new sitemap, I focused on the **results of the card sorting** and the **categories of users identified** to **offer them a more direct approach** and make information more accessible.

Categories of users identified:

- **Learn about Energy:** for users looking for general information about Energy
- **Homeowners:** Great tools are available to homeowners, from going solar to improve their homes to save energy and save money
- **Businesses:** Great tools are also available to Businesses to save energy or find business opportunities with the DoE
- **Career:** for potential applicants, very important category as the DoE is now hiring thanks to the investments from the Bipartisan Infrastructure Law
- **Offices & Labs:** These structures are contributing to the DoE action and the users can find a lot of information related to them on Energy.gov
- **News:** Having a dedicated section to news will help to keep the other sections focused on their content (as it is now, news & blogs are displayed on all pages, having a negative impact on navigation)


00
Home
U00
Search Bar
U00
Logo/Home Button
U00
Social Medias
01
Learn about Energy
1.01
Science & Innovation
1.02
Energy Sources
1.03
Nuclear
1.04
Climate & Environment
1.05
Security
02
Homeowners Tools
2.01
Services
2.02
Solar
2.03
Home Improvements
2.04
Incentives & Financing
03
Businesses Tools
3.01
Energy economy & Efficiency
3.02
Ressources for small businesses
3.03
Funding & Financing
3.04
Small Business Toolbox
3.05
Programs
04
Offices & Labs
4.01
Program Offices
4.02
Staff Offices
4.03
Labs & Technology Centers
4.04
Operations Offices
4.05
Other Agencies
05
Career
5.01
Jobs at DoE
5.02
Applicants Portal
5.03
Benefits
5.04
Union Jobs
06
News
6.01
Energy News
6.02
Energy Blog
6.03
Speeches
6.04
Podcast
6.05
Sign-up for email updates
F00
Contact us
F00
Privacy Policy
F00
About Us


02
Homeowners Tools
2.01
Services
2.1.01
Professional Services
2.1.02
Builder & Product info
2.1.03
Do it Yourself
2.02
Solar
2.2.01
Learning more about Solar
2.2.02
Ressources
2.2.03
Tax rebates & Financing
2.2.04
Community Solar
2.2.05
SolSmart
2.03
Home Improvements
2.3.01
Heat & Cool
2.3.02
Weatherize
2.3.03
Design
2.3.04
Electricity & Fuel
2.04
Incentives & Financing
2.4.01
Tax credits, rebates & saving programs
2.4.02
Financing energy efficient homes


2.02
Solar
2.2.01
Ressources
2.2.1.01
Homeowner's guide to going solar
2.2.1.02
Step by Step Guide for consumers going Solar
2.2.1.03
Learn more about going Solar
2.2.1.04
Stories from Solar Owners
2.2.1.05
Q&A
2.2.02
Incentives & Financing
2.2.2.01
Tax credits, Rebates, and savings programs
2.2.2.02
Energy-Efficient Financing Programs
2.2.2.03
Home Energy Rating
2.2.2.04
Homeowner's guide to federal Tax credit for Solar Photovoltaic
2.2.03
Community Solar
2.2.3.01
Community Solar basics
2.2.3.02
National Community Partnership
2.2.04
Initiatives
2.2.4.01
SolSmart
2.2.4.02
Solar Energy Innovation Network
2.2.4.03
SolarAPP+

03

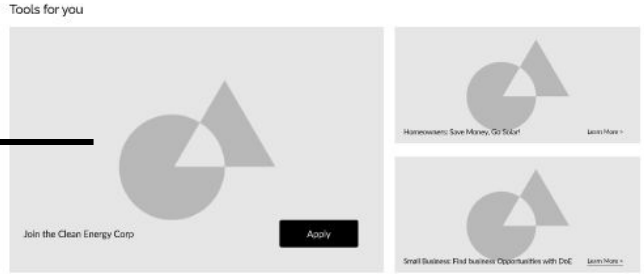
UI DESIGN
Homework 10

Homepage for desktop (before iteration)

Breadcrumbs visual aid indicating the location of the user within the site's hierarchy

Carousel to catch user attention and display the priorities of the DoE

Main user's tools accessible in one click



Horizontal scrolling to display information

5 seconds user tests

Key findings:

- **Keep it simple:** even with affordance, my users found it **confusing** to have two types of different **horizontal scrolling** on the same page. I decided to **replace one of them with cards**

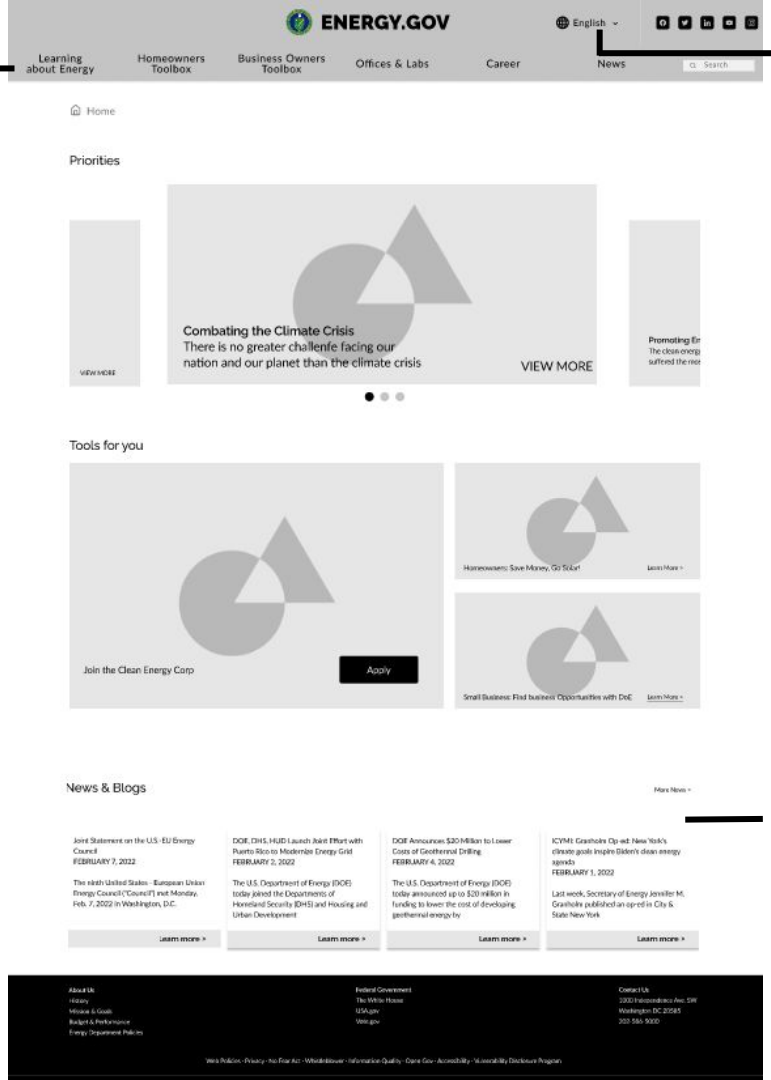
- It was a little bit **overwhelming** for my users to have **so many categories** in the navigation bar. I decided to move the “About Us” category in the footer, where the users were expecting it

- **Language accessibility is missing**, which is a very important tool to make information available to more users

5 seconds user tests

Desktop homepage Iteration

Less categories in the navigation bar



Language accessibility important for a government website

Cards to succinctly hold information to help users navigate and memorize the website's content

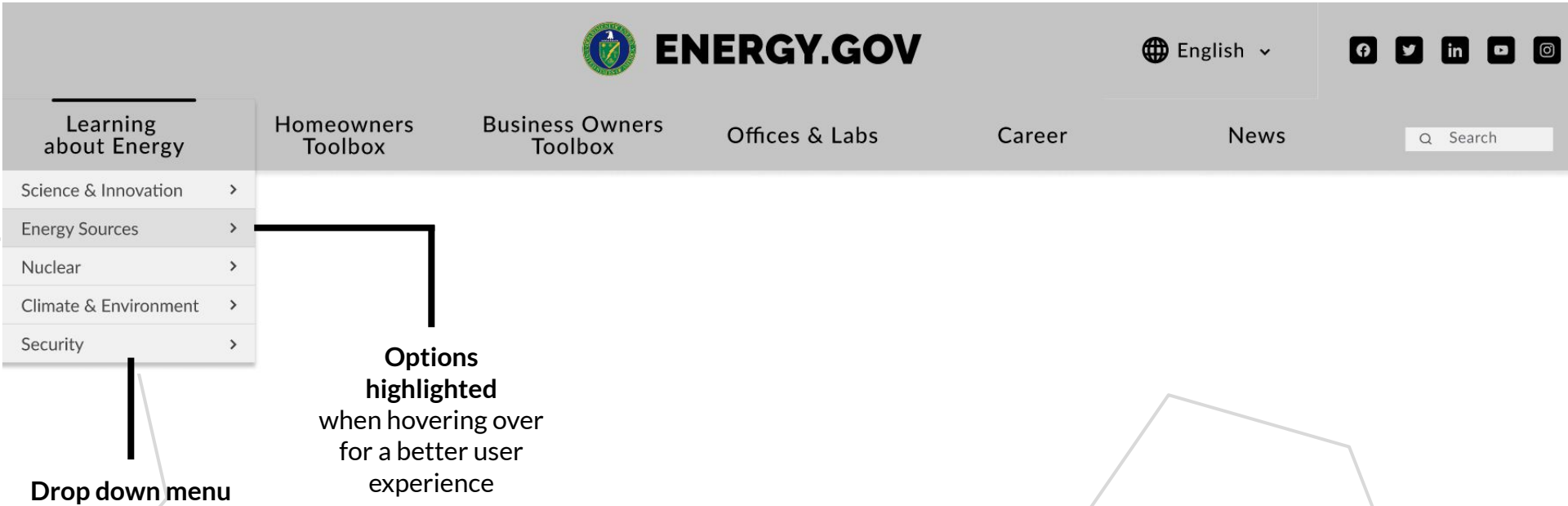
Navigation bar for desktop

Active tab highlight to indicate user's position

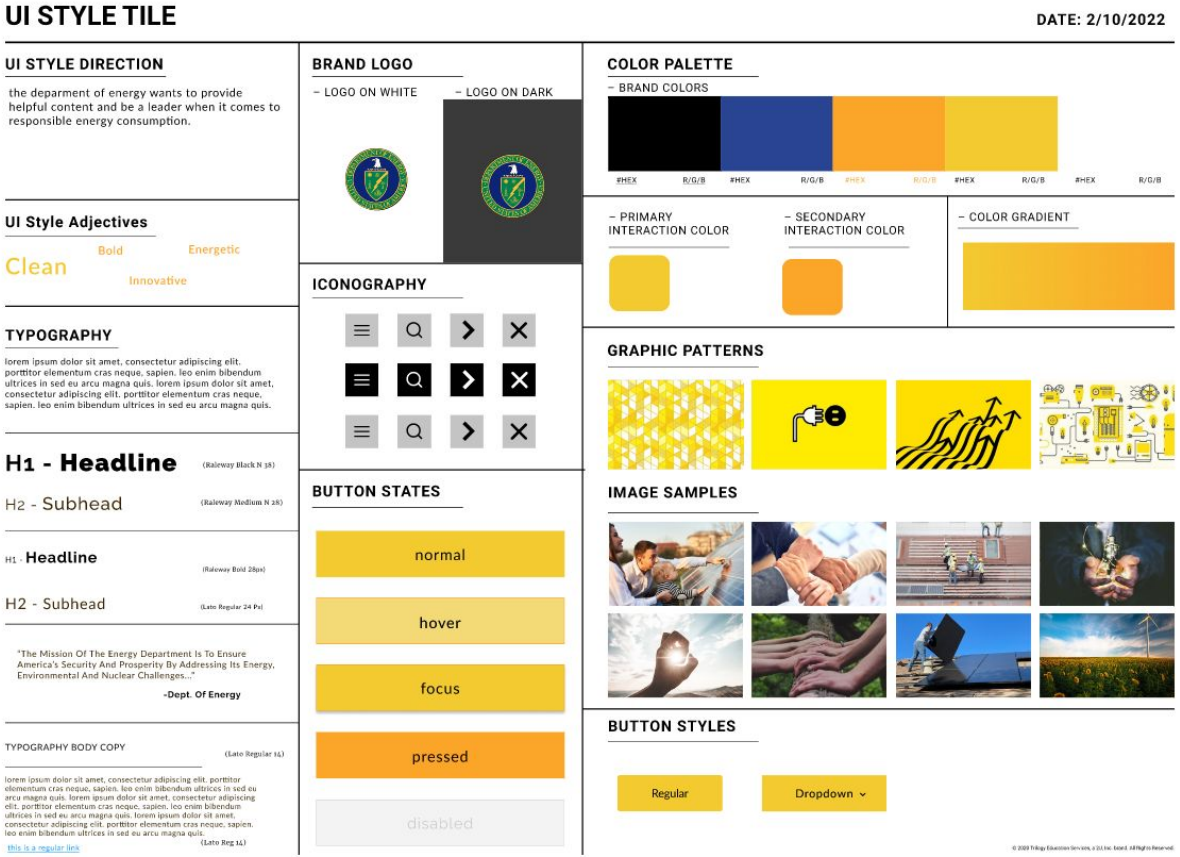
Language accessibility

A category for each user identified

Navigation bar for desktop



UI Style Tile (before iteration)



04

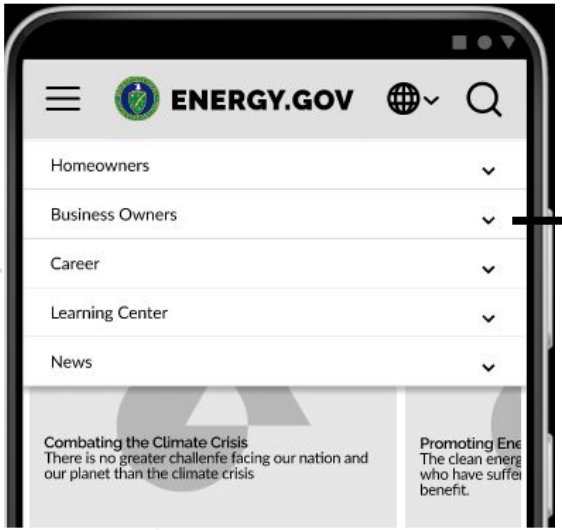
RESPONSIVE DESIGN
Homework 11

Navigation bar for mobile

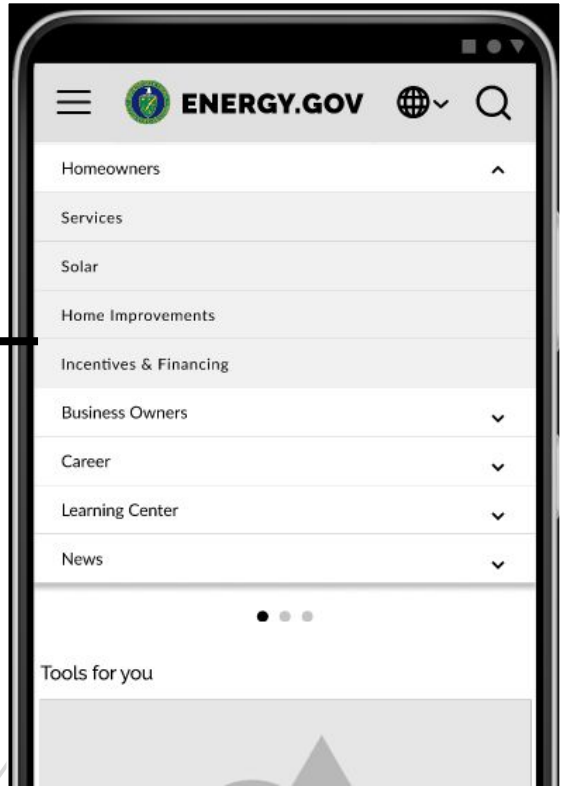
Hamburger menu
for a simple, effective mobile design

Language accessibility

Navigation bar for mobile



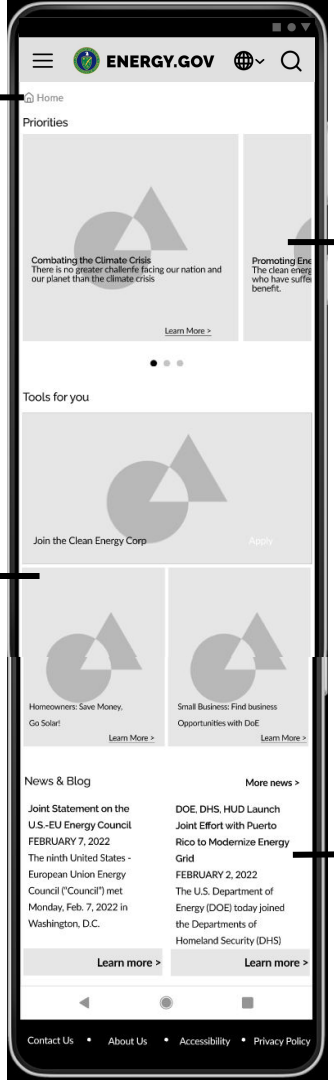
Accordion
To minimize scrolling and allow users to control what content they see to avoid any overwhelming feeling



Homepage for mobile

Breadcrumbs visual aid indicating the location of the user within the site's hierarchy

Main user's tools accessible in one click

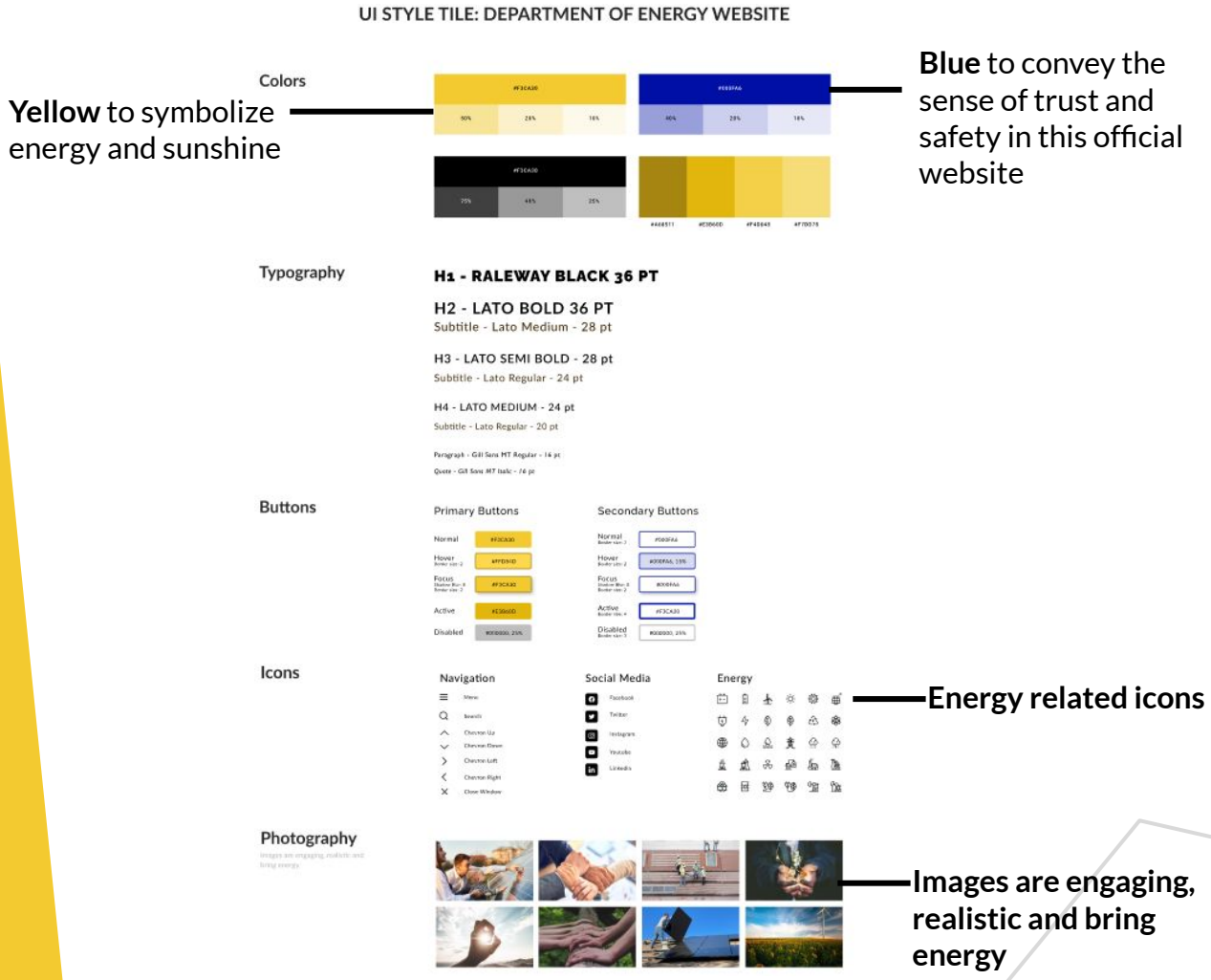


Carousel to catch user attention and display the priorities of the DoE

Cards to succinctly hold information to help users navigate and memorize the website's content

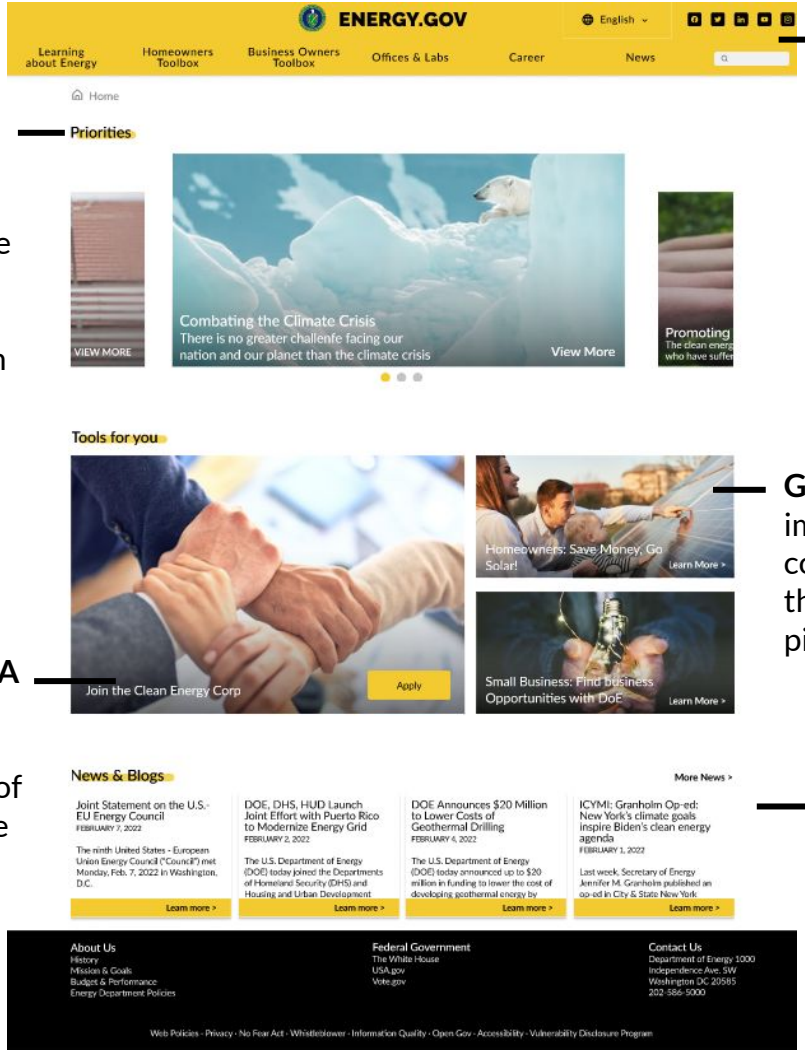
UI Style Tile (after iteration)

[Link to full style tile]



High Fidelity Desktop Prototype

Yellow highlight to make the section title stand out. Symbolizes the line of a pencil and avoid any confusion with a button



Yellow navigation bar to symbolize energy and sunshine

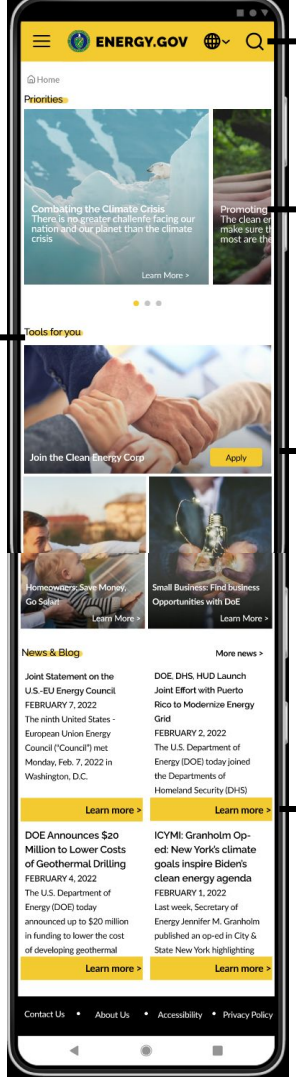
Gradient layer to improve the contrast between the text and the picture

Yellow CTA button to make it stand out of the picture for users

A bold yellow stripe to break the monotony of the text and bring user's attention on the CTA button

High Fidelity Mobile Prototype

Yellow highlight to make the section title stand out. Smaller than the text with an overlay to symbolize the line of a pencil and avoid any confusion with a button



Yellow navigation bar to symbolize energy and sunshine

Gradient layer to improve the contrast between the text and the picture

Yellow CTA button to make it stand out of the picture for users

A bold yellow stripe to break the monotony of the text and bring user's attention on the CTA button

05

INTERACTIVE DESIGN

Homework 12

User tests Plan

In order to **improve the homepage and navigation** of the Department of Energy website, I organized a **user test with 10 participants**.

The goal of this test was to confirm that **information is structured clearly** and that users **know where they would need to click** or tap to find the relevant information to them. It was also to make sure that they can **access the relevant information** thanks to the navigation and homepage content

Users have been asked to:

- To **navigate through the homepage**
- Try the **drop down menus**, **hover** over and **click** on the buttons
- To get their **general impression** about the homepage and navigation, and if they would know where to go to find information about going solar

I wanted to find out if the users could **perform the test tasks**, **how quickly** they could perform the them and **how they felt** while performing the test.

User tests
Key findings

The overall impression I got from my user tests was that the information is organized clearly, and that it was easy for them to know where to find information.

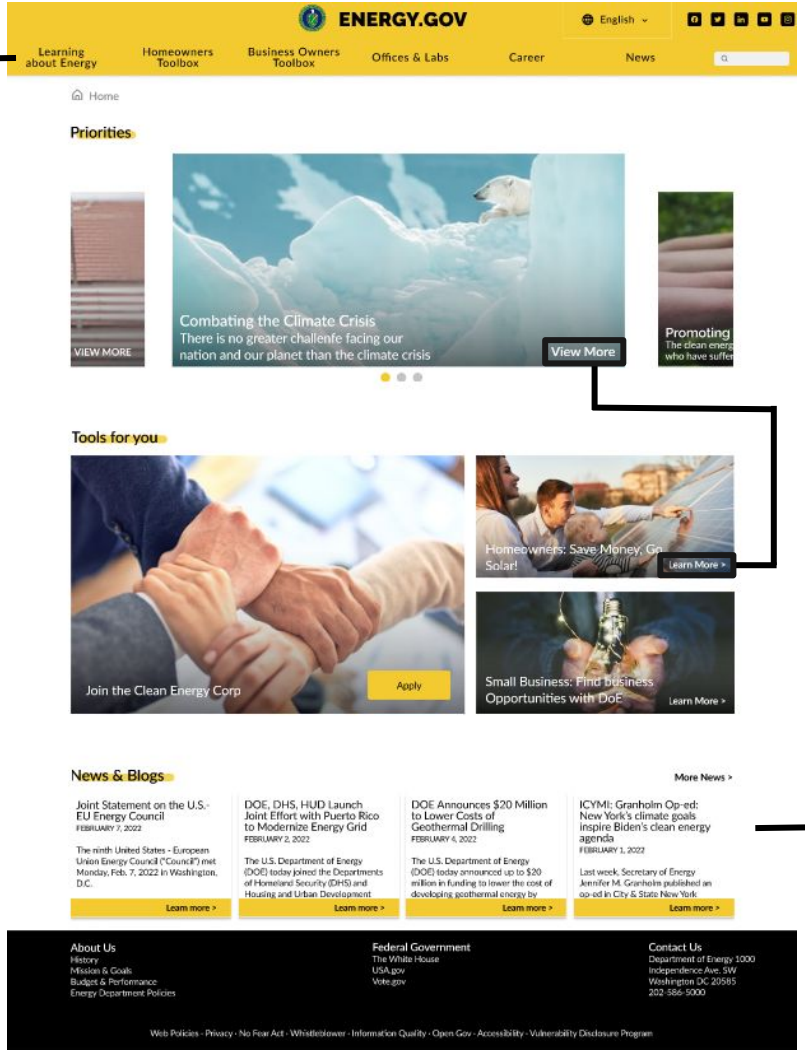
I received great feedbacks that allowed me to improve the homepage and navigation bar:

- The **font size** of the navigation bar was not big enough
- The **language accessibility** was missing in the mobile version
- The buttons needed **more consistency** in the effects when hovering over
- The **arrows** contained in the drop down menu of the navigation bar were confusing for users who were expecting the drop down menu to expand
- The **text density** in the News & Blog cards was to high

Final Desktop Homepage

[Link to prototype]

Bigger font to make it more accessible to users



Same font and effect when hovering or clicking

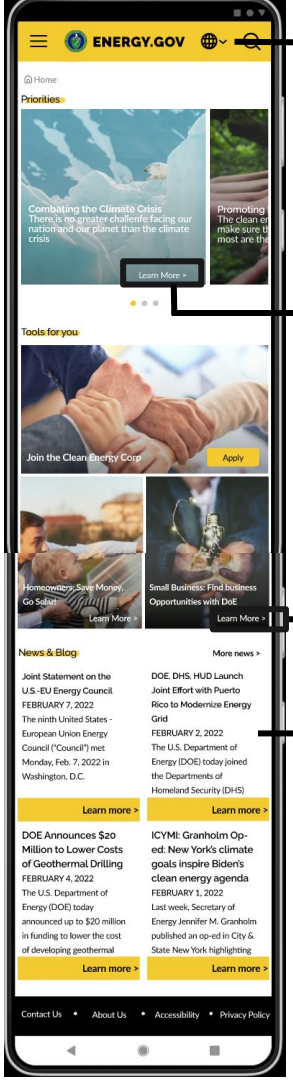
Less text and bigger font to make it less overwhelming for users

Final navigation bar

No more arrows
So that the users won't expect the drop down menu to expand

Final Mobile Homepage

[Link to prototype]

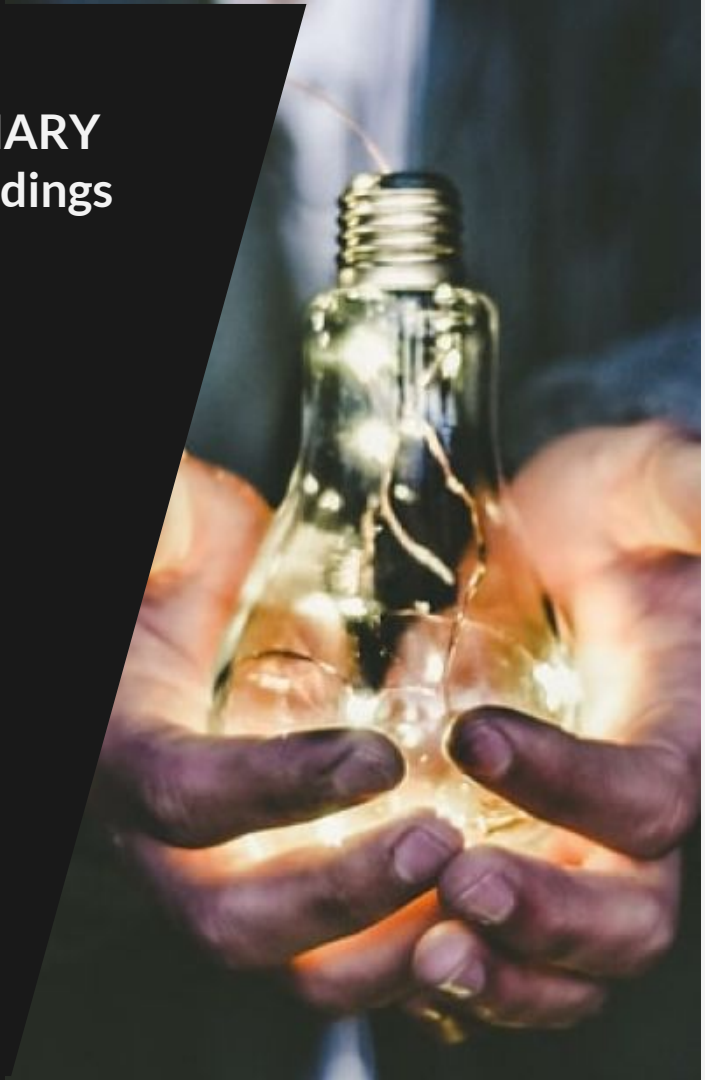


Language accessibility was missing in the mobile version

Same font and effect when hovering or clicking

Less text and bigger font to make it less overwhelming for users

SUMMARY
Key Findings



Contacting users and other designers to organize tests and work sessions has been extremely valuable during this project. **Collaborating** not only allowed me to get **important feedbacks** and advices but also allowed me to **work more effectively** while working with a time constraint.

I found it extremely challenging to move on with **assumptions about the use of a website**. I wish more **statistics** and information about the use of the Department of Energy website were available to guide me through the process of identifying users. Gathering statistics and information about the **dynamic solar energy market** as been crucial to cope with this constraint, and allowed us to move on with a thorough and documented **user scenario**.

It also has been a real challenge to work on a **specific website** like the Department of Energy website. Information about energy is **abundant** and very **technical**. I read and learnt a lot about energy in order to be able to regroup categories and eliminate duplicates, and get to this new **information architecture**.