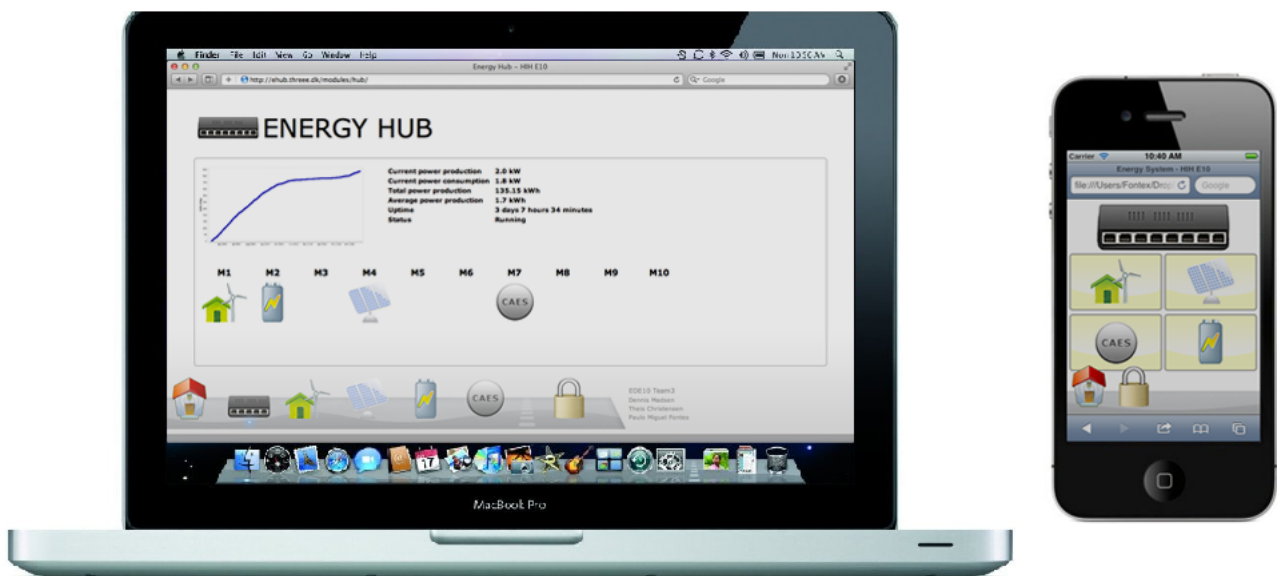


WEB1 - Web Technologies

Project - Energy Hub

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Table of Content

1	Introduction	4
2	Platform	5
2.1	Environment	5
2.2	File Structure	5
2.3	Image scaling	6
2.4	Reset.css	6
3	Index	7
3.1	Design Ideas	7
3.2	The Design	7
3.3	Code layout	8
3.4	Code explanation	8
3.4.1	General setup	8
3.4.2	Background image	9
3.4.3	Modules connected	9
3.4.4	Energy readout	10
3.4.5	Dock	11
4	Modules	12
4.1	Design Ideas	12
4.2	The Design	12
4.3	Code layout	13
4.3.1	Doctype	13
4.3.2	Meta tag	13
4.4	Code explanation	13
4.4.1	Division	13
4.4.2	Headings	14
4.4.3	Table	14
4.4.4	General tags	15
5	Small Screens Optimisation	16
5.1	Design Ideas	16
5.2	Constrains and Limitations	17
5.3	Screen Sizes Proposal	17
5.4	Best Practices	17
5.5	HTML	18
5.5.1	Head	18
5.5.2	Re-Design	19
5.5.3	Body	20
5.6	CSS	21

5.6.1	Media Queries	21
6	Conclusion	23
6.1	References	23
7	Appendixes	24
7.1	Index	24
7.1.1	HTML files	24
7.1.2	CSS files	25
7.2	Modules	28
7.2.1	HTML files	28
7.2.2	CSS files	30
7.3	Small Devices	33
7.3.1	HTML files	33
7.3.2	CSS files	34

Chapter 1

Introduction

The goal of this course has been to create a website with several pages written in 'XHTML strict', which is made for the use of the developed energy system in PRO3 and PRO4 by the E10 class. The website should be designed from scratch without any use of WYSIWYG (What You See Is What You Get) tools. All used pictures should be scaled in Photoshop (or similar tool) to fit on the site.

The written report contains the thoughts behind the site, with an explanation about the HTML coding in general. The report also contains pieces of code from the site and information about why the different steps have been taken.

The report is divided into 3 major sections:

- Index: designing the front page.
- Module: designing the module page, used by all groups.
- Optimizing the website for small screen devices.

Each person in the group is responsible for one of the above section:

- Platform+Index: Dennis
- Module: Theis.
- Small screen optimisation: Paulo

Chapter 2

Platform

Dennis

2.1 Environment

The system is primarily meant to be used from the same PC, as the webpage is part of an energy system, placed at the university, AU Herning. A part of the energy system is a screen showing the webpage to be able to control the system nearby it. The screens resolution is 1024x768 pixels (fullscreen with no system bars or dock), which is the size the site has been optimised for. Also the website has been optimised for small-screen devices with a resolution from 320x480 pixels (as this resolution has been used for several phones in the past years).

2.2 File Structure

The website can be found on <http://www.ehub.three.dk/>, the file structure on the ftp server is as below. In the index folder/root of the site, the folders: design, mobile, modules and pic can be found together with the .html files and .css files created for the index page. The root folder contains:

- design: Photoshop files
- mobile: .html, .css and images used for the mobile site
- modules: .html and .css files for the module pages
- pic: Icons and other pictures used on the site
- index.html
- reset.css + style_index.css

In the modules folder the style sheet of the module pages is found and folders containing a html file for each module plus a special style sheet to set up the elements inside the main window. The mobile folder contains a copy of the normal website in an optimised version.

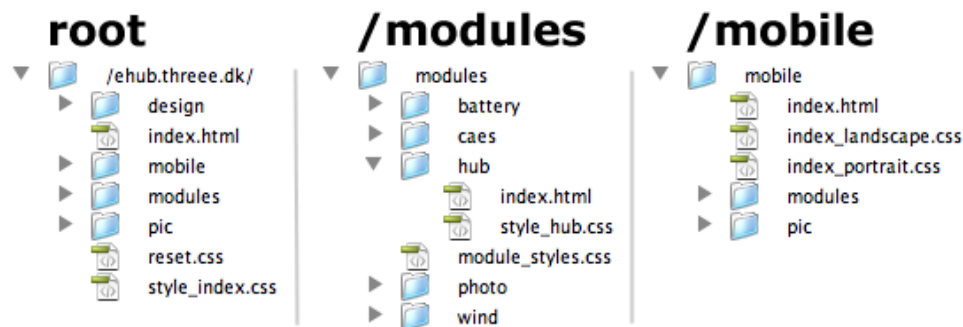


Figure 2.1: Hierarchy of the files on the server

2.3 Image scaling

To not annoy the user due to long loading process, the used images on a webpage should be scaled and converted properly. To do so, some rules of thumb should be followed. An important part is to scale all images into a proper size in an image editor, for example Photoshop. In other words, the image scaling should **not** be done by the web-browser. Another important part is to analyse the content of the image to use the right image format and thereby convert the image into the optimal type for the place implemented.

The most used image formats on the internet are GIF, PNG and JPG/JPEG, where JPG/JPEG is mainly used for colourful images like photographs. For icons, pictures being part of the design and flat coloured images, should be used either GIF or PNG. When choosing between GIF and PNG some considerations should be taken, like: what browser uses the main audience, how should the pictures be shown and what colour depth is needed. For the created website the type PNG has been used for all graphics, as the amount of colours needed was not fulfilled when the pictures were converted to GIF and the browsers for the user(s) of the website will primarily be non Internet Explorer. Internet Explorer older than version 9 unfortunately have some problems showing transparent PNG images which is used, but still the colour depth of the images was weighted higher than cross compatibility. Also an IE Javascript fix for the PNG transparency has been found, but yet not implemented as the goal so far has only been to write HTML and CSS code.

2.4 Reset.css

Theis

The reset css file is used to make default settings for all the common layout. The aim of this file is to define the layout for html tags that may not be set up in the other css files. As an example, the heading tag that looks correct by default, the issue now is that Mozilla Firefox can have one default setting for the heading when Google Chrome might have a different default settings for the same heading, that will make the same code look different in the two browsers. The reset css file sets up some default settings for the most common html tags. The file has been downloaded from <http://blueprintcss.org/> website.

Chapter 3

Index

Dennis.

This chapter offers an explanation of the index page (front page), description of the different ideas and actions.

3.1 Design Ideas

The website is primarily created to be used by a non-technical person at AU-Herning. The design has been kept clean to make it very intuitive how to navigate around. Periodically the energy system (and thereby also the website) is shown for high-school students visiting the school, therefore the index page has been build up with mostly icons instead of text and a navigation bar which some of them might know from Apples operation system OS X. The customer wanted the production shown as primitive objects as: lightbulbs, refrigerators, money (possibly shown as number of SU payments), instead of technical terms like Joule, kW, kWh etc.

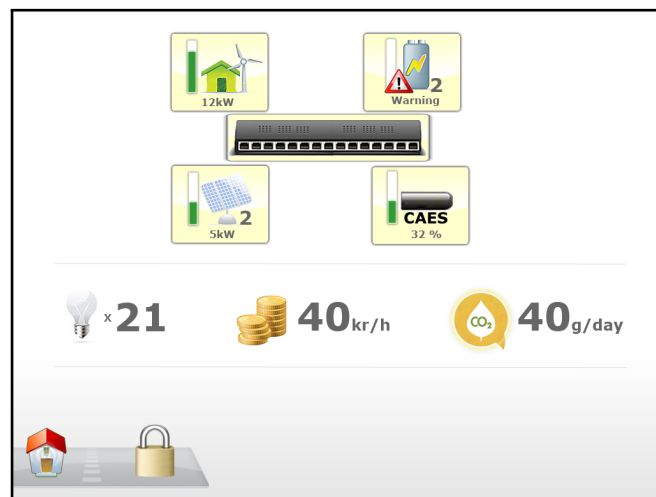


Figure 3.1: Photoshop, final drawings of the index page.

3.2 The Design

The background is chosen to be white/grey to keep it simple and not take focus from the content of the page, but also a clean colour seemed boring and unprofessional.

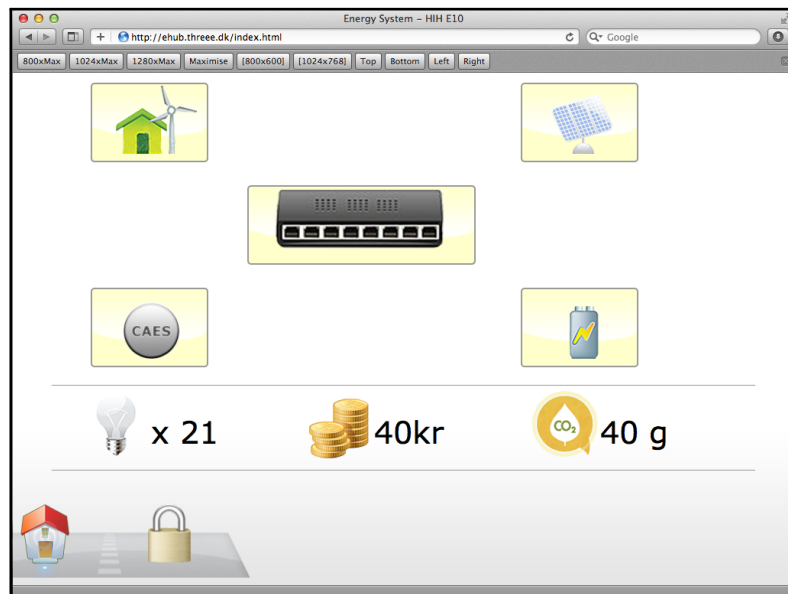


Figure 3.2: The final index page as seen on the website.

The page is divided into 3 sections:

- Modules connected.
- Production (shown in an alternative way).
- Menu dock.

Apple's operation system has inspired to the creation of the dock, which is rather different than most other webpages, where the menu bar is normally placed in the top-center or in the left side. The production is shown in non-technical terms to make it more interesting for high-school students or similar, than terms like kW, kWh, Joules. In the top the different connected modules are shown, which also works as links to the modules page, where a detailed description of the module can be found. Energy bars, amount of connected modules and status of them will be implemented using Javascript, but so far the page only works as a static one, where the style of it can be seen on the way of jumping between page work.

3.3 Code layout

As the site will be written in strict XHTML, the HTML files will only contain all div's, text and it is also here it is specified which elements that should work as links. The style sheet then contains all other properties, sizes and positions of divs, pictures, text etc.

Doctype and meta tags are described in the next chapter.

3.4 Code explanation

The coding of the index page is explained here. Pieces of the HTML and CSS code is inserted and explained.

3.4.1 General setup

All text needs to be setup as the reset.css file is included. The font family and the h1 tag is the only ones used on the index page.


```
1 body {  
2   font-family: Verdana, Geneva, sans-serif;  
3 }  
4 h1 { font-size: 40px; }
```

3.4.2 Background image

As the background is not proper for repeating in the y direction, it is stretched to fit the whole screen instead. In the CSS file, background images cannot be stretched, so the picture is added in the HTML file instead, in an 'empty div' (as this div only contains the background picture).

```
1 <div id="bg">  
2     
3 </div>
```

The picture in the background div is stretched by setting the width and the height of it to 100%. The picture is set as background by using z-index. The setup of which elements should be in front of others is setup using z-index, -999 is used to be sure that no elements is behind the background.

```
1 #bg {} /*Empty ID for the background to satisfy W3 verifcator*/  
2  
3 #bg img { /*Stretch the background image over the whole screen*/  
4   position: absolute;  
5   width: 100%;  
6   height: 100%;  
7   z-index: -999; /*Put image behind everything else*/  
8 }
```

3.4.3 Modules connected

The connected modules work as link to their module page. The 'a' tag is used as a link to another page using the href attribute to a relative URL. The item which is used as the link is a picture showing the module. The module is inserted using the 'img' tag. 'src' specifies the URL of the image and the 'alt' attribute defines an alternative text if the picture cannot be found or shown. All other optional attributes is setup in the CSS file to keep the strict HTML coding.

```
1 <div id="hub" class="boxbg">  
2   <a href="hub.html">  </a>  
3 </div>  
4 <div id="Mtopleft" class="boxbg">  
5   <a href="wind.html">  </a>  
6 </div>  
7 ...
```

The position of the 5 modules (4 plus the hub) is set according to percentage of the browser to make use of the whole browser window. Each div has both a class, where general properties for the 5 modules are defined, and an id defining the position of each module. The class of the modules sets the background of the modules and repeats it in the x direction. A border around the module divs is also defined with line size 2px and a grey color. The corners of the box is rounded (this does not work in IE versions older than 9).

```
1 .boxbg {  
2   position: absolute;  
3   background-image: url(/pic/ybg.png);  
4   background-repeat: repeat-x;  
5   height: 100px;
```

```

6 width: 150px;
7 border: 2px solid #999; /* Put padding and round corners*/
8 border-bottom-left-radius: 5px;
9 border-bottom-right-radius: 5px;
10 border-top-left-radius: 5px;
11 border-top-right-radius: 5px;
12 }
13 /*Center img*/
14 .boxbg img { padding-left: 10%; }
15 /*HUB position and size*/
16 #hub {left: 30%; top: 22%; width:295px;}
17 /*Module Top left position*/
18 #Mtopleft {left: 10%; top: 2%;}
19 ...

```

3.4.4 Energy readout

The middle section with alternative energy readout has a big div surrounding 3 divs each containing a picture and some text.

```

1 <div id="linebox">
2   <div class="energyboxes" id="bulb">
3     <h1>x 21</h1>
4   </div>
5   ...
6 </div>

```

The top and bottom border of the big div is drawn, to make a section split between the modules, energy readout and the dock. It's important to notice the use of position inherit instead of position absolute. Where position absolute takes the position from the corners of the browser, position inherit positions according to the div it is placed inside. As the energy boxes are placed inside the big div with id linebox, the top and bottom command will position according to the 'linebox' div. Furthermore, a class is made to setup general properties for the 3 energy divs, and 1 id for each of them to position then and in this case to also insert a different background image to all of them. The idea is that the pictures of the alternative energy should be shown all the time, whereas the modules should only be shown if they are connected and that is why they are inserted in the HTML code.

```

1 #linebox {
2   position: absolute;
3   top: 61%;
4   left: 5%;
5   width:90%;
6   height:110px;
7   border-bottom: 1px solid #999;
8   border-top: 1px solid #999;
9 }
10 .energyboxes {
11   position:inherit;
12   height: 70px;
13   width: 200px;
14   background-repeat:no-repeat;
15   background-position:left;
16   text-align:right;
17   padding-top:30px;
18 }
19 /*Position and picture of the bulb div*/
20 #bulb { left: 2%; background-image:url(/pic/bulb.png);}

```

3.4.5 Dock

On the index page the dock contains only two items, the home button and a locker. At the time the locker links to the index page, but when Javascript code is created, it will show an open locker when the user is logged in. Note here that the locker uses a special id, which is defined in the CSS file. The dot under the house shows the current position on the site. It is not used for anything specific on the index page but only there too keep the clean design. On the module pages it is shown under the selected device.

```
1 <div id="dock">
2   <a href="index.html">       </a>
3   <a href="index.html">  </a>
4 </div>
5 <div id="dot">
6   
7 </div>
```

Opposite the background which was z-index'ed -999, the dot is indexed to 1 to bring it in front of everything else. In line 13 is defined a special id for the locker picture, the picture is set to position according to the right side of the div it is placed in. All links in the dock are slightly transparent, to create some simple graphic changes when the user holds the mouse over the icons. At mouse over the opacity is removed. The mouse over is done by using the img: hover command, where the 'img' tells that it is an image which the mouse can be held over.

```
1 #dock {
2   position: absolute;
3   width: 310px;
4   background-image: url(/pic/dock_small.png);
5   background-repeat: no-repeat;
6   background-position: bottom;
7   bottom: 10px;
8   height: 100px;
9 }
10 #dock img {float: left; opacity:0.80;} /*All browsers exept IE*/
11
12 /*change position of the locker to float right instead of left as the other link(s)*/
13 img#lock { float: right; padding-right: 50px;}
14 /*remove transparency when mouse over*/
15 #dock img:hover {opacity:1.00;} /*All browsers exept IE*/
16 /*set dot position to under the house (home)*/
17 #dot {
18   position: absolute;
19   bottom: 3px;
20   left: 26px;
21   z-index: 1; /*put in front of everything else*/
22 }
```

Chapter 4

Modules

Theis.

The aim of this chapter is to provide an overview of the web page for the energy hub. The purpose of this web page and the idea about designing it, and how it will work.

4.1 Design Ideas

The purpose of the hub web page is to see what type of module that is connected to which ports, and to see the production versus the consumption. It is also possible to see the status of the energy hub. The design shall be simple, and it has to be a web page without too many things to distract the users. To fulfill this, there have been made 3 regions in the page window, one with the graph, one for data and status, and a third one for the modules. To keep dynamic on the homepage, the design from the index page, has been kept through the web site. The background color is the same, and the dock in the bottom is kept on all sub pages. A big headline is made with an icon, to show what page the user is looking at.

4.2 The Design

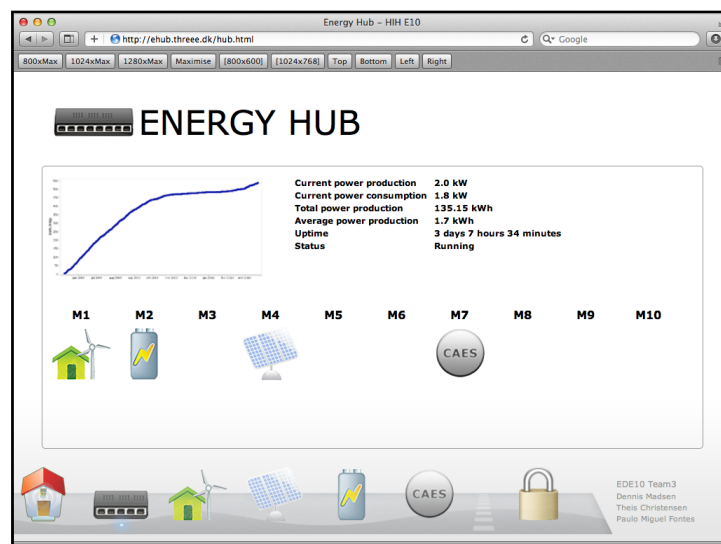


Figure 4.1: Picture of the hub page.

This is how the design turned out. It fulfills the purpose and the requirements for the design (simple and easy to navigate).

4.3 Code layout

Here is a description of the code settings and layout that is used for the web page.

4.3.1 Doctype

In this project the document type XHTML 1.0 Strict is used. The DOCTYPE declaration tells the browser how to interpret the code in which the site is written. It should be written at the first line in every valid html file, as seen in the code below. This type has every feature of the HTML. The markup must be written as well formed XML. Strict, in contrary to Transitional, document types does not include deprecated tags (e.g. , <target>), so all the styling is made in CSS style sheet.

```
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict
  .dtd">
2 <html>
3   <head></head>
4   <body>
5   </body>
6 </html>
```

4.3.2 Meta tag

The meta tags tell something about the data on the page. In the first line the content type is set to "text/html" this means that the browser will show the page as normal, the charset is also set in that line to "UTF-8". The second line is for the mobile version of the web page (will be explained in the next chapter).

```
1 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
2 <meta name="viewport" content="width=device-width, initial-scale=1, user-scalable=no" />
```

4.4 Code explanation

Here the code will be described and shown in pieces.

4.4.1 Division

The "div" tag is used to make sections in a html document, then it's easy to set up some style settings in the css file. In the code below there are two div tags. The divisions have the same class but two different ids.

```
1 <div class="modules" id="M1">
2   M1<br /><a href="../wind/">  </a>
3 </div>
4 <div class="modules" id="M2">
5   M2<br /><a href="../battery/">  </a>
6 </div>
```

The class and ids is very handy in css. In the code below there is some settings for the class named "modules", these settings is for the whole class, this means that the two divisions above have the same style settings. From line 10 and down, in the code below some settings for the specific id. The css code here sets up some common style settings for the class and then the divisions is moved away from the left side as the id gets higher.

```

1  /*MODULES*/
2  .modules {/*Classe settings*/
3      text-align: center;
4      font-weight: bold;
5      position: inherit;
6      height: 120px;
7      width: 90px;
8      top: 200px;
9  }
10 /*Setting for single id*/
11 #M1 {left: 10px;}
12 #M2 {left: 100px;}

```

4.4.2 Headings

Headlines in html can be made with headings tags (<h1>to<h6>). The specific look of the headings is then defined in the css file. The h1 tag is used in the html code below.

```

1  <div id="header">
2      
3      <h1>ENERGY HUB</h1>
4  </div>

```

The code below is the css code to design the h1 tag from the html code above. In the css code the font size of h1 in the header division is set to 48px, the top padding is also set, which is the space from the element above the heading and to the text in the heading.

```

1  #header h1{ font-size: 48px; padding-top: 35px;}

```

4.4.3 Table

To show the data for the hub a table is used, this is done in html as shown in the code below. The table starts in line 2. The "tr" tag makes a row, and the "td" tag define the cells in the row.

```

1  <table>
2      <tr>
3          <td>Current power production</td><td>2.0 kW</td>
4      </tr>
5      <tr>
6          <td>Current power consumption</td><td>1.8 kW</td>
7      </tr>
8      <tr>
9          <td>Total power production</td><td>135.15 kWh</td>
10     </tr>
11     <tr>
12         <td>Average power production</td><td>1.7 kWh</td>
13     </tr>
14     <tr>
15         <td>Uptime</td><td>3 days 7 hours 34 minutes</td>
16     </tr>
17     <tr>
18         <td>Status</td><td>Running</td>
19     </tr>
20 </table>

```

The css for the table is seen below, here the space to the left side of each cell is set, the font is set to bold, and the font size is set to 12px.

```
1 #status td {  
2     padding-left: 10px;  
3     font-weight: bold;  
4     font-size: 12px;  
5 }
```

4.4.4 General tags

A css file that determine the design of html file needs to be include in the html, this is done in line 2 to 4. If a html page has more than one css file, then it will use every file, but if one thing is defined in two files the file that are listed last will be used. Images is included in html as in line 6, the "img" tag says that this is an image, the "src" defines the source, where to find the file, the "alt" is alternative text if the file cannot be found. In line 7 a link is defined, the "a" makes a link the "href" is the reference where the link points to, the text "link" between the "a" tag is what is shown on the page, this could also be a image, then the image will work as a link.

```
1 <!--include css files-->  
2 <link rel="stylesheet" type="text/css" href="/reset.css" />  
3 <link rel="stylesheet" type="text/css" href="../styles.css" />  
4 <link rel="stylesheet" type="text/css" href="style_hub.css" />  
5 <!--include css files-->  
6   
7 <a href="/">link</a>
```

In the css code it is possible to make design of the html code, in the css code below there is some commands that can be set. In the first line the position of the element is set, this can be set to absolute, then the position is define from the top left corner of the browser, below it is set to inherit, which means that the position is defined from the division, in the code below the top and left command determines the space from the top left corner in the division, this could also be bottom and right. The height and width sets the size of the division. The border command creates a boarder around the division with a width of 1px and the color # 999. The border-bottom-left-radius is a css 3 tag. This makes a round corner with a radius of 5px.

```
1 position:inherit;  
2 height: 200px;  
3 width: 400px;  
4 left: 350px;  
5 top: 15px;  
6 border: 1px solid #999;  
7 border-bottom-left-radius: 5px;
```

Chapter 5

Small Screens Optimisation

Paulo

This chapter describes the optimisation of all the interface for small screen devices. A different technic is needed for web developing to mobile browsers. This web site can be seen by a small device at <http://ehub.threee.dk/mobile/>

5.1 Design Ideas

Below pictures represents the same content using a layout suitable for small devices in portrait and landscape orientation.

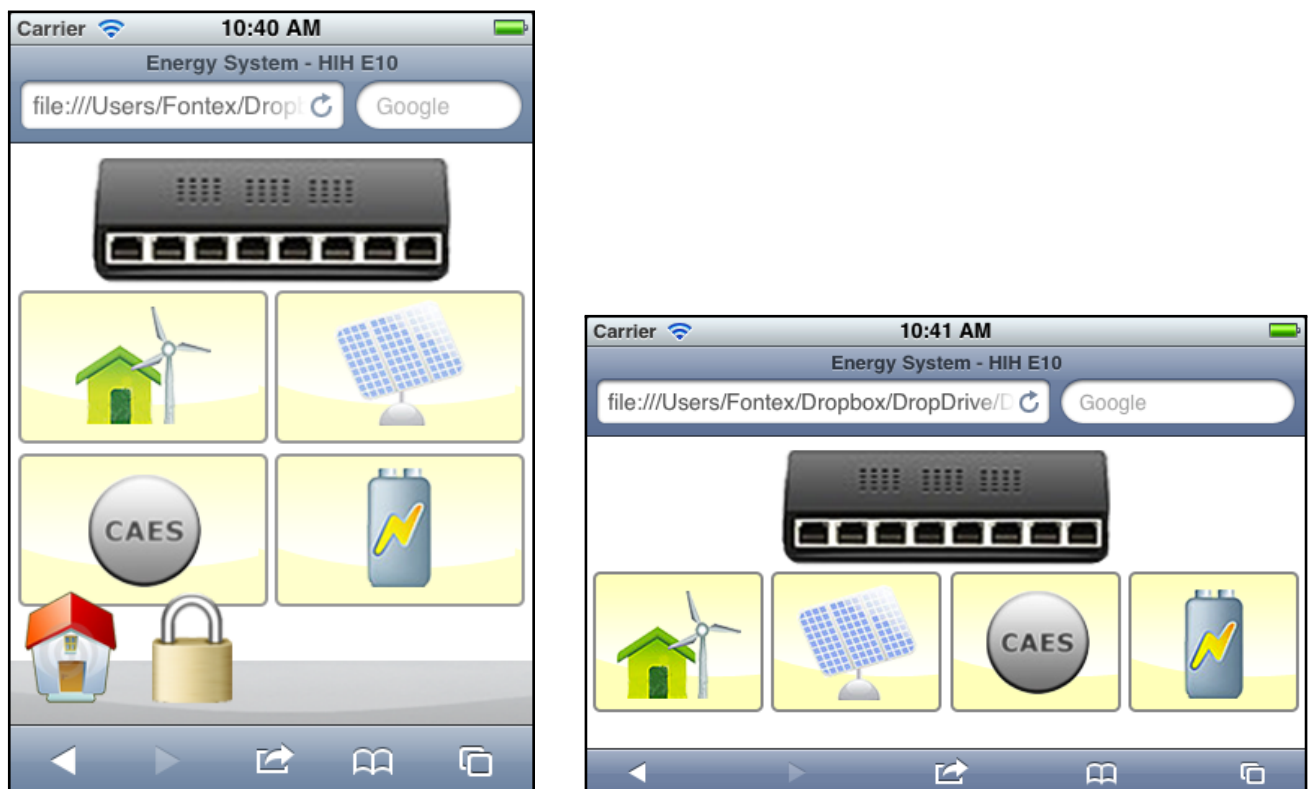


Figure 5.1: Layout Proposal

5.2 Constrains and Limitations

On small screens horizontal scroll bar is not an option, since it breaks all the dynamics of the user experience, the processor is slower, the memory is limited, that means loading large file sizes is not a benefit.

For small screens some limitations should be considered and applied to the design:

- One column layout only, this will avoid the horizontal scroll bar.
- HTML optimised using efficient tags and attributes.
- CSS optimised with efficient styles properties.
- Minimise the amount of decorative images, or if needed, use of pre loaders (scripts that only shows the page when it is fully loaded) so the user experience is not affected.
- Write good alternative text (attribute 'alt') for images, so in case the image is not needed an alternative text could be shown for example navigation icons.
- Avoid effects that need mouse or keyboard events.
- Avoid the use of Javascript on layout design since some mobile browsers may be set to block this scripts.

5.3 Screen Sizes Proposal

Smaller screens will always be the tablet computers or the ones that fits on pockets like smartphones.

Keeping this in mind the most used screen sizes are:

- 320x480 Screen Size (eg. iPhone)
- 480x800 Screen Size (eg. HTC Titan, HTC Desire)
- 1024x600 Screen Size (eg. Samsung Galaxy)
- 1024x768 Screen Size (eg. iPad)

List of the most popular smartphones and tablet computers

- Samsung Galaxy Player 5.0 (released 2011)
- Samsung Galaxy S II (released 2011)
- Apple iPhone 4S (released 2011)
- Apple iPhone 4 (released 2010)
- HTC Titan (released 2011)

5.4 Best Practices

Mobile standards are not yet fully developed, but an initiative by the W3C (<http://www.w3.org/Mobile/>) describes some best practices for small devices web development. As HTML and CSS a Mobile checker can be found and used to identify possible threats for small screen devices.

Some best practices for mobile web development have to be adapted when developing to the new smartphones and tablets computers, since they are detected as normal screens because of their higher pixel resolution and browsers such as Safari, Chrome, etc. The mobile W3C checker has to be used more as a guideline and not as a strict design method.

Best Practices description:

Content Selection: on small screens all the data have to be more objective since all the information cannot be shown at once.

Interaction method: its important to determine the type of interaction that the device have with the user, because this will change the layout itself. In this proposal devices (and the most used now a days) the interaction would be touch based, all events are related with the user directly touching the screen with the finger or a pen,

for this kind of interactions:

- Event elements should be widely spaced from each others for the user to be able to touch them directly
- Event elements have to be large enough to be easily selected.

Use of client side capability detection: Javascript and CSS media queries are the client side solutions for developers. Javascript may be blocked by the user so CSS media queries should be the first option. Server side device detection would be a best practice since the file size would get smaller and less requests would be made, but is not always possible.

Scrolling: limit scrolling to one direction, this is achieved by re-designing the page for one column only and setting the width of the content for the device screen width.

File Size: unnecessary spaces and all the comments should be removed, this will decrease the file size to be loaded by the device making the website loading faster.

Server Requests: decrease the number of server requests, this can be done by avoiding putting image elements on the HTML file.

Some more mobile web practices taken into consideration can be found at:

http://www.w3.org/2007/02/mwbp_flip_cards

This flip cards illustrate all the process of design and test of a web application/page on a small screen device keeping the standard for the most used browsers.

5.5 HTML

For a long time tables were used to make the webpages layout, this was made by nesting HTML table tags to create for example multi column pages, separate headers, main and footers, etc..

As solution, HTML should be used to the intellectual content of the page, while CSS determine how to represent the content to the user. This method of design improves the time of development since there is no more nested tables the HTML tags become more understandable, so create and redesigned a webpage becomes easier and less time consuming, improves search engines rankings and files sizes diminished noticeable.

5.5.1 Head

Using W3C mobile as guideline, the use of the doctype mobile 1.2 is advised since this will keep the web page suitable for all kind of small screen devices and browsers. DOCTYPE is the first code line in the HTML document, it defines the document version and rules in which the HTML is written, this information is necessary so that the browser knows what kind of document to expect and correctly load the web page.

```
1 <!DOCTYPE html PUBLIC "-//WAPFORUM//DTD XHTML Mobile 1.2//EN" "http://www.openmobilealliance.org/tech/DTD/xhtml-mobile12.dtd">
```

Meta tags in HTML is the information data, usually specifies a page description (viewport), keywords (words used by search engine bots to identify web pages contents), etc. This meta tags are defined in the head element of the HTML document.

```
1 <meta http-equiv="Content-Type" content="application/xhtml+xml; charset=UTF-8"/>
2 <meta http-equiv="Cache-Control" content="max-age=3600, must-revalidate " />
3 <meta name="viewport" content="width=device-width; maximum-scale=1.0; user-scalable=0;"/>
```

One of the data that can be set on meta tags is 'Cache-Control', this will help the device to load the web page faster and doing less requests to the server, this is a plus when the content of the web page is static, the request is made to the server and the server sees if it have the same answer as before in cache and forward the

same content, this decrease the traffic between the server and the client. This method of setting HTML headers for cache is not the most reliable since some browsers might not read this meta tags, for a reliable caching-control a server-side HTTP headers script should be implemented.

HTML only contains the intellectual value of the web page, and no layout setting, so the layout setting are defined in CSS (Cascade Style Sheet), these are linked to the HTML page trough the tag `<link>`. Link tags defines the relationship between the HTML file and an external file, the mostly used and supported in all browsers are CSS documents.

```
1 <link rel="stylesheet" type="text/css" media="only screen and (orientation:portrait)" href="
  index_portrait.css" />
2 <link rel="stylesheet" type="text/css" media="only screen and (orientation:landscape)" href="
  index_landscape.css" />
```

Attribute	Description
href	Location of the linked document.
rel	Relationship between the current document and the linked document.
type	Specify the type of the linked document.
media	Defines which media should load the linked document.

Table 5.1: Link tag attributes description.

5.5.2 Re-Design

The re-design webpage is capable of showing and giving a good user experience, the HTML is simplified and all the layout is made on CSS, in this way the file size will decrease since some devices can only put in a small cache, for instance 25KB maximum for the iPhone, and the server requests too will decrease too since less images are loaded to the user.

The re-design of the HTML content is made using the W3C mobile checker, this is a great tool for developers, as it offers tips about how to keep the design on a mobile standard level.

(<http://validator.w3.org/mobile/?async=false&docAddr=http://ehub.threee.dk/mobile/>)

File size have to be decreased, since small screen devices are slower, so all unnecessary spaces and comments from the HTML file should be removed, this will decrease the file size and improve loading times.

Image Elements

The `img` tag creates a space on the page for the linked image to be loaded into the HTML page, this makes the webpage heavier to load. Image elements are then removed and added division elements instead, the images are loaded as background in the CSS document (explained in CSS section). All used images are scaled down, small devices requires smaller images and with the method use of loading images as background of divisions, images cannot be scale through CSS (this should not happen as layout development). This way the size of the document to load will be smaller, faster for the device to load and better user experience.

Anchor Elements

Anchor tags would be a good solution if text as link solution was choosen, but this would translate in a poor user experience.

Anchor tags are removed and an on-click attribute is added to the `div` this way is still possible to navigate the website and less HTML elements have to be loaded.

Division Elements

Division elements (`div`) are often used to group blocks of elements, these are divisions or sections in a page, this are the most used tag to shape the layout of a web page.

Working with mobile 1.2 doctype have some limitations, it doesn't allow the use of the anchor tags `a` for division elements as it was for image elements.

Attribute	Description
id	Unique ID of the element.
class	Specify a classname for the element.
onclick	Script to be run when on click/touch event.

Table 5.2: Division element attributes description.

5.5.3 Body

All unnecessary image elements were substituted by division elements since these are faster to load by the browser and more efficient properties can be set to them on the CSS document.

After the re-design this is how the body section of the page looks like.

```
1 <body>
2 <div id="hub" onclick="location.href='hub.html'">
3   <div id="hub_img"></div>
4 </div>
5 <div id="modules">
6   <div id="Mtopleft" class="boxbg" onclick="location.href='modules/wind/'">
7     <div id="wind_img"></div>
8   </div>
9   <div id="Mtopright" class="boxbg" onclick="location.href='modules/photo/'">
10    <div id="photo_img"></div>
11  </div>
12  <div id="Mbottomleft" class="boxbg" onclick="location.href='modules/caes/'">
13    <div id="caes_img"></div>
14  </div>
15  <div id="Mbottomright" class="boxbg" onclick="location.href='modules/battery'">
16    <div id="bat_img"></div>
17  </div>
18 </div>
19 <div id="dock">
20   <div id="dock_home" onclick="location.href='index.html'"></div>
21   <div id="dock_lock" onclick="alert('Not available on this web page version.')"></div>
22 </div>
23 </body>
```

The file size and server requests decreased substantial, as it can be seen on the report from W3C mobileOk.

Page Size			144.2KB	Network usage		17 requests
The total size of the page is 144.2KB (document: 1.9KB - stylesheets: 3.9KB - images: 138.4KB)				17 requests needed to render the page in a Web browser (document: 1 - stylesheets: 2 - images: 14)		
Size	Type	URI		Type	URI	
19.9KB	image	http://ehub.threee.dk/pic/hub_big.png		document	Resource under test	
15.9KB	image	http://ehub.threee.dk/pic/dock_small.png		image	http://ehub.threee.dk/pic/background.png	
14.4KB	image	http://ehub.threee.dk/pic/wind.png		image	http://ehub.threee.dk/pic/bat.png	
13.5KB	image	http://ehub.threee.dk/pic/photo.png		image	http://ehub.threee.dk/pic/bulb.png	
13.5KB	image	http://ehub.threee.dk/pic/coins.png		image	http://ehub.threee.dk/pic/caes.png	
13.2KB	image	http://ehub.threee.dk/pic/co2.png		image	http://ehub.threee.dk/pic/co2.png	
11.8KB	image	http://ehub.threee.dk/pic/dock_home.png		image	http://ehub.threee.dk/pic/coins.png	
7.6KB	image	http://ehub.threee.dk/pic/bat.png		image	http://ehub.threee.dk/pic/dock_home.png	
7.3KB	image	http://ehub.threee.dk/pic/dock_key_lock.png		image	http://ehub.threee.dk/pic/dock_key_lock.png	
7.1KB	image	http://ehub.threee.dk/pic/bulb.png		image	http://ehub.threee.dk/pic/dock_small.png	
6.8KB	image	http://ehub.threee.dk/pic/caes.png		image	http://ehub.threee.dk/pic/dot.png	
4.3KB	image	http://ehub.threee.dk/pic/background.png		image	http://ehub.threee.dk/pic/hub_big.png	
2.3KB	stylesheet	http://ehub.threee.dk/style_index.css		image	http://ehub.threee.dk/pic/photo.png	
1.9KB	document	Resource under test		image	http://ehub.threee.dk/pic/wind.png	
1.6KB	image	http://ehub.threee.dk/pic/dot.png		image	http://ehub.threee.dk/pic/ybg.png	
1.5KB	stylesheet	http://ehub.threee.dk/reset.css		stylesheet	http://ehub.threee.dk/reset.css	
1.4KB	image	http://ehub.threee.dk/pic/ybg.png		stylesheet	http://ehub.threee.dk/style_index.css	
			↑ TOP			↑ TOP

Figure 5.2: Before re-design.

Page Size			1.7KB	Network usage			2 requests
The total size of the page is 1.7KB (document: 1.7KB)				2 requests needed to render the page in a Web browser (document: 2)			
Size	Type	URI	incl. redirects	Type	URI	Redirects	
1.7KB	document	Resource under test	352B	document	Resource under test		1
			↑ TOP				↑ TOP

Figure 5.3: After re-design.

5.6 CSS

CSS stands for cascading style sheet, these documents describes the way a web page or XML document is shown to the user. It defines properties for the markup elements of an XHTML/HTML document.

The new version CSS3, is able to get information about almost all newer smartphone devices, information such as orientation and screen size is some information that is retrieved by the browser. This is used on the media condition, where the browser will load only the needed CSS document.

5.6.1 Media Queries

```

1 <link rel="stylesheet" type="text/css" media="only screen and (orientation:portrait)" href="portrait.
  css" />
2 <link rel="stylesheet" type="text/css" media="only screen and (orientation:landscape)" href="landscape
  .css" />

```

This line of HTML links to the right CSS document corresponding to the device orientation, in this case CSS3 is used since all newer smart phones and tablets browsers support it.

In CSS3 media queries are conditions that defines if blocks of CSS properties are going to be loaded or not. This will be a great help to re-design a website layout since different pages can be already set to link to this

style sheet document.

Device	Orientation	Media Queries
iPhone	Portrait	@media only screen and (max-width:320px)
iPhone	Landscape	@media only screen and (max-width:480px)
HTC, Samsung Galaxy	Portrait	@media screen and (min-width:321px) and (max-width:480px)
HTC, Samsung Galaxy	Landscape	@media only screen and (min-width:481px) and (max-width:800px)
iPad, Galaxy	Portrait	@media only screen and (min-width:600px) and (max-width:800px) and (orientation:portrait)

Table 5.3: Media queries required for the most used tablet computers and smartphones.

CSS is used to arrange the HTML elements, this documents defines the layout of the page, the use of media queries helps the developer to change only the elements that have a different layout design for the different devices.

The CSS rules has two main parts, the selector and one or more properties, the selector is the HTML element, classname or both, the properties are style attributes to the element followed by a value for that propriety.

```
1 body { width:100%; height: 100%; margin: 0px auto; font-family:Verdana, Geneva, sans-serif; }
```

Selector body points to the tag name body on the HTML, being width, height, margin... properties at which a value is given. CSS document is commented for better explanation on the overall layout.

The modules re-design web page follows the same criteria, just the layout is changed with different proprieties.

All CSS and HTML documents can be found in the APPENDIX with comments for better understand and further development.

Chapter 6

Conclusion

Both the desktop and the mobile website validates without errors or warnings using the w3 validator.

XHTML Validation: <http://validator.w3.org/check?uri=http%3A%2F%2Fehub.three.dk%2F>

CSS Validation: <http://jigsaw.w3.org/css-validator/validator?uri=ehub.three.dk&profile=css3>

Mobile Validation: <http://validator.w3.org/mobile/?async=false&docAddr=http://ehub.three.dk/mobile/>

So far the content of the website is kept on a minimum where only design and navigation are implemented. The next step in getting a fully functional website for the energy system is to implement PHP scripts to make details as logging into the system, start and stop modules etc.

In the development of the website theory from the WEB1 classes have been used to code and design it all.

6.1 References

CSS Cookbook O'Reilly 2.Edition Christopher Schmitt.

Most Popular SmartPhones - http://www.brighthand.com/best_pdas/default.asp

Sams Teach Yourself HTML And CSS In 24 Hours (8th Edition)

Chapter 7

Appendixes

7.1 Index

7.1.1 HTML files

Index.html

```
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict
  .dtd">
2 <html xmlns="http://www.w3.org/1999/xhtml">
3   <head>
4     <!--http://www.useragentman.com/blog/2010/03/09/cross-browser-css-transforms-even-in-ie/-->
5     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
6     <meta name="viewport" content="width=device-width, initial-scale=1, user-scalable=no" />
7     <link rel="stylesheet" type="text/css" href="reset.css" />
8     <link rel="stylesheet" type="text/css" href="style_index.css" />
9     <title>Energy System - HIH E10</title>
10  </head>
11  <body>
12    <div id="bg">
13      
14    </div>
15    <div id="hub" class="boxbg">
16      <a href="modules/hub/">  </a>
17    </div>
18    <div id="Mtopleft" class="boxbg">
19      <a href="modules/wind/">  </a>
20    </div>
21    <div id="Mtopright" class="boxbg">
22      <a href="modules/photo/">  </a>
23    </div>
24    <div id="Mbottomleft" class="boxbg">
25      <a href="modules/caes/">  </a>
26    </div>
27    <div id="Mbottomright" class="boxbg">
28      <a href="modules/battery/">  </a>
29    </div>
30
31  <div id="linebox">
32    <div class="energyboxes" id="bulb">
33      <h1>x 21</h1>
34    </div>
```



```
35     <div class="energyboxes" id="coins">
36         <h1>40kr</h1>
37     </div>
38     <div class="energyboxes" id="co2">
39         <h1>40 g</h1>
40     </div>
41 </div>
42
43 <div id="dock">
44     <a href="index.html">  </a>
45     <a href="#" onclick="alert('Not available on this web page version.');">  </a>
47 </div>
48 <div id="dot">
49     
50 </div>
51 </body>
</html>
```

7.1.2 CSS files

Reset.css

```
1  /* -----
2
3  reset.css
4  * Resets default browser CSS.
5
6  ----- */
7
8  html {
9      margin:0;
10     padding:0;
11     border:0;
12 }
13
14 body, div, span, object, iframe,
15 h1, h2, h3, h4, h5, h6, p, blockquote, pre,
16 a, abbr, acronym, address, code,
17 del, dfn, em, img, q, dl, dt, dd, ol, ul, li,
18 fieldset, form, label, legend,
19 table, caption, tbody, tfoot, thead, tr, th, td,
20 article, aside, dialog, figure, footer, header,
21 hgroup, nav, section {
22     margin: 0;
23     padding: 0;
24     border: 0;
25     font-size: 100%;
26     font: inherit;
27     vertical-align: baseline;
28 }
29
30 /* This helps to make newer HTML5 elements behave like DIVs in older browsers */
31 article, aside, details, figcaption, figure, dialog,
32 footer, header, hgroup, menu, nav, section {
33     display:block;
```

```
34 }
35
36 /* Line-height should always be unitless! */
37 body {
38     line-height: 1.5;
39     background: white;
40 }
41
42 /* Tables still need 'cellspacing="0"' in the markup. */
43 table {
44     border-collapse: separate;
45     border-spacing: 0;
46 }
47 /* float:none prevents the span-x classes from breaking table-cell display */
48 caption, th, td {
49     text-align: left;
50     font-weight: normal;
51     float: none !important;
52 }
53 table, th, td {
54     vertical-align: middle;
55 }
56
57 /* Remove possible quote marks (") from <q>, <blockquote>. */
58 blockquote:before, blockquote:after, q:before, q:after { content: ''; }
59 blockquote, q { quotes: " " " "; }
60
61 /* Remove annoying border on linked images. */
62 a img { border: none; }
63
64 /* Remember to define your own focus styles! */
65 :focus { outline: 0; }
```

Style_index.css

```
1  /* CSS Document */
2
3  body {
4      font-family: Verdana, Geneva, sans-serif;
5  }
6
7  h1 { font-size: 40px; }
8
9  /* BACKGROUND */
10 #bg {} /*Empty ID for the background to satisfy W3 validator*/
11
12     /*Stretch the background image over the whole screen*/
13 #bg img {
14     position: absolute;
15     width: 100%;
16     height: 100%;
17     z-index: -999; /*Put image behind everything else*/
18 }
19
20 /* DEVICES CONNECTED */
21 .boxbg {
22     position: absolute;
```

```
23 background-image:url(pic/ybg.png);
24 background-repeat:repeat-x;
25 height: 100px;
26 width: 150px;
27 border: 2px solid #999; /* Put padding and round corners*/
28 border-bottom-left-radius: 5px;
29 border-bottom-right-radius: 5px;
30 border-top-left-radius: 5px;
31 border-top-right-radius: 5px;
32 }
33
34 .boxbg img { padding-left: 10%; }
35
36 /*HUB position and size*/
37 #hub {left: 30%; top: 22%; width:295px;}
38 /*Module Top left position*/
39 #Mtopleft {left: 10%; top: 2%;}
40 /*Module Top right position*/
41 #Mtopright {left: 65%; top: 2%;}
42 /*Module Bottom left position*/
43 #Mbottomleft {left: 10%; top: 42%;}
44 /*Module Bottom right position*/
45 #Mbottomright {left: 65%; top: 42%;}
46
47 /* ALTERNATIVE ENERGY READOUT */
48 #linebox {
49     position: absolute;
50     top: 61%;
51     left: 5%;
52     width:90%;
53     height:110px;
54     border-bottom: 1px solid #999;
55     border-top: 1px solid #999;
56 }
57
58 .energyboxes {
59     position:inherit;
60     height: 70px;
61     width: 200px;
62     background-repeat:no-repeat;
63     background-position:left;
64     text-align:right;
65     padding-top:30px;
66 }
67 /*Position and picture of the bulb div*/
68 #bulb { left: 2%; background-image:url(pic/bulb.png);}
69 /*Position and picture of the coins div*/
70 #coins { left: 34%; background-image:url(pic/coins.png);}
71 /*Position and picture of the co2 div*/
72 #co2 { left: 66%; background-image:url(pic/co2.png);}
73
74 /*THE DOCK*/
75 #dock {
76     position: absolute;
77     width: 310px;
78     background-image:url(pic/dock_small.png);
```

```
79 background-repeat: no-repeat;
80 background-position: bottom;
81 bottom: 10px;
82 height: 100px;
83 }
84
85 #dock img {float: left; opacity:0.80;} /*All browsers exept IE*/
86
87 /*change position of the locker to float right instead of left as the other link(s)*/
88 img#lock { float: right; padding-right: 50px;}
89 /*remove transparency when mouse over*/
90 #dock img:hover {opacity:1.00;} /*All browsers exept IE*/
91
92 /*set dot position to under the house (home)*/
93 #dot {
94 position: absolute;
95 bottom: 3px;
96 left: 26px;
97 z-index: 1; /*put in front of everything else*/
98 }
```

7.2 Modules

7.2.1 HTML files

modules/hub/index.html

```
1 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict
2 .dtd">
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5     <!--http://www.useragentman.com/blog/2010/03/09/cross-browser-css-transforms-even-in-ie/-->
6     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
7     <meta name="viewport" content="width=device-width, initital-scale=1, user-scalable=no" />
8     <link rel="stylesheet" type="text/css" href="../../reset.css" />
9     <link rel="stylesheet" type="text/css" href="../../module_styles.css" />
10    <link rel="stylesheet" type="text/css" href="style_hub.css" />
11    <title>Energy Hub - HIH E10</title>
12 </head>
13 <body>
14     <div id="bg">
15         
16     </div>
17     <div id="header">
18         
19         <h1>ENERGY HUB</h1>
20     </div>
21     <div id="main">
22         <div id="graph">
23             
24         </div>
25         <div id="status">
26             <table>
27                 <tr>
```

```
28     <td>Current power production</td><td>2.0 kW</td>
29   </tr>
30   <tr>
31     <td>Current power consumption</td><td>1.8 kW</td>
32   </tr>
33   <tr>
34     <td>Total power production</td><td>135.15 kWh</td>
35   </tr>
36   <tr>
37     <td>Average power production</td><td>1.7 kWh</td>
38   </tr>
39   <tr>
40     <td>Uptime</td><td>3 days 7 hours 34 minutes</td>
41   </tr>
42   <tr>
43     <td>Status</td><td>Running</td>
44   </tr>
45 </table>
46 </div>
47
48 <div class="modules" id="M1">
49 M1<br />
50 <a href="../wind/">  </a>
51 </div>
52 <div class="modules" id="M2">
53 M2<br />
54 <a href="../battery/">  </a>
55 </div>
56 <div class="modules" id="M3">
57 M3<br />
58
59 </div>
60 <div class="modules" id="M4">
61 M4<br />
62 <a href="../photo/">  </a>
63 </div>
64 <div class="modules" id="M5">
65 M5<br />
66
67 </div>
68 <div class="modules" id="M6">
69 M6<br />
70
71 </div>
72 <div class="modules" id="M7">
73 M7<br />
74 <a href="../caes/">  </a>
75 </div>
76 <div class="modules" id="M8">
77 M8<br />
78
79 </div>
80 <div class="modules" id="M9">
81 M9<br />
82
83 </div>
```

```

84     <div class="modules" id="M10">
85         M10<br />
86
87     </div>
88 </div>
89
90 <div id="dock">
91     <a href="/">  </a>
92     <a href="/hub/">  </a>
93     <a href="/wind/">  </a>
94     <a href="/photo/">  </a>
95     <a href="/battery/">  </a>
96     <a href="/caes/">  </a>
97     <a href="#" onclick="alert('Not available on this web page version.')">  </a>
98 </div>
99 <div class="dot" id="dothub">
100     
101 </div>
102 <div id="docknames">
103     <h3>EDE10 Team3</h3>
104     <p>Dennis Madsen<br/>
105     Theis Christensen<br/>
106     Paulo Miguel Fontes</p>
107 </div>
108 </body>
109 </html>

```

7.2.2 CSS files

modules/module_styles.css

```

1  /* CSS Document */
2
3  body {
4      font-family: Verdana, Geneva, sans-serif;
5  }
6
7  /* BACKGROUND */
8  #bg {} /*Empty ID for the background to satisfy W3 verifcator*/
9
10     /*Stretch the background image over the whole screen*/
11  #bg img {
12      position: absolute;
13      width: 100%;
14      height: 100%;
15      z-index: -999; /*Put image behind everything else*/
16  }
17
18  /*HEADER*/
19  #header {
20      position: absolute;
21      width: 100%;
22      min-width: 900px;
23      height: auto;
24      text-align: left;

```

```
25     text-transform: uppercase;
26 }
27
28 #header img{
29     float: left;
30     top: 10%;
31     margin-left: 50px;
32 }
33
34 #header h1{ font-size: 48px; padding-top: 35px;}
35
36 /*MAIN WINDOW*/
37 #main {
38     position: absolute;
39     left: 4%;
40     top: 15%;
41     width: 92%;
42     min-width: 915px;
43     min-height: 340px;
44     height: 60%;
45     border: 1px solid #999;
46     border-bottom-left-radius: 5px;
47     border-bottom-right-radius: 5px;
48     border-top-left-radius: 5px;
49     border-top-right-radius: 5px;
50 }
51
52 /*THE DOCK*/
53 #dock {
54     position: absolute;
55     width: 854px;
56     background-image: url(/pic/dock.png);
57     background-repeat: no-repeat;
58     background-position: bottom;
59     bottom: 10px;
60     height: 100px;
61 }
62
63 #dock img {
64     float: left;
65     padding-right: 25px;
66     opacity: 0.80; /*All browsers except IE*/
67 }
68
69 /*remove transparency when mouse over*/
70 #dock img:hover { opacity: 1.00;} /*All browsers except IE*/
71
72 /*change position of the locker to float right instead of left as the other link(s)*/
73 img#lock { float: right; padding-right: 50px;}
74
75 #docknames {
76     color: #999;
77     position: absolute;
78     width: 130px;
79     height: 80px;
80     bottom: 10px;
```

```
81     left: 860px;
82     font-size: 11px;
83 }
84
85 #docknames h3{ font-size: 12px;}
86
87 /*set dot position to under the house (home)*/
88 .dot {
89     position: absolute;
90     bottom: 3px;
91     z-index: 1; /*put in front of everything else*/
92 }
93
94 #dothub {left: 138px;}
95 #dotwind {left: 233px;}
96 #dotphoto {left: 358px;}
97 #dotbat {left: 466px;}
98 #dotcaes {left: 578px;}
```

modules/hub/style_hub.css

```
1  #graph {
2      /*border: 1px solid #999;*/
3      position: inherit;
4      height: 200px;
5      width: 350px;
6  }
7  #status{
8      /*border: 1px solid #999;*/
9      position: inherit;
10     height: 200px;
11     left: 350px;
12     top: 15px;
13     width: 400px;
14 }
15 #status td {
16     padding-left: 10px;
17     font-weight: bold;
18     font-size: 12px;
19 }
20 .modules {
21     /*border: 1px solid #999;*/
22     text-align: center;
23     font-weight: bold;
24     position: inherit;
25     height: 120px;
26     top: 200px;
27     width: 90px;
28 }
29 #M1 {left: 10px;}
30 #M2 {left: 100px;}
31 #M3 {left: 190px;}
32 #M4 {left: 280px;}
33 #M5 {left: 370px;}
34 #M6 {left: 460px;}
35 #M7 {left: 550px;}
36 #M8 {left: 640px;}
```



```
37 #M9 {left: 730px;}
38 #M10 {left: 820px;}
```

7.3 Small Devices

7.3.1 HTML files

mobile/index.html

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <!DOCTYPE html PUBLIC "-//WAPFORUM//DTD XHTML Mobile 1.2//EN" "http://www.openmobilealliance.org/tech/
   DTD/xhtml1-mobile12.dtd">
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5 <meta http-equiv="Content-Type" content="application/xhtml+xml; charset=UTF-8"/>
6 <meta http-equiv="Cache-Control" content="max-age=3600, must-revalidate " />
7 <meta name="viewport" content="width=device-width; maximum-scale=1.0; user-scalable=0;"/>
8 <link rel="stylesheet" type="text/css" media="only screen and (orientation:portrait)" href="
   index_portrait.css" />
9 <link rel="stylesheet" type="text/css" media="only screen and (orientation:landscape)" href="
   index_landscape.css" />
10 <title>Energy System - HIH E10</title>
11 </head>
12 <body>
13 <div id="hub" onclick="location.href='modules/hub/'"><div id="hub_img"></div></div>
14 <div id="modules">
15 <div id="Mtopleft" class="boxbg" onclick="alert('Not available on this web page version.')"><div id="
   wind_img"></div></div>
16 <div id="Mtopright" class="boxbg" onclick="alert('Not available on this web page version.')"><div id="
   photo_img"></div></div>
17 <div id="Mbottomleft" class="boxbg" onclick="alert('Not available on this web page version.')"><div id="
   caes_img"></div></div>
18 <div id="Mbottomright" class="boxbg" onclick="alert('Not available on this web page version.')"><div id
   ="bat_img"></div></div>
19 </div>
20 <div id="dock">
21 <div id="dock_home" onclick="location.href='index.html'"></div>
22 <div id="dock_lock" onclick="alert('Not available on this web page version.')"></div>
23 </div>
24 </body>
25 </html>
```

mobile/modules/hub/index.html

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <!DOCTYPE html PUBLIC "-//WAPFORUM//DTD XHTML Mobile 1.2//EN" "http://www.openmobilealliance.org/tech/
   DTD/xhtml1-mobile12.dtd">
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5 <meta http-equiv="Content-Type" content="application/xhtml+xml; charset=UTF-8"/>
6 <meta http-equiv="Cache-Control" content="max-age=3600, must-revalidate " />
7 <meta name="viewport" content="width=device-width; maximum-scale=1.0; user-scalable=0;"/>
8 <link rel="stylesheet" type="text/css" media="only screen and (orientation:portrait)" href="../../
   module_portrait.css" />
9 <link rel="stylesheet" type="text/css" media="only screen and (orientation:landscape)" href="../../
   module_landscape.css" />
```

```

10 <link rel="stylesheet" type="text/css" media="screen" href="style_hub.css" />
11 <title>Energy Hub - HIH E10</title>
12 </head>
13 <body>
14     <div id="header">
15         
16         <h1>ENERGY HUB</h1>
17     </div>
18
19     <div id="main">
20         <div id="status">
21             <table>
22                 <tr>
23                     <td>Current power production</td><td>2.0 kW</td>
24                 </tr>
25                 <tr>
26                     <td>Current power consumption</td><td>1.8 kW</td>
27                 </tr>
28                 <tr>
29                     <td>Total power production</td><td>135.15 kWh</td>
30                 </tr>
31                 <tr>
32                     <td>Average power production</td><td>1.7 kWh</td>
33                 </tr>
34                 <tr>
35                     <td>Uptime</td><td>3 days 7 hours 34 minutes</td>
36                 </tr>
37                 <tr>
38                     <td>Status</td><td>Running</td>
39                 </tr>
40             </table>
41         </div>
42     </div>
43
44     <div id="dock">
45         <div id="dock_home" onclick="location.href='../index.html'"></div>
46         <!--<div id="dock_hub" onclick="location.href='hub.html'"></div>-->
47         <div id="dock_wind" onclick="alert('Not available on this web page version.')"></div>
48         <div id="dock_photo" onclick="alert('Not available on this web page version.')"></div>
49         <div id="dock_bat" onclick="alert('Not available on this web page version.')"></div>
50         <div id="dock_caes" onclick="alert('Not available on this web page version.')"></div>
51         <div id="dock_lock" onclick="alert('Not available on this web page version.')"></div>
52     </div>
53 </body>
54 </html>

```

7.3.2 CSS files

mobile/index_portrait.css

```

1  /* Body tag layout proprieties */
2  body {
3      width:100%; /* Specify the width of the body to fit the device width, this is mostly used to center
                     elements in the screen. */
4      height: 100%; /* Specify the height of th body to fit the device heigh, this will allow the use of
                       percentages height on elements proprieties */

```

```
5  margin: 0px; /* Defines margin to 0px, no margin on the body */
6  font-family: Verdana, Geneva, sans-serif; /* Defines the font type, first choice will be Verdana and if
   not exists it will try Geneva */
7  }
8
9  /* Back ground box classname, this defines the classname boxbg is made with the character dot before
   the selector name. Elements on HTML have to be set with this classmate. */
10 .boxbg {
11  position: absolute; /* Sets the position as absolute */
12  background-image: url(pic/ybg.png); /* Loads a image to the element background */
13  background-repeat: repeat-x; /* Repeats the image on the x axis */
14  /* Defines a border around the element and round the corners, this is not visible on IE but the layout
   is not break just the corners are not rounded. */
15  border: 2px solid #999;
16  border-bottom-left-radius: 5px;
17  border-bottom-right-radius: 5px;
18  border-top-left-radius: 5px;
19  border-top-right-radius: 5px;
20  width: 149px;
21  height: 80px;
22  padding-bottom: 10px; /* Gives a space between the bottom of the element and the inside of 10px */
23 }
24
25 #hub_img{
26  background-image: url(pic/hub.png);
27  background-repeat: no-repeat; /* Do not repeat background image in any axis */
28  background-position: center; /* Centers the background image */
29  height: 85px;
30  padding-top: 5px; /* Spaces the background image from the top 5px */
31 }
32
33 #wind_img{
34  background-image: url(pic/wind.png);
35  background-repeat: no-repeat;
36  background-position: center;
37  height: 85px;
38 }
39
40 #photo_img{
41  background-image: url(pic/photo.png);
42  background-repeat: no-repeat;
43  background-position: center;
44  height: 85px;
45 }
46
47
48 #caes_img{
49  background-image: url(pic/caes.png);
50  background-repeat: no-repeat;
51  background-position: center;
52  height: 90px;
53 }
54
55
56 #bat_img{
57  background-image: url(pic/bat.png);
```

```
58 background-repeat:no-repeat;
59 background-position:center;
60 height:85px;
61 }
62
63 #dock {
64     position: absolute;
65     width: 100%;
66     background-image:url(pic/dock.gif);
67     background-repeat: no-repeat;
68     background-position: bottom;
69     height: 85px;
70     bottom: 0px; /* Sets the position of the element to the bottom of the page. */
71 }
72
73 #dock_home{
74     background-image:url(pic/dock/dock_home.png);
75     background-repeat:no-repeat;
76     background-position:left;
77     height:75px;
78     width: 75px;
79 }
80
81 #dock_lock{
82     background-image:url(pic/dock/dock_key_lock.png);
83     background-repeat:no-repeat;
84     background-position:left;
85     height:75px;
86     width: 75px;
87 }
88
89 #dock div {
90     padding-left: 10px;
91     float:left;
92     border: none;
93 }
94
95 /* Sets proprieties for iPhone */
96 @media screen and (width:320px){
97
98     #Mtopleft {
99         left: 5px;
100         top: 90px;
101     }
102
103     #Mtopright {
104         right: 5px;
105         top: 90px;
106     }
107
108     #Mbottomleft {
109         left: 5px;
110         top: 190px;
111     }
112
113     #Mbottomright {
```

```
114     right: 5px;
115     top: 190px;
116 }
117 }
118
119 /* Sets proprieties for HTC and Galaxy */
120 @media screen and (min-width:321px) and (max-width:480px){
121     #Mtopleft {
122         left:50%;
123         top:50%;
124         margin-left: -35%;
125         margin-top: -25%;
126     }
127
128     #Mbottomleft {
129         left:50%;
130         top:50%;
131         margin-left: -35%;
132         margin-top: 0;
133     }
134
135     #Mtopright {
136         right:50%;
137         top:50%;
138         margin-right: -35%;
139         margin-top: -25%;
140     }
141
142     #Mbottomright {
143         right:50%;
144         top:50%;
145         margin-right: -35%;
146         margin-top: 0;
147     }
148
149 }
150
151 /* Hides body since this is not a supported portrait device. */
152 @media screen and (min-width:481px){
153     body { display:none; }
154 }
```

mobile/index_landscape.css

```
1  body {
2      overflow: hidden; /* Ensure that scrool bars are not show */
3      width: 100%;
4      height: 100%;
5      margin: 0px;
6      font-family:Verdana, Geneva, sans-serif;
7  }
8
9  .boxbg {
10     background-color:#FFC;
11     background-image:url(pic/ybg.png);
12     background-repeat:repeat-x;
13     border: 2px solid #999;
```

```
14 border-bottom-left-radius: 5px;
15 border-bottom-right-radius: 5px;
16 border-top-left-radius: 5px;
17 border-top-right-radius: 5px;
18 width: 110px;
19 height: 90px;
20 }
21
22 #modules{
23     position: absolute;
24     width: 100%;
25     height: auto;
26     text-align: center;
27     white-space: nowrap;
28     display: block;
29 }
30
31 #hub_img{
32     background-image: url(pic/hub.png);
33     background-repeat: no-repeat;
34     background-position: center;
35     height: 85px;
36     padding-top: 5px;
37 }
38
39 #Mtopleft {
40     display: inline-block; /* Used to align element side by side */
41 }
42
43 #Mtopright {
44     display: inline-block; /* Used to align element side by side */
45 }
46
47
48 #Mbottomleft {
49     display: inline-block; /* Used to align element side by side */
50 }
51
52 #Mbottomright {
53     display: inline-block; /* Used to align element side by side */
54 }
55
56 #caes_img{
57     background-image: url(pic/caes.png);
58     background-repeat: no-repeat;
59     background-position: center;
60     height: 100%;
61 }
62
63 #photo_img{
64     background-image: url(pic/photo.png);
65     background-repeat: no-repeat;
66     background-position: center;
67     height: 100%;
68 }
69
```

```
70 #wind_img{
71     background-image:url(pic/wind.png);
72     background-repeat:no-repeat;
73     background-position:center;
74     height:100%;
75 }
76
77 #bat_img{
78     background-image:url(pic/bat.png);
79     background-repeat:no-repeat;
80     background-position:center;
81     height:100%;
82 }
83
84 /* Sets proprieties for iPhone */
85 @media screen and (max-width:480px){
86
87     #dock {
88         display: none;
89     }
90
91 }
92
93
94 /* Sets proprieties for HTC and Galaxy */
95 @media only screen and (min-width:481px) and (max-width:800px){
96
97     #modules{
98         position:absolute;
99         width: 100%;
100        height: auto;
101        text-align:center;
102        white-space:nowrap;
103        display:block;
104        top:50%;
105        margin-top:-20%;
106    }
107
108    #dock {
109        position: absolute;
110        z-index: 10;
111        width: 100%;
112        background-image:url(pic/dock.gif);
113        background-repeat: repeat-x;
114        background-position: bottom;
115        height: 85px;
116        bottom: 0px;
117    }
118
119    #dock_home{
120        background-image:url(pic/dock/dock_home.png);
121        background-repeat:no-repeat;
122        background-position:left;
123        height:75px;
124        width: 75px;
125    }
```

```
126
127 #dock_lock{
128     background-image:url(pic/dock/dock_key_lock.png);
129     background-repeat:no-repeat;
130     background-position:left;
131     height: 75px;
132     width: 75px;
133 }
134
135 #dock div {
136     padding-left: 10px;
137     float:left;
138     border: none;
139 }
140 }
141
142 /* Hides body since this is not a supported portrait device. */
143 @media screen and (min-width:801px){
144     body { display:none; }
145 }
```

mobile/modules/module_portrait.css

```
1  body {
2      height: 100%;
3      width: 100%;
4      margin: 0;
5      padding: 0;
6      overflow:hidden;
7      font-family:Verdana, Geneva, sans-serif;
8  }
9
10 body h1{
11     font-size: 26px;
12 }
13
14 #header {
15     margin:0px;
16     position: absolute;
17     width: 100%;
18     text-align:left;
19     text-transform: uppercase;
20     white-space:nowrap;
21 }
22
23 #header img{
24     float: left;
25 }
26
27 @media screen and (width:320px){
28
29 #main {
30     padding:0px;
31     position:absolute;
32     left: 0px;
33     top:15%;
34     width: 100%;
```



```
35     height: 65%;
36     border-top: 1px dashed #999;
37     border-bottom: 1px dashed #999;
38     overflow:auto;
39 }
40
41 }
42
43 @media screen and (min-width:321px) and (max-width:480px){
44
45 #main {
46     padding:0px;
47     position:absolute;
48     left: 0px;
49     top:10%;
50     width: 100%;
51     height: 80%;
52     border-top: 1px dashed #999;
53     border-bottom: 1px dashed #999;
54     overflow:auto;
55 }
56
57 }
58
59 #dock {
60     position: absolute;
61     width: 100%;
62     background-image:url(../pic/dock.gif);
63     background-repeat: no-repeat;
64     background-position: bottom;
65     height: 55px;
66     bottom: 0px; /* Sets the position of the element to the bottom of the page. */
67 }
68
69 #dock div{
70     width: 50px;
71     height:100%;
72     padding-left: 3px;
73     float:left;
74 }
75
76 #dock_home{
77     background-image:url(../pic/header_small/header_home.png);
78     background-position:bottom;
79     background-repeat:no-repeat;
80 }
81
82 #dock_hub{
83     background-image:url(../pic/header_small/header_hub.png);
84     background-position:bottom;
85     background-repeat:no-repeat;
86 }
87
88 #dock_wind{
89     background-image:url(../pic/header_small/header_wind.png);
90     background-position:bottom;
```

```
91     background-repeat:no-repeat;
92 }
93
94 #dock_photo{
95     background-image:url(../pic/header_small/header_solar.png);
96     background-position:bottom;
97     background-repeat:no-repeat;
98 }
99
100 #dock_bat{
101     background-image:url(../pic/header_small/header_bat.png);
102     background-position:bottom;
103     background-repeat:no-repeat;
104 }
105
106 #dock_caes{
107     background-image:url(../pic/header_small/header_caes.png);
108     background-position:bottom;
109     background-repeat:no-repeat;
110 }
111
112 @media screen and (min-width:481px){
113     body { display:none; }
114 }
```

mobile/modules/module_landscape.css

```
1  body {
2      height: 100%;
3      width: 100%;
4      margin: 0;
5      padding: 0;
6      overflow:hidden;
7      font-family:Verdana, Geneva, sans-serif;
8  }
9
10  body h1{
11      font-size: 26px;
12  }
13
14  #header {
15      margin:0px;
16      top: 0px;
17      position: absolute;
18      width: 100%;
19      text-align:left;
20      text-transform: uppercase;
21      white-space:nowrap;
22  }
23
24  #header img{
25      float: left;
26  }
27
28  @media screen and (max-width:480px){
29
30  #main {
```

```
31 padding:0px;
32 position:absolute;
33 left: 0px;
34 top:22%;
35 width: 100%;
36 height: 55%;
37 border-top: 1px dashed #999;
38 border-bottom: 1px dashed #999;
39 overflow:auto;
40 }
41
42 }
43
44 @media only screen and (min-width:481px) and (max-width:800px){
45
46 #main {
47 padding:0px;
48 position:absolute;
49 left: 0px;
50 top:15%;
51 width: 100%;
52 height: 70%;
53 border-top: 1px dashed #999;
54 border-bottom: 1px dashed #999;
55 overflow:auto;
56 }
57
58 }
59
60
61 #dock {
62 position: absolute;
63 width: 100%;
64 background-image:url(../pic/dock.gif);
65 background-repeat: repeat-x;
66 background-position: bottom;
67 height: 55px;
68 bottom: 0px; /* Sets the position of the element to the bottom of the page. */
69 }
70
71 #dock div{
72 width: 50px;
73 height:100%;
74 padding-left: 3px;
75 float:left;
76 }
77
78 #dock_home{
79 background-image:url(../pic/header_small/header_home.png);
80 background-position:bottom;
81 background-repeat:no-repeat;
82 }
83
84 #dock_hub{
85 background-image:url(../pic/header_small/header_hub.png);
86 background-position:bottom;
```

```
87     background-repeat:no-repeat;
88 }
89
90 #dock_wind{
91     background-image:url(../pic/header_small/header_wind.png);
92     background-position:bottom;
93     background-repeat:no-repeat;
94 }
95
96 #dock_photo{
97     background-image:url(../pic/header_small/header_solar.png);
98     background-position:bottom;
99     background-repeat:no-repeat;
100 }
101
102 #dock_bat{
103     background-image:url(../pic/header_small/header_bat.png);
104     background-position:bottom;
105     background-repeat:no-repeat;
106 }
107
108 #dock_caes{
109     background-image:url(../pic/header_small/header_caes.png);
110     background-position:bottom;
111     background-repeat:no-repeat;
112 }
113
114 @media screen and (min-width:801px){
115     body { display:none; }
116 }
```