Findability is how easy an object is to find. It has to do with how well the object is catalogued or indexed, including what keywords or subject headings are assigned to it. The language used in the indexing is an important consideration; the language needs to be unambiguous, but also needs to take common usage into account. Findability is reduced if people can't think of the correct term to search under. Another factor is whether or not the object is placed in a hierarchy with other objects, and where it is placed in the hierarchy. Hierarchies and collocation can affect the way people search, both negatively and positively, and can affect the perceived meaning of an object. As much as possible, the structure of a hierarchy should reflect the way the information is used.

Part of figuring out how to optimize findability is figuring out what your audience will most likely be looking for, which requires defining your audience. For example, academics would search differently than a typical group from a public library. In this exercise, I hypothesize that the target audience for the information objects I chose on alternative energy would be individuals or families (as opposed to businesses or corporations), who are looking for something practical that they might be able to put to use. They're more likely to be from the general public than from an academic or scientific background. They will likely be people concerned about environmental issues, or interested in decreasing their dependence on foreign petroleum.

Their searches might be general ("alternative fuel") or specific ("solar energy," "ethanol"), and may be tied to geographical regions; i.e., the "where" aspect. In some cases, it would be important to find the most specific region or regions associated with the objects, as well as general regions such as countries, although some objects are too

general or too hypothetical to tag with a region. This could fall under the PBCore *coverage* element.

The searches also might be for specific companies or specific information sources. Information sources can be covered with the *publisher* element, while companies and creators can be covered in the *subject* element; both of these address the "who" aspect. The *subject* element also covers "what," both specific ("fuel cells") and generic ("energy"). These would be in addition to a free-text description that provides details about the object. The information objects are likely to be time sensitive as well. Temporal coverage, or "when," would be both generic ("projected", "retrospective") and specific, and might be different from the issue date. This could also be addressed under the *coverage* element.

Schema:

- Required tags:
    - pbc:identifier
    - pbc:title
    - pbc:creator
    - pbc:publisher
    - pbc:dateIssued
    - pbc:formatLocation
    - pbc:formatMediaType
    - pbc:subjectAuthorityUsed
    - pbc:subject
    - pbc:description
- Additional tags:
    - pbc:coverageType

        - From PBCore, to "identify the actual type of keywords that are being used" in the *coverage* tag. This can be S**patial**, by geographical location, or **Temporal**, by date, period, era, or a range of dates.
    - pbc:coverage
        - From PBCore, "uses keywords to identify a span of space or time expressed by the intellectual content of a media item." Used because the information objects are likely to be time sensitive, and are often tied to a specific region or regions.
    - mia:items
        - A root tag to enclose the feed.
    - mia:item
        - A tag to contain each information object.

XML:

```
<?xml version="1.0" encoding="UTF-8"?>
<mia:items version="1.1" xmlns:mia="http://www.mianamespace.com"
xmlns:pbc="http://www.pbcore.org/PBCore/PBCoreNamespace.html">
  <mia:item>
    <pbc:pbcoreTitle>
      <pbc:title>Alternative Power was Cars First Fuel</pbc:title>
      <pbc:titleType>Program</pbc:titleType>
    </pbc:pbcoreTitle>
    <pbc:formatMediaType>Sound</pbc:formatMediaType>
    <pbc:description>
      The desire to build vehicles that run on alternative power dates back to long before cars even existed
    </pbc:description>
    <pbc:formatLocation>
      http://www.npr.org/templates/player/mediaPlayer.html?action=1&t=1&islist=false&id=16218988&m=16218189;
    </pbc:formatLocation>
    <pbc:pbcoreCreator>
      <pbc:creator>Cohen, Alex</pbc:creator>
      <pbc:creatorRole>Reporter</pbc:creatorRole>
    </pbc:pbcoreCreator>
    <pbc:pbcorePublisher>
      <pbc:publisher>NPR</pbc:publisher>
      <pbc:publisherRole>Publisher</pbc:publisherRole>
    </pbc:pbcorePublisher>
    <pbc:dateIssued>2007-11-12</pbc:dateIssued>
    <pbc:pbcoreSubject>
      <pbc:subject>Automobiles</pbc:subject>
      <pbc:subjectAuthorityUsed>
        https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
```

```
      </pbc:subjectAuthorityUsed>
    </pbc:pbcoreSubject>
    <pbc:pbcoreSubject>
      <pbc:subject>Business</pbc:subject>
      <pbc:subjectAuthorityUsed>
        https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
      </pbc:subjectAuthorityUsed>
    </pbc:pbcoreSubject>
    <pbc:pbcoreSubject>
      <pbc:subject>Energy</pbc:subject>
      <pbc:subjectAuthorityUsed>
        https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
      </pbc:subjectAuthorityUsed>
    </pbc:pbcoreSubject>
    <pbc:pbcoreSubject>
      <pbc:subject>Environment</pbc:subject>
      <pbc:subjectAuthorityUsed>
        https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
      </pbc:subjectAuthorityUsed>
    </pbc:pbcoreSubject>
    <pbc:pbcoreSubject>
      <pbc:subject>Technology</pbc:subject>
      <pbc:subjectAuthorityUsed>
        https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
      </pbc:subjectAuthorityUsed>
    </pbc:pbcoreSubject>
    <pbc:pbcoreSubject>
      <pbc:subject>Alternative Fuel</pbc:subject>
      <pbc:subjectAuthorityUsed/>
    </pbc:pbcoreSubject>
    <pbc:pbcoreSubject>
      <pbc:subject>Personal Transportation</pbc:subject>
      <pbc:subjectAuthorityUsed/>
    </pbc:pbcoreSubject>
    <pbc:pbcoreCoverage>
      <pbc:coverage>Retrospective</pbc:coverage>
      <pbc:coverageType>Temporal</pbc:coverageType>
    </pbc:pbcoreCoverage>
    <pbc:pbcoreCoverage>
      <pbc:coverage>Los Angeles, California</pbc:coverage>
      <pbc:coverageType>Spatial</pbc:coverageType>
    </pbc:pbcoreCoverage>
    <pbc:pbcoreCoverage>
      <pbc:coverage>Petersen Automotive Museum</pbc:coverage>
      <pbc:coverageType>Spatial</pbc:coverageType>
    </pbc:pbcoreCoverage>
  </mia:item>
  <mia:item>
    <pbc:pbcoreTitle>
      <pbc:title>Questions Loom over Increased Ethanol Use</pbc:title>
      <pbc:titleType>Article</pbc:titleType>
    </pbc:pbcoreTitle>
    <pbc:formatMediaType>Text</pbc:formatMediaType>
    <pbc:description>
      Ethanol still faces critics who question its feasibility as a replacement for oil and its impact on the environment
    </pbc:description>
```

<pbc:formatLocation>
http://www.pbs.org/newshour/indepth_coverage/science/alt_fuels/ethanol.html
</pbc:formatLocation>
<pbc:pbcoreCreator>
<pbc:creator>Miller, Talea</pbc:creator>
<pbc:creatorRole>Reporter</pbc:creatorRole>
</pbc:pbcoreCreator>
<pbc:pbcorePublisher>
<pbc:publisher>PBS Online NewsHour</pbc:publisher>
<pbc:publisherRole>Distributor</pbc:publisherRole>
</pbc:pbcorePublisher>
<pbc:dateIssued>2007-10-09</pbc:dateIssued>
<pbc:pbcoreSubject>
<pbc:subject>Automobiles</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Business</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Energy</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Environment</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Technology</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Alternative Fuel</pbc:subject>
<pbc:subjectAuthorityUsed/>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Ethanol</pbc:subject>
<pbc:subjectAuthorityUsed/>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>U.S. Department of Agriculture</pbc:subject>
<pbc:subjectAuthorityUsed/>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Personal Transportation</pbc:subject>

<pbc:subjectAuthorityUsed/>
</pbc:pbcoreSubject>
<pbc:pbcoreCoverage>
<pbc:coverage>Projected</pbc:coverage>
<pbc:coverageType>Temporal</pbc:coverageType>
</pbc:pbcoreCoverage>
<pbc:pbcoreCoverage>
<pbc:coverage>2012-2022</pbc:coverage>
<pbc:coverageType>Temporal</pbc:coverageType>
</pbc:pbcoreCoverage>
<pbc:pbcoreCoverage>
<pbc:coverage>U.S.A.</pbc:coverage>
<pbc:coverageType>Spatial</pbc:coverageType>
</pbc:pbcoreCoverage>
</mia:item>
<mia:item>
<pbc:pbcoreTitle>
<pbc:title>Fuel Cells</pbc:title>
<pbc:titleType>Web Version</pbc:titleType>
</pbc:pbcoreTitle>
<pbc:formatMediaType>Moving Image</pbc:formatMediaType>
<pbc:description>
Hydrogen fuel cell cars promise pollution-free driving, but will we see them anytime soon?
</pbc:description>
<pbc:formatLocation>
http://www.pbs.org/wgbh/nova/sciencenow/3210/01.html
</pbc:formatLocation>
<pbc:pbcoreCreator>
<pbc:creator>NOVA Science NOW</pbc:creator>
<pbc:creatorRole>Production Unit</pbc:creatorRole>
</pbc:pbcoreCreator>
<pbc:pbcorePublisher>
<pbc:publisher>PBS NOVA</pbc:publisher>
<pbc:publisherRole>Distributor</pbc:publisherRole>
</pbc:pbcorePublisher>
<pbc:dateIssued>2005-07</pbc:dateIssued>
<pbc:pbcoreSubject>
<pbc:subject>Automobiles</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Energy</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Environment</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Technology</pbc:subject>

<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Alternative Fuel</pbc:subject>
<pbc:subjectAuthorityUsed/>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Fuel Cells</pbc:subject>
<pbc:subjectAuthorityUsed/>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Personal Transportation</pbc:subject>
<pbc:subjectAuthorityUsed/>
</pbc:pbcoreSubject>
<pbc:pbcoreCoverage>
<pbc:coverage>Projected</pbc:coverage>
<pbc:coverageType>Temporal</pbc:coverageType>
</pbc:pbcoreCoverage>
<pbc:pbcoreCoverage>
<pbc:coverage>U.S.A.</pbc:coverage>
<pbc:coverageType>Spatial</pbc:coverageType>
</pbc:pbcoreCoverage>
</mia:item>
<mia:item>
<pbc:pbcoreTitle>
<pbc:title>Fuel Cell Car</pbc:title>
<pbc:titleType>Diagram</pbc:titleType>
</pbc:pbcoreTitle>
<pbc:formatMediaType>Static Image</pbc:formatMediaType>
<pbc:description>Diagram of a fuel cell car</pbc:description>
<pbc:formatLocation>
http://www.pbs.org/wgbh/nova/sciencenow/3210/images/01-fcc-car.jpg
</pbc:formatLocation>
<pbc:pbcoreCreator>
<pbc:creator>NOVA Science NOW</pbc:creator>
<pbc:creatorRole>Production Unit</pbc:creatorRole>
</pbc:pbcoreCreator>
<pbc:pbcorePublisher>
<pbc:publisher>PBS</pbc:publisher>
<pbc:publisherRole>Distributor</pbc:publisherRole>
</pbc:pbcorePublisher>
<pbc:dateIssued>2005-07</pbc:dateIssued>
<pbc:pbcoreSubject>
<pbc:subject>Automobiles</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>
<pbc:pbcoreSubject>
<pbc:subject>Energy</pbc:subject>
<pbc:subjectAuthorityUsed>
https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
</pbc:subjectAuthorityUsed>
</pbc:pbcoreSubject>

```
      <pbc:pbcoreSubject>
        <pbc:subject>Environment</pbc:subject>
        <pbc:subjectAuthorityUsed>
          https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
        </pbc:subjectAuthorityUsed>
      </pbc:pbcoreSubject>
      <pbc:pbcoreSubject>
        <pbc:subject>Technology</pbc:subject>
        <pbc:subjectAuthorityUsed>
          https://secure.connect.pbs.org/pbsdocuments/pbs/PBCore/
        </pbc:subjectAuthorityUsed>
      </pbc:pbcoreSubject>
      <pbc:pbcoreSubject>
        <pbc:subject>Alternative Fuel</pbc:subject>
        <pbc:subjectAuthorityUsed/>
      </pbc:pbcoreSubject>
      <pbc:pbcoreSubject>
        <pbc:subject>Fuel Cells</pbc:subject>
        <pbc:subjectAuthorityUsed/>
      </pbc:pbcoreSubject>
      <pbc:pbcoreSubject>
        <pbc:subject>Personal Transportation</pbc:subject>
        <pbc:subjectAuthorityUsed/>
      </pbc:pbcoreSubject>
      <pbc:pbcoreCoverage>
        <pbc:coverage>Projected</pbc:coverage>
        <pbc:coverageType>Temporal</pbc:coverageType>
      </pbc:pbcoreCoverage>
    </mia:item>
</mia:items>
```

Analysis:

Defining what is most important in making the information findable influenced how I grouped the objects on the page. This particular set of objects offered several different potential groupings, each with their own strengths and weaknesses. My initial impulse was to group them by broad subject classification: cars and other transportation, and homes. Under these were subgroups by media type. However, while I was working with the metadata I realized how potentially important temporal coverage would be to these objects; the audience would want to know if the information is something currently useful, a hypothetical solution for the future, or historical information. With that in mind I reorganized the objects by the generic "when" of *current, projected,* and *retrospective*.

I created the subgroups based on broad subject categories. Other possible organizations would have been by media type, by type of alternative energy, or by location, but these wouldn't have supported findability as well as the first two options.

I ended up using about five of the metadata fields in creating the Web page, about a fifth or less of the total metadata. That's not a very high percentage, but it was very useful to have the information already collected and organized before starting on the design. This helped me come up with possible groupings for the objects, and helped me see what information would be feasible to include. For example, spatial coverage would be useful for some of the objects, but I could see from the metadata that other objects didn't have any spatial information, and the spatial information that was available was too widespread to be a convenient way to group the objects. I also ended up going back and adding to the metadata after I did the Web page, because I had a use for values that I hadn't originally included. I put these under the *subject* element.

Initially, my implementation created groupings that were relevant and potentially useful, but upon reexamination of the metadata and refining my definition of findability I found another grouping that better reflected the anticipated needs of the audience. Based on this experience I would say that the definition of findability not only supported the ability to group the objects, but also that having the definition of findability was crucial to finding the best design for the Web page.