

Using Zotero, .csl Rules, and MS Office

to Manage Reference Databases and Edit Narratives for OpenEI

This document contains instructions for the integrated use of Zotero and MS Office for managing references, rapid citing of sources, and automatic formatting of citations in OpenEI narratives. Procedures for using these tools with other office software packages may vary slightly. The methodology outlined below relies on a customized .csl settings file that provides Zotero with a rule set for automatic formatting in-line citations for OpenEI. The settings file also generates a formatted works cited list in MS Word that allows the completed reference list to be exported to Excel, without the need for additional modification.

First, you will need:

- The Zotero plugin for Mozilla Firefox or the Zotero standalone desktop client (also available for Mac OSX and Linux) [Click here](#)
- The [Zotero plugin](#) for MS Word
- The “Open EI Citation v1.5.csl” rules file.
- The “Reference_List.xls” reference import template.

I. Configuring Zotero Preferences for OpenEI Formatting

The following are instructions for configuring Zotero to automatically format citations for direct upload to OpenEI. A collection of references (Zotero’s equivalent to folders) should be maintained for each geothermal area throughout the research process. Students can access all the references in each collection using a search box as they write/edit narrative documents, allowing for fast and effective citation of source materials using the Zotero MS word plugin. Citations inserted in the text will be automatically formatted to use the `{{Cite |AuthorYear |Title}}` statement used by OpenEI (outlined in the Citations Help page [here](#)), such that narratives can simply be copy/pasted into the OpenEI edit forms at the end of the project.

1. ***If you are using the Zotero standalone client***, install the “OpenEI Citation v1.5.csl” rules file by navigating to the “Cite” tab (still in the “Preferences...” menu). Here you will see a link that will allow you to download and install the MS Word plugin if you have not already. Switch to the “Styles” sub-tab, click the “+” at the bottom of the list, and select the “OpenEI Citation v1.5.csl” file. ***If you are using the Zotero Firefox plugin***, simply drag the “OpenEI Citation v1.5.csl” file into a Firefox browser window while the Zotero plugin is running. For either method, click through the two error message windows that pop up to complete installation of the settings file.
2. Download and install the [Zotero plugin](#) for MS Word if you have not already. You will now see an “Add-Ins” tab at the top of your MS Word documents.

3. **Optional: Customize Zotero MS Word plugin keyboard shortcuts.** On the “File” tab in MS Word, select the “Options” menu on the left-hand side. Open the “Customize Ribbon” menu in the window that pops up and click the Keyboard shortcuts: “Customize...” button at the bottom. Navigate to the bottom of the “Categories:” list and highlight “Macros.” In the “Macros:” list that appears in the right pane, highlight “InsertZoteroCitation,” and assign a keyboard shortcut that is easy/comfortable for you to press while editing narratives (I use control+M out of force of habit from another program, but anything you like will work). You can also set up keyboard shortcuts for other Zotero plugin functions you would like to use during editing, if desired.

Students can use the “InsertZoteroCitation” keyboard shortcut as they write/edit narratives to quickly and easily search their reference collection. Author, Title, and/or publication year searches are typically sufficient for finding the desired reference in the search box that is called up by the keyboard shortcut. Selecting a reference (or references) will insert the formatted citation(s) at the cursor in your MS Word document.

On the “Add-ins” tab in MS Word, there is also a “Zotero Bibliographic Management: Zotero Insert Bibliography” button that can be used to place a complete list of references cited in the text at the bottom of your Word document. The formatting rules of this references list have been adapted to facilitate simple import into the “References_List.xls” spreadsheet for bulk upload of references lists to OpenEI prior to the final submission of the case studies (discussed below).

II. Optional: Configuring Zotero Preferences for Group Reference Sharing

Students may also set up their Zotero accounts with access to shared reference collections to allow group collaboration in researching a geothermal area. Collection sharing allows individual students to add new references to the group reference collection as needed. Each reference in a shared collection can be accessed by all group members for citation during writing/editing of narratives using the Zotero MS word plugin. Students working in small teams are strongly encouraged to use shared collections within their groups, as this collaboration tool drastically simplifies the task of maintaining consistent formatting of references/citations between multiple editors.

1. In the Zotero window, find the Gear icon and select “Preferences...” from the dropdown. In the “Sync” tab, enter your Zotero account information and check the “Sync automatically” option. Uncheck the “Sync attachment files in My Library using...” and “Sync attachment files in group libraries using Zotero storage” options—this will prevent Zotero from uploading documents to external group storage on the web.

III. Adding References to Zotero and Formatting Reference Metadata for Error-free Use of the “OpenEI Citation v1.5.csl” Rules File:

There are a few things that the “OpenEI Citations v1.5.csl” rules file requires students to be aware of concerning reference metadata formatting to ensure compatibility with OpenEI. First, let’s briefly go over the process of adding new sources to reference collections:

1. Select the collection for the geothermal area you wish to add references to in the navigation pane on the left side of the Zotero window.
2. **For .pdf's**, simply drag the file into the center pane. The file will then appear in the list with no reference metadata (leave the page that the reference was downloaded from open for the time being). Right-click the file and at the bottom of the context menu, click "Retrieve Metadata for PDF." Zotero will attempt to find your reference metadata using Google Scholar and will automatically fill in the fields in the right pane—this almost never works. Again right-click on the file and click "Create Parent Item" in the context menu. This will allow students to manually input the reference metadata, including the "Item Type" (reference type). You will need to fill out all the metadata fields required in the "Reference_List.xls" spreadsheet for each unique reference type (consult the download page where you obtained the reference material for this information).
3. **For a webpage**, the procedure is fairly simple. Simply drag the icon on the left side of the URL bar in your web browser into the collection. Zotero will pull information about the webpage and in most cases will fill in the metadata automatically. This method is also useful for adding article entries to the reference collection from journals that your university does subscribe to for full text access. Import the page as a website, then change the "Item Type" to Conference Paper, Journal Article, etc., and manually fill in the metadata.
4. For the purposes of quickly uploading case studies to OpenEI following review and judging, it is extremely helpful for competing teams **to maintain a reference database with source metadata that is as complete as possible for each reference entry**. Some metadata items are specific to individual reference *Item Types*, and so will only become editable when the *Item Type* is selected for a piece of source material within the Zotero client. Metadata fields that should be populated include (but are not limited to):
 - * *Item Type*
 - * *Title*
 - * *Author*
 - * *Editor*
 - * *Abstract*
 - * *Report Number*
 - * *Publication*
 - * *Publication Place*
 - * *Volume*
 - * *Issue*
 - * *Conference Name*
 - * *Proceedings Title*
 - * *Conference Place*
 - * *Publisher*
 - * *Pages or Number of Pages*
 - * *Date*
 - * *ISBN*
 - * *DOI*
 - * *URL*
 - * **Extra (should be filled with double vertical bars "|")**

5. **Adding abstract metadata to the reference database.** For references that already exist on OpenEI, it is best practice to copy the reference title and abstract directly from the reference pages' "Edit Form" to preserve any special character formatting. Otherwise, abstracts should be copied from the source webpage, or (worst case) copy the abstract directly from the reference .pdf. The latter option tends to produce formatting/text recognition errors that require manual correction. If no abstract is available for the reference, write something to the effect of "Abstract unavailable" in its place—you should also do this for any pieces of metadata that you cannot locate that is used in the "Reference_List.xls" spreadsheet. Gaps in the metadata will cause difficulties when exporting reference metadata to Excel in later steps, and should be avoided wherever possible.

6. **Maintain consistency in reference title formatting between Zotero, the Exploration Activities spreadsheet, and the References List.** While this is fairly easy to accomplish, it is also essential for the "OpenEI Citation v1.5.csl" settings file to function properly. First, we would like to use a consistent format for displaying reference Title information by right clicking the "Title" metadata box in Zotero and clicking "Transform Text > Title Case." This will capitalize the first letter of every word in the title. Any acronyms in the Title will need to be corrected, as the "Transform Text" operation will change all but the first letter to lower case.

OpenEI uses the reference title to generate the internal reference page URLs, and the combination of the reference author + year to track individual citations of the same reference in the text. These metadata are called up using the `{{Cite | AuthorYear | Title}}` statement in the formatted in-line citations in the text of the geothermal narratives documents. Maintenance of reference titles in Zotero will ultimately result in consistent transfer of the Title metadata to the narrative in-line citations during editing, so long as the "Zotero Bibliography Refresh" button is pressed in the MS Word Add-ins ribbon whenever a reference's Title metadata is updated. Additional steps for transferring metadata to the "Reference_List.xls" spreadsheet and for using Titles to link reference pages to entries in the Exploration Activities spreadsheet are explained below.

IV. Exporting the Final Zotero Works Cited list to Excel for Upload onto Open EI:

Unfortunately, there is no Zotero plugin for Excel and no built-in method for exporting Zotero reference lists to Excel. We circumvent this issue by adapting the formatting rules of Zotero's auto-bibliography tool, since we use OpenEI's built-in citation statements to construct the works cited list for each geothermal case study page. Under the "Open EI v1.5.csl" settings, each reference in the bibliography is formatted to include all of the metadata required by the "Reference_List.xls" spreadsheet, in a sequence that matches the column ordering for each unique reference type. Under this system, metadata are separated by a "|" symbol so that they can easily be split into columns using one of the default data management tools in Excel:

1. **Add the formatted bibliography to the Case Study Narratives document.** On the “Add-ins” tab in MS Word, click the “Zotero Bibliographic Management: Zotero Insert Bibliography” button to place a complete list of references cited in the narrative text at the bottom of the document. This list will contain a single entry for each reference cited in the text, and will only include metadata that is supported for reference pages on OpenEI (depending on the reference type).
2. **Transfer the works cited list to Excel.** Copy the entire formatted bibliography of your document and paste it into an empty Excel spreadsheet. The copy/paste function will recognize each “return” between the reference entries as a new row, such that each reference will appear in its own row in a single column when pasted into the spreadsheet.
3. **Expand the works cited list into columns.** Highlight the column with the copied reference entries, click the “Data” tab in Excel, and click the “Text to Columns” tool in the “Data Tools” area of the ribbon. The “Text to Columns” wizard will appear. On the first page, check the “Delimited” option and then click next. On the next page, uncheck any Delimiters that are already selected, then check the “Other” option and enter “|” as the delimiter to use. Click next. On the final page of the wizard, you can choose to apply special formatting to each column—it is recommended that the Column data format for all the columns be changed to “Text,” as this will preserve the formatting from the Zotero output and will prevent Excel from making mistakes with the “General” format (e.g. occasionally changing issue numbers to dates). Click Finish.
4. **Sort the reference metadata.** Your metadata should now be split up across several columns. Widen the columns so that you can preview the metadata, then select all populated columns and click the “Sort” tool in the “Sort & Filter” area of Excel’s “Data” ribbon. In the Sort options dialog that pops up, select **Sort by: “Column A”** leaving the other options (Sort on: Values and Order: A to Z) as default. Click OK. Your reference list should now be sorted by Reference Type (the first column). The metadata ordering for each reference has been setup to match the column ordering present in the “Reference_List.xls” spreadsheet, and will vary depending on the Reference Type.
5. **Quality-check the reference list by checking the reference metadata for gaps.** This is done most easily by comparing the row lengths of entries with the same Reference Type. Correct gaps in the metadata by either adding the missing metadata into the appropriate column (it is good practice to update this information in Zotero as well, in case you need to export again or another researcher in your group references the same article), or inserting a blank cell for each missing piece of metadata until the existing metadata have been moved to the appropriate column.
6. **Transfer the formatted reference metadata into the “Reference_List.xls” spreadsheet.** Once the quality control step above is completed, copy each group of references in the formatted

table that shares the same Reference Type (excluding the first column with the Reference Type itself) and paste them into the “Reference_List.xls” spreadsheet starting at the second column. Select the “Document Type” from the dropdown in column 1 of the “Reference_List.xls” spreadsheet that corresponds with the Reference Type in Zotero (select it once from the dropdown and just copy it down for the other entries). This should roughly match the “Reference Type” column we left in the other spreadsheet, but OpenEI formatting prohibits us from copying it over directly. Repeat for each reference type until all references are transferred into the “Reference_List.xls” spreadsheet.

7. **Manual entry of missing metadata.** There is some metadata that must be entered manually for each reference. For each entry, the “Document Type” should be selected manually from the dropdown list (see previous step). You will also need to enter/copy down “Geothermal” in the “Reference Genre” column for all references. A small number of metadata types that we can use in OpenEI are not supported by Zotero, and so can only be enter into the “Reference_List.xls” spreadsheet manually. These include:
 - “ContractNo” (Contract Number) for the **Report** Reference Type
 - “InfographicType” for the **Info Graphic/Map/Chart** Reference Type (Choose one from the dropdown)
 - “MapNo” (Map Number) for the **Info Graphic/Map/Chart** Reference Type (this is a new field that we will hopefully add to OpenEI, and corresponds to the “Type” field for Maps in Zotero).
 - “Issue” for the **Conference Paper and Conference Proceedings** Reference Types (“Volume” and “Issue” information for these Reference Types is a new field that we will hopefully add to OpenEI. Only the “Volume” metadata can be entered in Zotero—“Issue” information must be entered into the spreadsheet manually).
8. **Check reference Titles in the “Reference_List.xls” and “Exploration Activities.xls” spreadsheets for consistency.** Your reference list should now be full populated and correctly formatted for import into OpenEI. You can now assign your references a “Reference Database Number” (first column, this is optional for your own use/organization) and match them to the Activity entries you’ve maintained over the course of your research in the “Exploration Activities.xls” spreadsheet. Reference Titles associated with each activity in the “Exploration Activities.xls” spreadsheet should match the reference Title in Zotero exactly.
9. **Submit the “Reference_List.xls” spreadsheet to NREL.** The formatted “Reference_List.xls” spreadsheet should be submitted to NREL on or before the specified date leading up to the final submission deadline. NREL developers will upload the reference lists to OpenEI in bulk prior to the final submission deadline, so that in-line citations appear properly when students upload their narratives.