

PNNL Cost-Performance Tool (DOE-OE sponsored) for Estimation of Capital Costs for Redox Flow Batteries. Battelle IPID 30401.

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**Instructions for accessing, modifying and sharing redox flow battery cost estimator source code using Github. September 10, 2013**

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PNNL has developed an interactive tool to estimate the capital cost for PNNL all vanadium Gen 1, Gen2, and iron-vanadium chemistries. This tool has also been adapted for organic electrolyte redox flow batteries. The Gen 2 all vanadium system incorporates the PNNL-developed electrolyte with high concentration and wide operating temperature range. The tool allows determination of the most cost-effective chemistries and the optimum operating conditions for power or energy intensive applications, providing a strategy for a redox flow battery management system (BMS). This tool was developed with funding from The U. S. Department of Energy, Office of Electricity Delivery and Energy Reliability/Energy Storage Program, under the leadership of Dr. Imre Gyuk.

How to download code from github, modify, and run. You do not need a github account to access and download code.

1. Go to <https://github.com/PNNL-OE-Redox-Flow-Battery-Cost-Tool/PNNL-OE-Redox-Flow-Battery-Cost-Tool>
2. In the lower right, select “download zip”. This will download a zip of the project.
3. Unzip the file.
4. Open Visual Studio. If you don’t have it, you can download it for free from Microsoft. It is recommended to download Visual Studio 2010 C++ express at this link: <http://www.microsoft.com/visualstudio/eng/downloads#d-2010-express>
5. Select “Open Project”
6. Navigate to BatGUI.sln in the folder you unzipped in step 3. Open this file.
7. In the solution explorer, expand BatGui, and go to Headerfiles and expand this selection.
8. Double click on Form1.h. This should preview what the program looks like.
9. Right click on Form1.h and select “view code”. This will allow you to look at the code.
10. Make desired modifications. (Detailed description of the source code layout is available in the document layout.doc at the repository).
11. Find the green triangle in the toolbar. To the right of it is a drop down menu that says “Debug”. Click on this window and change it to “Release”. If it already says “Release” you don’t need to do this step.
12. Click on the green triangle or press f5. This will compile and run the program. The may take 1-5 minutes depending on your system.

How to get a github account and submit proposed changes to code

1. Go to github.com
2. Download for your system. For example, for Windows, download is at http://windows.github.com/
3. Once you have an account, click on Fork button to fork our repository at <https://github.com/PNNL-OE-Redox-Flow-Battery-Cost-Tool/PNNL-OE-Redox-Flow-Battery-Cost-Tool> This will make a copy of our code repository to your github account.
4. Open Github program from your computer. Using the github software, click on clone button to clone this repository to your desktop. This will download the code repository to your desktop.
5. If you need to make changes to code and share, make changes (the detailed description of source code layout is provided in layout.doc at the repository). Then using the github software, click “sync” to upload your changes from your computer to your github repository at the github.com website.
6. To request that your changes to the code be merged into the PNNL code repository, go to your repository on the github site and hit the pull request button. There will be a comment box provided for you to state details such as which part of the code tree (branch vs. master) you would like your version to be added. Also, within the source code, please provide ample comments describing the changes.
7. The program administrator will look at the proposed changes and accept or ask for further clarifications such as reason for change, request for more comments and other issues. The program admin may also want your change to be on a new branch. In this case the admin will close your pull request and open a new branch. The admin will send you instructions to send a new pull request to this newly created branch.
8. Github does automatic version control.
9. Further info on Github can be obtained at <http://help.github.com>. The administrator will also be available to answer questions. Questions may also be addressed to the emails provided above.