

Supplementary Material: Resources on AssessCCUS

As of November 16th, 2021

From “AssessCCUS: An Integrated Approach for Aggregating Resources to Enable Techno-Economic and Life Cycle Assessment of Carbon Management Technologies”

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Please note that some resources are listed multiple times across sections.

Primary website link: <https://assessccus.globalco2initiative.org/>

CCUS

- <https://cdrprimer.org/read>
- <https://www.nap.edu/read/25259/chapter/1>
- https://irena.org/-/media/Files/IRENA/Agency/Technical-Papers/IRENA_Capturing_Carbon_2021.pdf
- <https://www.iea.org/reports/ccus-in-clean-energy-transitions>
- <https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/603d3bd74d006a4004a9a88b/1614625758081/CCUS+Workshop+Summary+030121.pdf>
- <https://coalitionfornegativeemissions.org/wp-content/uploads/2021/06/The-Case-for-Negative-Emissions-Coalition-for-Negative-Emissions-report-FINAL.pdf>
- <https://co2removal.org/>
- https://www.energy.gov/sites/default/files/2018/05/f51/Accelerating%20Breakthrough%20Innovation%20in%20Carbon%20Capture%20C%20Utilization%20C%20and%20Storage%20_0.pdf
- https://depositonce.tu-berlin.de/bitstream/11303/6247/3/CO2_utilisation_today.pdf
- <https://www.iea.org/reports/putting-co2-to-use>
- <https://deepblue.lib.umich.edu/handle/2027.42/150624>
- <https://www.nature.com/articles/s41586-019-1681-6>
- <https://www.mckinsey.com/business-functions/sustainability/our-insights/driving-co2-emissions-to-zero-and-beyond-with-carbon-capture-use-and-storage>
- <http://climatechangeacademy.com/courses/carbon-removal>

LCA: Detailed Process

- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/162573/TEA%26LCA%20Guidelines%20for%20CO2%20Utilization%20v1.1.pdf>
- <https://pubs.rsc.org/ko/content/articlehtml/2020/ee/d0ee01530j>
- <https://www.iso.org/standard/38498.html>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/ILCD-Handbook.pdf>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/lca-reporting-checklists.pdf>

LCA: Templates and Videos

- <https://assessccus.globalco2initiative.org/wp-content/uploads/GCI-LCA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/GCI-LCA-and-TEA-Template.xlsx>

- <https://assessccus.globalco2initiative.org/wp-content/uploads/Aggregates-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Algae-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Chemicals-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Concrete-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/DAC-LCA-and-TEA-Template.xlsx>
- <https://www.frontiersin.org/articles/10.3389/frsus.2021.764057/full>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Excel-Tools-and-Tips-for-Templates.xlsx>
- <https://github.com/LCAofCCU-UCalgary/LCA-Estimate-Model-for-CCU-Spreadsheet>
- <https://cranetool.org/>
- <https://primecoalition.org/>
- https://primecoalition.org/wp-content/uploads/2015/02/PRIME-NYSERDA-Climate-Impact-Assessment-Report_Final.pdf?x48191
- <https://netl.doe.gov/LCA/co2u/Training>
- <https://www.netl.doe.gov/LCA/CO2U>
- <https://www.youtube.com/watch?v=PLBkxWrpO3s>
- <https://www.youtube.com/watch?v=gpuvUU0NI4k>
- https://www.youtube.com/channel/UCFv7X4oP_87LMDUgB35eg2Q/videos
- <https://www.youtube.com/watch?v=vqcTtlmjh3Q>
- <https://www.youtube.com/watch?v=r33xYcx3BnI>
- https://www.openlca.org/wp-content/uploads/2020/03/GreenDelta-Bottle-Tutorial_Parameters_1.10.pdf
- <https://www.youtube.com/watch?v=DRhv6lYCLdM>
- <https://www.youtube.com/watch?v=czqbCs6hwiI>
- <https://www.youtube.com/watch?v=yFFXumd4M6Y>
- https://www.youtube.com/watch?v=v_mWgXLOq94
- <https://pre-sustainability.com/legacy/download/SimaPro8Tutorial.pdf>
- <https://www.youtube.com/watch?v=hXyhfGquETg&list=PLpm9OcPelVV-mrYPLob2T5X6bNWIA94-v>
- https://www.youtube.com/watch?v=3QmNDroZ9wg&list=PLpm9OcPelVV_xILFaxDEEA4Gu73GcLIky
- http://www.gabi-software.com/fileadmin/gabi/tutorials/Paperclip_Tutorial_Handbook_4.4.pdf
- https://www.youtube.com/watch?v=_aCujH0DXuw
- <https://www.youtube.com/watch?v=c3dTSZDmRGg>
- <https://www.youtube.com/watch?v=tyZBfgIcacQ>

LCA: Databases

- <https://www.epa.gov/egrid>

- <https://www.epa.gov/egrid/power-profiler#/>
- <https://www.epa.gov/warm>
- <https://greet.es.anl.gov/>
- <https://www.ghgenius.ca/>
- <https://www.ecocostsvalue.com/data/>
- <https://www.netl.doe.gov/LCA>
- <https://www.nrel.gov/analysis/sustainability.html>
- <https://openei.org/apps/LCA/>
- <https://www.ipcc-nggip.iges.or.jp/EFDB/main.php>
- <https://ws680.nist.gov/bees/>
- <https://www.plasticseurope.org/en/resources/eco-profiles>
- <https://www.worldsteel.org/steel-by-topic/life-cycle-thinking.html>
- <https://www.ifu.com/umberto/estimol/>
- <https://ecoinvent.org/the-ecoinvent-database/login/>
- <https://www.environdec.com/library>
- <https://www.lifecycleinitiative.org/applying-lca/lca-databases-map/>
- <https://ghgprotocol.org/life-cycle-databases>
- <https://www.ecoinvent.org/>
- <https://scholar.google.com/>
- <https://nexus.openlca.org/>
- https://www.openlca.org/wp-content/uploads/2020/03/GreenDelta-Bottle-Tutorial_Parameters_1.10.pdf
- <https://simapro.com/databases/>
- <https://pre-sustainability.com/legacy/download/SimaPro8Tutorial.pdf>
- <http://www.gabi-software.com/america/databases/>
- http://www.gabi-software.com/fileadmin/gabi/tutorials/Paperclip_Tutorial_Handbook_4.4.pdf
- <https://www.carbon-minds.com/lca-database-for-chemicals-and-plastics/>
- <https://www.lcacommons.gov/lca-collaboration/search>
- <https://www.globalcadataaccess.org/>
- <http://cpmdatabase.cpm.chalmers.se/>
- <http://www.eiolca.net/>

LCA: Guidance Documents

- <https://onlinelibrary.wiley.com/doi/abs/10.1002/ente.201901034>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/162573/TEA%26LCA%20Guidelines%20for%20CO2%20Utilization%20v1.1.pdf?sequence=5&isAllowed=y>
- <https://deepblue.lib.umich.edu/handle/2027.42/156039>
- <https://www.netl.doe.gov/energy-analysis/details?id=3732>
- <https://pubs.rsc.org/en/content/articlepdf/2020/ee/d0ee01530j>
- <https://www.iso.org/standard/37456.html>
- <https://www.iso.org/standard/38498.html>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/ILCD-Handbook.pdf>
- <https://www.lcatextbook.com/>

- <https://www.frontiersin.org/articles/10.3389/frsus.2021.764057/full>

LCA: Case Studies

- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/145723/Global%20CO2%20Initiative%20Complete%20Methanol%20Study%202018.pdf?sequence=5&isAllowed=y>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/147467/Global%20CO2%20Initiative%20Complete%20Mineralization%20Study%202018.pdf?sequence=3&isAllowed=y>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/154989/Building%20an%20LCA%20Inventory%20%28CO2%20to%20fertilizer%20example%29.pdf?sequence=3&isAllowed=y>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/154990/Interpretation%20of%20LCA%20results%20%28CO2%20to%20fertilizer%20example%29.pdf?sequence=4&isAllowed=y>

TEA: Detailed Process

- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/162573/TEA%26LCA%20Guidelines%20for%20CO2%20Utilization%20v1.1.pdf>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Factorial-Techniques.pdf>
- https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/LCCA_CGEP-Report_101620.pdf
- <https://assessccus.globalco2initiative.org/wp-content/uploads/TEA-Reporting-Checklists.pdf>

TEA: Templates and Videos

- <https://assessccus.globalco2initiative.org/wp-content/uploads/GCI-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/GCI-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Aggregates-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Algae-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Chemicals-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Concrete-LCA-and-TEA-Template.xlsx>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/DAC-LCA-and-TEA-Template.xlsx>
- <https://www.frontiersin.org/articles/10.3389/frsus.2021.764057/full>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Excel-Tools-and-Tips-for-Templates.xlsx>
- <https://www.activate.org/teconomics>
- <https://www.activate.org/>
- <https://primecoalition.org/climate-impact/>
- <https://catcost.chemcatbio.org/>

- <https://www.youtube.com/watch?v=PLBkxWrpO3s>
- <https://www.youtube.com/channel/UCQ7LtzOkWUSg5NFnmT-kYw/videos>
- <https://www.youtube.com/watch?v=ALdSxHH6jvg>
- https://www.youtube.com/watch?v=65gZB_MGrM
- <https://www.youtube.com/watch?v=IIEzX3KbeUI>

TEA: Databases

- <https://www.alibaba.com/>
- <https://www.amazon.com/>
- <https://catcost.chemcatbio.org/downloads>
- <https://www.sigmaaldrich.com/united-states.html>
- <https://www.nrel.gov/bioenergy/co2-utilization-economics/conversion-pathways.html>
- <https://scholar.google.com/>
- <https://www.netl.doe.gov/energy-analysis/details?id=1026>
- <https://www.sciencedirect.com/science/article/pii/B9780081025994000060>
- <https://www.sciencedirect.com/book/9780081025994/chemical-engineering-design>
- <https://onlinelibrary.wiley.com/doi/pdf/10.1002/9783527611119.app4>
- <https://onlinelibrary.wiley.com/doi/book/10.1002/9783527611119>
- <https://richardturon.faculty.wvu.edu/publications/analysis-synthesis-and-design-of-chemical-processes-5th-edition>
- <https://www.pearson.com/us/higher-education/program/Turton-Analysis-Synthesis-and-Design-of-Chemical-Processes-5th-Edition/PGM178893.html>
- <http://www.mhhe.com/engcs/chemical/peters/data/>
- <http://repository.um-palembang.ac.id/id/eprint/9024/1/Plant%20Design%20and%20Economics%20for%20Chemical%20Engineers%20%28%20PDFDrive.com%20%29.pdf>
- <https://chembugs.files.wordpress.com/2015/12/perrys-chemical-engineering-handbook1.pdf>
- <https://www.engineeringtoolbox.com/>
- <https://nifa.usda.gov/land-grant-colleges-and-universities-partner-website-directory>
- <https://www.bls.gov/>
- https://www.bls.gov/data/inflation_calculator.htm
- http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/wacc.html
- http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datacurrent.html
- <https://www.eia.gov/>
- <https://www.nrel.gov/analysis/techno-economic.html>
- <https://irena.org/costs>
- <https://openei.org/apps/TCDB/>
- <https://www.lazard.com/perspective/levelized-cost-of-energy-levelized-cost-of-storage-and-levelized-cost-of-hydrogen/>
- <https://www.netl.doe.gov/energy-analysis/search?search=AnalyticalTools>
- <https://www.sciencedirect.com/science/article/pii/S2211467X18300634>
- <https://www.netl.doe.gov/energy-analysis/details?id=543>

- https://www.netl.doe.gov/projects/files/FENETLCO2TransportCostModel2018ModelOverview_050818.pdf
- <https://assessccus.globalco2initiative.org/wp-content/uploads/CO2-Transport-Cost-Model-Users-Manual.pdf>

TEA: Guidance Documents

- <http://playbooks.moxleyholdings.com/tech-product/techno-economic-modeling>
- <http://playbooks.moxleyholdings.com/>
- <https://cyclotronroad.lbl.gov/>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/162573/TEA%26LCA%20Guidelines%20for%20CO2%20Utilization%20v1.1.pdf?sequence=5&isAllowed=y>
- <https://deepblue.lib.umich.edu/handle/2027.42/156039>
- <https://www.activate.org/teconomics>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Zotter-Building-Cost-Models.pdf>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/ARPA-E-Cost-Modeling.pdf>
- <https://www.youtube.com/watch?v=ALdSxHH6jvg>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Gavaskar-on-TEA.pdf>
- <https://www.netl.doe.gov/energy-analysis/details?id=737>
- <https://www.netl.doe.gov/energy-analysis/details?id=1026>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Factorial-Techniques.pdf>
- <https://www.sciencedirect.com/science/article/pii/S1750583621000153>
- <https://www.sciencedirect.com/science/article/pii/S1750583620303273>
- <https://www.frontiersin.org/articles/10.3389/frsus.2021.764057/full>

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- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/147467/Global%20CO2%20Initiative%20Complete%20Mineralization%20Study%202018.pdf?sequence=3&isAllowed=y>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/147468/Global%20CO2%20Initiative%20Complete%20OME%20Study%202018.pdf?sequence=3&isAllowed=y>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/154988/Guide%20to%20goal%20setting%20in%20TEA%20%28Domestic%20heating%20example%29.pdf?sequence=4&isAllowed=y>
- <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/167382/TEA%20of%20Synthetic%20Natural%20Gas%20production%20-%20worked%20example.pdf?sequence=1&isAllowed=y>
- <https://www.nrel.gov/bioenergy/co2-utilization-economics/>
- <https://doi.org/10.1039/D0EE03525D>
- <https://assessccus.globalco2initiative.org/wp-content/uploads/Electrochemical-Technoeconomic-Modeling.pdf>

Glossaries

- <https://www.lifecycleinitiative.org/resources/life-cycle-terminology-2/>
- <https://ilca.es/teaching-materials/common-glossary/>
- [https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkey
wordlists/search.do?details=&glossaryName=Lifecycle%20Assessment%20Glossary](https://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&glossaryName=Lifecycle%20Assessment%20Glossary)
- [https://www.universiteitleiden.nl/binaries/content/assets/science/cml/publicaties_pdf/new
-dutch-lca-guide/part2a.pdf](https://www.universiteitleiden.nl/binaries/content/assets/science/cml/publicaties_pdf/new-dutch-lca-guide/part2a.pdf)
- <https://consequential-lca.org/glossary/>
- <https://ecoinvent.org/glossary-terms/>
- <https://web.aacei.org/docs/default-source/rps/10s-90.pdf>
- <https://www.american.edu/sis/centers/carbon-removal/carbon-removal-glossary.cfm>
- [https://docs.google.com/spreadsheets/d/1jIR37DpclvAPQENWY9TYG-
5F4JS99g8UWYMX1LyuBfY/edit#gid=818892690](https://docs.google.com/spreadsheets/d/1jIR37DpclvAPQENWY9TYG-5F4JS99g8UWYMX1LyuBfY/edit#gid=818892690)
- <https://www.co2captureproject.org/glossary.html>
- <https://www.eco2-project.eu/glossary.html>
- <https://renewable-carbon-initiative.com/renewable-carbon/glossary/>
- <https://cdrprimer.org/read/glossary>