Appendix

A. Search terms

Date of search: 06.09.2017

Search 1: “Techno-Economic” and CO2 and its variation, resulting in 123 papers

TS= ( ("techno-economic"* ) AND (analysis OR assessment OR evaluation OR study OR feasibility OR "conceptual design" OR ( ("process" OR "cost"* OR "revenue" OR "market"* OR "financ"* OR business OR "economic"* OR feasibility OR efficiency OR "thermodynamic" ) ) ) ) AND (evaluat* OR "assess"* OR "analysis"* OR "model"* OR study OR constraints OR limits ) ) ) AND TS= ( "Carbon Capture and utiliization" OR ( ( "carbon dioxide" OR CO2 OR carbon OR chemical) AND (utilization OR fixation ) ) ) ) OR "CO2 based synthesis" OR "carbon reuse" OR CCU OR CDU)

Search 2: Broad interpretation of Techno-Economic and CO2 utilisation; Selected papers in the fields of chemistry, economics and business, resulting in 163 papers

TS= ( ("techno-economic"* OR (techn* NEAR economic*)) ) AND (analysis OR assessment OR evaluation OR study OR feasibility OR "conceptual design" OR ( ("process" OR "cost"* OR "revenue" OR "market"* OR "financ"* OR business OR "economic"* OR feasibility OR efficiency OR "thermodynamic"* ) ) ) ) AND (evaluat* OR "assess"* OR "analysis"* OR "model"* OR study OR constraints OR limits ) ) ) ) AND TS= ( "Carbon Capture and utiliization" OR ( ( "carbon dioxide" OR CO2 OR carbon OR chemical) AND (utilization OR fixation ) ) ) OR "CO2 based synthesis" OR "carbon reuse" OR CCU OR CDU) AND WC = ( ENGINEERING CHEMICAL OR THERMODYNAMICS OR CHEMISTRY PHYSICAL OR CHEMISTRY MULTIDISCIPLINARY OR ELECTROCHEMISTRY OR CHEMISTRY APPLIED OR ECONOMICS OR POLYMER SCIENCE OR BUSINESS OR ENGINEERING INDUSTRIAL )

The results of search 1 and 2 combined resulted in 219 papers.


**B. Analyzed publications**

Table A1. List of publications and reports for literature review

| Papers (peer-reviewed) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| 1 (Audus and Oonk, 1997) | (Ng et al., 2013) | (Schäffner et al., 2014) | (Chiuta et al., 2016) | (Eloneva et al., 2012) | (Mantripragada and Rubin, 2014) | (Rubin and Zhai, 2012) | (Giannoulakis et al., 2014) | (Pérez-Fortes et al., 2014b) | (Hendriks et al., 2013) | (Parsons Brinckerhoff and Global CCS Institute, 2011) |
| 2 (Wu et al., 2001) | (Audus and Oonk, 1997) | (Al-Qayim et al., 2015) | (Climent Barba et al., 2016) | (Lehner et al., 2012) | (Müller et al., 2014) | (Zhang et al., 2012) | (Klein-Marcuschamer et al., 2013) | (Hendriks et al., 2013) | (ADEME et al., 2014) |
| 3 (Gozalpour et al., 2005) | (Soares et al., 2013) | (Dimitriou et al., 2015) | (Edrisi et al., 2016) | (Cormos, 2014) | (Xin et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Coomans et al., 2014) |
| 4 (Song, 2006) | (Stechel and Müller, 2013) | (Duraccio et al., 2015) | (Kourkoumpas et al., 2016) | (Trippe et al., 2013) | (Xin et al., 2015) | (Zhang et al., 2012) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 5 (Zevenhoven et al., 2006) | (Trippe et al., 2013) | (Fan et al., 2015) | (Mondal et al., 2016) | (Otto et al., 2015) | (Tremel et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 6 (Davis et al., 2011) | (Zhai and Rubin, 2013) | (Gong and You, 2015) | (Markham et al., 2016) | (Barbato et al., 2014) | (Tremel et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 7 (Kim et al., 2011) | (Zhang et al., 2013) | (Kongpanna et al., 2015) | (Mondal et al., 2016) | (Barbato et al., 2014) | (Tremel et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 8 (Sridhar and Hill, 2011) | (Barbato et al., 2014) | (Otto et al., 2015) | (Mondal et al., 2016) | (Barbato et al., 2014) | (Tremel et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 9 (Versteeg and Rubin, 2011) | (Cormos, 2014) | (Reiter and Lindorfer, 2015) | (Pérez-Fortes et al., 2016a) | (Campanari et al., 2014) | (Tremel et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 10 (Eloneva et al., 2012) | (Campanari et al., 2014) | (Tremel et al., 2015) | (Pérez-Fortes et al., 2016b) | (Mantripragada and Rubin, 2014) | (Xin et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 11 (Lehner et al., 2012) | (Mantripragada and Rubin, 2014) | (Xin et al., 2015) | (Rezvani et al., 2016) | (Müller et al., 2014) | (Zhang et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 12 (Rubin and Zhai, 2012) | (Müller et al., 2014) | (Zhang et al., 2015) | (Teir et al., 2016) | (Giannoulakis et al., 2014) | (Zhang et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 13 (Giannoulakis et al., 2014) | (Müller and Arlt, 2014) | (Zhang et al., 2015) | (Wang et al., 2016a) | (Han et al., 2013) | (Zhang et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 14 (Han et al., 2013) | (Pérez-Fortes et al., 2014a) | (Agyeman and Ampadu, 2016) | (Wang et al., 2016b) | (Pérez-Fortes et al., 2014b) | (Zhang et al., 2015) | (Zhang et al., 2015) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |
| 15 (Klein-Marcuschamer et al., 2013) | (Pérez-Fortes et al., 2014b) | (Biagi et al., 2016) | (Zhang et al., 2016) | (Hendriks et al., 2013) | (Hendriks et al., 2013) | (Hendriks et al., 2013) | (Hendriks et al., 2013) | (Tabassum et al., 2016) | (Alderes et al., 2016) |

| Reports | 1 | 2 | 3 |
|---------|---|---|---|
| 1 (Parsons Brinckerhoff and Global CCS Institute, 2011) | (Hendriks et al., 2013) | (Kabatek and Zoelle, 2014) | (Pérez-fortes and Tzimas, 2016) |
| 2 (ADEME et al., 2014) | (Coddington et al., 2016) | (Element Energy et al., 2014) | (Sarić et al., 2014) |
| 3 (ADEME and ALCIMED, 2010) | (Zero Emission Platform, 2011) | (The Global CCS Institute, 2011) | (Sarić et al., 2014) |
C. 30 key issues

Figure A1. List of 30 key issues
D. Appendix References

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