EPOS WP 2 – Sector Analysis

Lead: CEMEX

Sector blueprints and virtual marketplaces

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Summary

Industrial data are often confidential since they include details about the process design and the technologies that are developed by companies. However, when industrial symbiosis is considered, one of the key aspects is providing enough information about the plants or sectors that can potentially benefit from each other so that symbiosis opportunities can emerge.

To solve the dilemma of sharing information, the concept of a sector blueprint is introduced. With sector blueprints, a maximum amount of information about the industrial sectors is represented while confidentiality of important data is retained. The blueprint of a sector essentially comprises typical processes that are used in reality. Thus, by combining several typical processes, a virtual plant operating in the sector can be represented. This virtual plant will not likely not reflect any individual plant exactly but provides a basis for assessing what material and energy streams might be present on a site in that sector. The blueprints/profiles include information about the heat profile of the processes as well as the electricity requirement/generation. Since symbiosis focuses on materials as well as energy exchange between sectors, information regarding the production/consumption rate of feedstock, products, co-products and waste should be embedded in the blueprints as well. The blueprints are not intended to be an accurate depiction of the exact state of every plant but rather to provide some insight on what is likely to be the current state in an average European facility.

In the EPOS project, data sensitivity is one of the most debated issues since it includes four major process industries and 12 project partners. Detection of a potential symbiosis requires that each sector should acquire information from the others. Conversely, to attain sensitive information from another sector, industries should prove that the other sector can benefit from the potential symbiosis. Sector blueprints are used in this project to break that paradox and to confine the shared information within the boundaries of confidentiality. The project focuses on energy and resource efficiency in major industrial sectors by leveraging symbiosis opportunities. Including data on both energy and material flows, the blueprints cover all the needs of the EPOS project.

Methodology to construct sector profiles is presented and discussed in this deliverable, which is the culmination of efforts from work package 2 of the EPOS project regarding sector analysis. The methodology is applied to the four major process sectors in the EPOS project and results in complete sector profiles for these industries. These will be improved and used throughout the remainder of the EPOS project to find opportunities for process improvement and industrial symbiosis.

A case study is also presented using the EPOS toolbox, applying the methodology described in deliverable 3.1. Several potential process improvements are identified within two sector profiles as well as options for symbiosis between the two industries. Energy and material synergies are both identified and thus, even for a simple example of symbiosis including two industries, the potential impact of the EPOS methods are made clear.