Main challenges and solution approaches

Firstly, the main challenges with regard to recruitment were discussed. An important common denominator here is that all representatives of various process industry sectors agree that recruitment is one of the current main issues in the process industry. In this context, it has long been discussed that energy-intensive sectors have a *negative image* and are perceived negatively by the public. This leads to a lack of interest in working in the industry from potential applicants, including students and skilled labour. There are concerns about health and safety, combined with a critical public opinion of, for example, the steel sector, which is seen as an old and declining economy and a sector in crisis. Another example is the chemical industry, which is struggling with the image of an industry with safety problems due to accidents. In particular and across all industries of SPIRE-SAIS, there are difficulties in recruiting female graduates in the male-dominated energy-intensive sectors.

Other obstacles lie at the individual level, such as *salary levels* or *unpopular working hours and working models*, e.g. night shifts. In addition, the geographical location (as companies are often located in remote areas), the lack of political support for the process industry and an investment and innovation backlog pose major challenges for the energy-intensive sectors.

The lack of suitable applicants in general and especially in the field of industrial symbiosis also has a critical impact: There is a lack of specific knowledge on the part of applicants and a lack of an overview of various disciplines. This results in the *need for specific skills for industrial symbiosis*: on the one hand, practical experience is required, but on the other hand, an understanding of new competences (circular economy/environmental issues) is important. Companies in the individual sectors have difficulty finding graduates with such specific skills. There is also a lack of specific job profiles for industrial symbiosis.

To overcome these challenges, companies are doing their best, focussing mainly on *internal training and specific public campaigns.* The companies offer such specific training, as the knowledge gained at university is often insufficient and too general (especially with regard to industrial symbiosis) for the activities in the companies. Consequently, the job profiles for industrial symbiosis and energy efficiency are formulated holistically by the companies in order to attract people with a variety of general and specific skills. In addition, the companies promote cross-departmental work and discussions on various industrial symbiosis and energy efficiency topics.

Corporate campaigns that emphasise the importance of energy-intensive industries for public perception appear to be a promising strategy. However, these campaigns must go hand in hand with improving relations and co-operation between the energy-intensive sectors and universities/vocational training systems/secondary schools: More specific courses are needed, especially with regard to industrial symbiosis (see section 2.3, analysing the vocational training system). The image of energy-intensive industries must be improved at universities, in the vocational training system and in secondary schools. Public support is needed to improve public perception by emphasising the importance of solutions for energy-intensive industries with regard to climate change: Industry as a solution provider and as an opportunity for (new) applicants to drive climate change.

Some success factors are:

- Salary (salary in the steel sector, for example, is higher compared to other sectors)
- Early engagement with schools, direct communication with students
- Stability and the ability to deal with crises
- Field for research to achieve climate goals
- More flexibility in balancing work and family life (e.g. home office).

Please find further information on this topic in the SPIRE-SAIS Deliverables:

- D1.5 Final Report
- D5.3 Blueprint New Skills Agenda Energy Intensive Industries
- D6.2 Piloting and Implementing the Blueprint