

Developing plastic (pyrolysis) recycling projects – an EPC contractor’s perspective

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Using recycled plastics instead of virgin feedstock to produce new plastics helps to decarbonise the value chain. At the same time, recycling reduces plastic pollution. Many companies have made pledges with respect to the recycled content of the plastics they produce or consume. This has led to the development of various chemical recycling technologies depending on the plastic waste feedstock composition or desired final product.

Many of these technologies are spin-offs/outs from university programs and research institutions that are experienced in technology development but could use help with commercial scale plant design. These newly formed companies try to further develop their technology to interest commercial parties to either invest in the company or license it to potential clients.

Fluor has been exposed to several plastic (pyrolysis) recycling technologies over the last couple of years, with varying levels of maturity. A working lab-scale unit or pilot plant does not represent a technology ready to be scaled up, let alone licensed and built. Safety remains a key concern in these high temperature hydrocarbon processes. Furthermore, selection of adequate materials of construction is key to reliable plant operation. A thorough technology evaluation and due diligence helps identify areas that a technology provider needs to improve on, also from the perspective of attracting funding. Furthermore, several design issues arise during plant scale-up, which an experienced contractor can help troubleshoot from decades of multidisciplinary experience in the refining and chemicals industry.

In this presentation, we will discuss the various hurdles these companies and technologies face and must overcome before commercial units become reality, and the impact EPC contractors can make to support these start-ups to become successful.