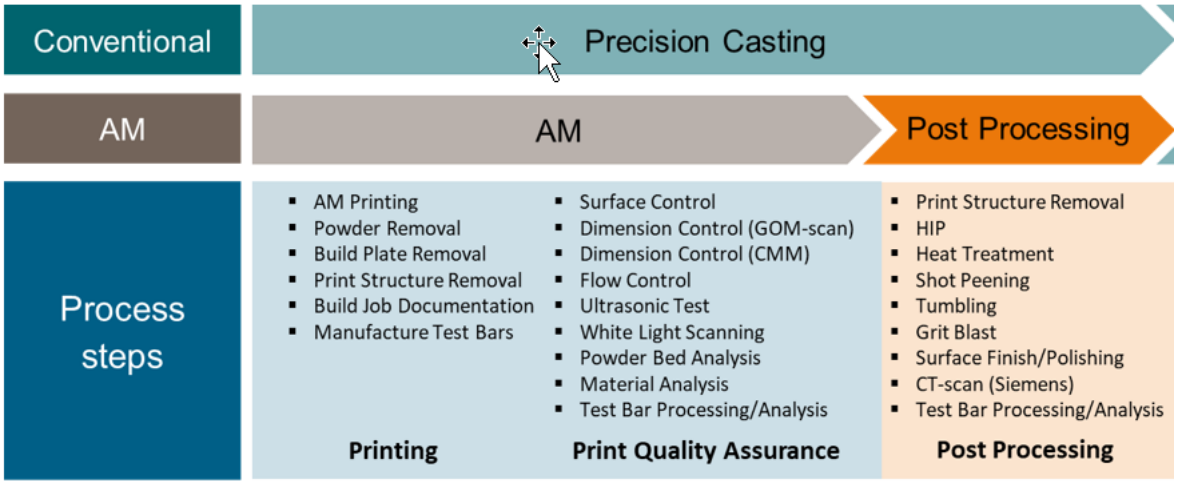
Master thesis: Energy consumption during Additive manufacturing

Introduction

Metal additive manufacturing is an advancing technology that allows novel design of parts with high degree of product innovation, elimination of manufacturing stages, reduced lead times and enhanced product differentiation. As such metal additive manufacturing is expected to contribute to green manufacturing. In this context, it is of crucial importance to understand the sustainability of metal additive manufacturing and how to further develop it towards decreased carbon footprint. Siemens Energy is one of the core drivers in implementing additive manufacturing in industrial production.

Project

The scope of the proposed master thesis project is to map the environmental impact of the whole production process for AM mainly focusing on energy consumption and emissions, ideally also including raw material impact. If possible, there is also an interest in addressed the increased efficiency of the gas turbine due to the possibilities of more efficient design using AM.
The work shall conclude a comparison of environmental impact between AM and conventional manufacturing and identify improvements in the AM production chain based on current best class methods. (For example, support structure)
Work should be based on a case study of two existing components currently in production in the Finspång AM workshop.
The production processes in scope of comparison and assessment, including ideally raw material impact as well are presented below.



Organisation

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