

IAF SPACE SYSTEMS SYMPOSIUM (D1)
Systems Engineering Approaches, Processes and Methods (6)

Author: Mr. Enrico Tormena
ESA - European Space Agency, The Netherlands, enrico.tormena@ext.esa.int

Ms. Estefania Padilla
Germany, estefania.padilla@ext.esa.int

Mr. Lorenz Affentranger
ESA, The Netherlands, Lorenz.Affentranger@esa.int

Mrs. Sara Morales Serrano
Rhea for ESA, Germany, sara.moraless@hotmail.com

Mr. Tiago Soares
European Space Agency (ESA), The Netherlands, tiago.soares@esa.int

A SIMPLIFIED APPROACH TO LCA FOR SPACE SYSTEMS

Abstract

ESA since 2011 leads the application of life cycle assessment (LCA) into space missions, from various satellite applications to launch segments. ESA adopt a holistic approach which requires system thinking when applying LCA to space mission, which results in a multi-disciplinary interaction typical from system engineering processes. The expertise and data acquired during the years enables the elaboration of a simplified LCA methodology to compute environmental impact in early project phases of a space mission. The eco-design process in early-phases (typically O/A/B1) act more effectively in system architecting. Thus, it will enable significant environmental impact reduction to meet the stakeholder needs. The paper will present the novel approach from ESA to reduce the environmental impact of space projects.