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Abstract	<p>The general objective of ESA's Mars Robotic Exploration Preparatory (MREP) Programme is the exploration of Mars with Mars Sample Return (MSR) as long term goal to be achieved in the 2020's (ESA Robotic Exploration Technology Plan, Nov 2010). MSR is a complex multi-segment mission and currently the mission architecture and the mission schedule definition is on-going. Possible intermediate missions are envisaged and prepared also to support the MSR scenario definition. ESA has defined five candidate missions for downselection before the next ESA council on ministerial level (ESA Robotic Exploration Technology Plan, Nov 2010). For two of these missions industrial assessment studies have been initiated. Those two studies are called Mars Sample Return Orbiter and Mars Precision Lander. For both studies two parallel contracts have been awarded to industrial consortia. The studies are funded jointly by ESA's GSP (General Studies Programme) and MREP Programme. All four studies awarded to industry are running until the end of the year 2011. OHB System is part of the TAS-I consortium for the Mars Precision Lander mission study, responsible for the Carrier and part of the TAS-F consortium for the Mars Sample Return Orbiter mission study taking care of mechanical, thermal and propulsion subsystems.</p> <p>The objective of the Mars Sample Return Orbiter mission is to:</p> <ul style="list-style-type: none"> - provide telecommunication capability (monitoring of entry, descent and landing for MPL) - detect, capture and bio-seal an Orbiting Sample (launched into Martian orbit by a Mars Ascent Vehicle, which is not part of the study) - return the sample to Earth - provide safe re-entry through Earth atmosphere in a capsule <p>The envisaged primary launch date for this mission is 2022 with back-ups in 2024 and 2026.</p> <p>The objective of the Mars Precision Lander is to safely deliver a sampling and/or fetching rover to the Martian surface in 2022 – 2026 timeframe at a landing precision better than 10 km. After launch from Earth the spacecraft composite arrives at Mars, where the MPL will be separated from the Carrier and descends through the Martian atmosphere. After touch-down the Rover will be deployed. For both missions the MSR-O is foreseen to monitor the entry, descent and landing phase.</p> <p>The paper will give an overview about OHB System past and present Mars related</p>

activities as well as an overview over the two mission studies MPL and MSR-O.