ANDØYA SPACEPORT: THE ARCTIC ENTRANCE TO ORBIT

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Abstract: Andøya Space (est. 1962) provides operational services, infrastructure, and space education; two suborbital sounding rocket launch sites and a test range for testing of new technologies. The large impact and dispersion area in the Norwegian Sea enables Andøya Space to support a wide range of operations and Andøya Space has launched over 1.200 sounding rockets for science and technology testing.

And now, the focus has turned to orbital class rockets as Andøya aims to host Europe's first commercial spaceport for microlaunchers. In June 2020, the Norwegian Parliament made a unanimous decision to support Andøya Spaceport as a commercial investment, and Andøya Space was in October 2021 given green light for the overall funding. In March 2022 the construction of the first building phase of the satellite launch facility began at the island of Andøya, expected to be finished by the end of 2022. This first phase will allow establishment of the initial operating capability of the spaceport, allowing the first launch of small satellites to take place as early as 2023. The second building phase will finalize detailed projecting during 2022 and building starts in 2023.

The spaceport development is at a site on the west coast of the island, approximately 25km southwest of the existing Andøya Space sub-orbital launch site, and ~4km southwest of the village of Nordmela.

Vehicles launched from here onto northerly trajectories will fly over open ocean for the first ~1000km of flight, and the site provides operators with direct access to polar and sun-synchronous orbits.

Andøya Spaceport can provide launch azimuths between -60° and +5°, which translates to orbital inclinations from 108° to 87.4°.

The construction plans outline two orbital class launch pads, with the possibility of adding a third. Pad infrastructure includes large storage tanks of hydrocarbon fuel and liquid oxygen used to load the vehicle with propellants in the final stages of launch preparation.

The spaceport will support launch of payloads up to around 1.5 tons, depending on the launch vehicles used. The maximum launch cadence capacity will be thirty launches per year.

This paper describes technical details and development and qualification status of the new spaceport, as well as the business and operations concept and capabilities of Andøya Spaceport as a service provider for commercial launch operators.