Europe okays design for next-generation rocket

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An Ariane 5 rocket carrying two satellites sits on the launch pad on February 6, 2013 at the European space centre of Kourou, French Guiana. The European Space Agency (ESA) on Tuesday said it had approved the final design for a next-generation rocket, Ariane 6, aimed at maintaining Europe's grip on the fast-changing market for satellite launches.

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ESA ministers gave political approval for the scheme in Naples, Italy, last November, and since then the agency's experts have been working with Europe's space industry to hammer out the design.

Ariane 6 is sketched as a lower-cost flexible launcher able to place a single payload of between three and 6.5 tonnes in geostationary orbit—the popular parking slot for telecommunications satellites.

ESA's current flagship launcher is the bigger and highly reliable Ariane 5, a multiple-payload launcher that is expensive to operate.

It requires support of 120 million euros ($154 million) each year, at a time when sleek US entrepreneurs are starting to nibble at the satellite market.

In a press release, ESA said the design was for a three-stage vehicle.

Its first stage would comprise three motors, set in a line as opposed to a more conventional "cluster" configuration, that would be powered by 135 tonnes of solid propellant.

The second stage will also be driven by a solid-propellant motor.

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The third will be propelled by a planned liquid-fuelled engine, Vinci, designed to be restartable rather than a single-burn motor, to give more options for placing payloads in complex orbits.

If all goes well, Ariane 6 will make its maiden flight in 2021 or 2022, becoming Europe's workhorse launcher for the next decade.

Jean-Yves Le Gall, head of France's National Centre for Space Studies (CNES), said the rocket's smaller size and newer technology would make Ariane 6 launches 30 percent cheaper than those of Ariane 5, which cost about 100 million euros per six-tonne satellite.

Around four billion euros in investment will be needed, mainly coming from countries whose industries will get most of the work.

The decision to back Ariane 6 set France at odds with Germany, whose industrialists complained that its development time was way too long.

Under a compromise, ministers backed a tweak of the Ariane 5 called Ariane 5 ME—for "Midlife Evolution"—that would be ready by 2017 at a putative cost of two billion euros.

It would be the first rocket to use the new-fangled Vinci upper-stage engine.

Its payload capacity would be two satellites of more than five tonnes each, hoisted to geostationary orbit, providing a 20-percent gain in cost over the present Ariane 5 ECA and ES models, according to prime contractor Astrium.

Under the deal, Ariane 6 will incorporate as much of the Ariane 5 ME technology as possible to save waste and time.