

Rocket Lab



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Organisation Summary

This crew blasted onto the front page in November 2009, with the launch of Atea-1, a rocket designed to reach the sub-orbital regions of space.

They announced a new small-payload LEO rocket, Electron, in July 2014 – with first launch anticipated for 2015. During the announcement they also launched a new www.rocketlabusa.com website as well as investment funding from Khosla Ventures.

Products & Services

- [Electron: Small-payload LEO rocket](#)
 - Announced 29 July 2014.



- Infographic:
- [Atea-1 Suborbital rocket](#): 2kg payloads up to 150km altitude.
 - The first launch took place 30 November 2009, and was a partial success. The booster section was recovered a few days after launch, but the payload and avionics section was never recovered.
- [Atea-2 Suborbital rocket](#): 25kg payloads up to 250km altitude.
- [Hi-Tac](#) High Temperature Ablative Coating
- [HI-NOZ](#) High Temperature Rocket Nozzle Bulk Moulding Compound
- [Liner Bond](#) EPMD Insulation Bonding Resin
- [Hybrid 90A](#) Hybrid Rocket Propellant
- [Instant Eyes](#) Rocket deployed surveillance system

Key Staff or Stakeholders

- Peter Beck, CEO/CTO
- Ralph Shale: CFO
- Brent Marvin: Design Engineer
- Peter Barlow: Test Engineer
- Shuan O'Dononell: Electronic Systems
- Adam Berry: Propellant Chemist

Press & Articles

- Press Release: [Rocket Lab Poised to change the Space Industry](#)

Rocket Lab USA poised to change the space industry

US Aerospace company Rocket Lab is developing a world-first launch vehicle to deliver satellites into orbit cheaper and faster than ever before.

Los Angeles, California, July 29, 2014

Rocket Lab announced today its plan to revolutionize the global space industry with the creation of Electron, a lightweight, cost-effective rocket, making it easier for companies to launch small satellites into orbit.

Rocket Lab is building the world's first carbon-composite launch vehicle at its Auckland, New Zealand facility. The development of Electron will reduce the price of delivering a satellite into orbit. At a cost of less than \$5 million dollars, this represents a drastic cost reduction compared to existing dedicated launch services[1].

The lead-time for businesses to launch a satellite will also be reduced from years[2] down to weeks through vertical integration with Rocket Lab's private launch facility. Rocket Lab has already garnered strong commercial demand with commitments for its first 30 launches.

Electron is 18m in length, 1m diameter and will weigh more than 10 tons. This will be the first vehicle of its class capable of delivering payloads up to 100kg into low Earth orbits (LEO).[3]

Peter Beck founded the company in 2007 with the vision of eliminating the commercial barriers to space. Until now, rockets have remained prohibitively large and expensive, despite the trend for satellites to become smaller, more capable and affordable. Rocket Lab will help to fulfill the deficit in launch systems by helping to break the cost barrier to commercial ventures and for the emerging satellite constellation markets.

"The innovation behind Electron will release the limitations on launching small satellites. Our vision at Rocket Lab is to make space commercially viable and more accessible than ever, doing what the Ford Model T did for consumer automobiles. This technology will really open space for business," said Mr. Beck, CEO, Rocket Lab.

"Along with benefits for commercial enterprises, cheaper and faster space access has the potential to lead to more accurate weather prediction, global high speed Internet access, as well as real-time monitoring of the impacts of human development," said Mr. Beck.

Rocket Lab's principal funder is top-tier Silicon Valley venture firm, Khosla Ventures, which has a long track record of backing breakthrough technologies that revolutionize industries.

Vinod Khosla, founder of Khosla Ventures, says it is exciting to see the technology and innovation coming out of Rocket Lab.

"We are thrilled to be investing in the next chapter of Rocket Lab's development as they drive down the cost of launch vehicles to provide greater access to space," said Mr. Khosla.

"The company's technical innovations will truly transform the space industry."

[1] The average price of a dedicated launch service is \$133 million (USD). Source: Launces 2014: A Review of 2013 Launches and Payloads by The Tauri Group.

[2] Source: Work Commences on Experimental Spaceplane (XS-1) Designs by Defense Advanced Research Projects Agency (DARPA).

[3] LEO is an orbit around Earth with an altitude between 160 kilometres, with an orbital period of around 88 minutes, and 2,000 kilometres, with an orbital period of around 127 minutes.

Electron: Fast facts

Lift off mass: 10,500kg
Propellant mass: 9,200kg
Propellants: Liquid oxygen and kerosene
Length: 18m
Diameter: 1m
Top speed: 27,500kph
Maximum engine thrust : 146,000 N (14.8 tonnes)
Engine equivalent power: 530,000hp
Nominal orbit: 500km circular sun synchronous
Nominal payload: 110kg

About Rocket Lab

Rocket Lab is an aerospace company founded in 2007 by New Zealander, Peter Beck. The company is focused on delivering innovative, high quality technologies to the space industry. Rocket Lab was created to cater to the growing requirement within the international market for fast, low cost methods of delivering payloads to space. Since inception, the company has successfully developed a number of leading rocket-based systems, from sounding rockets through to new advanced propulsion technologies. Rocket Lab is an American company with a subsidiary and head office in Auckland, New Zealand. Rocket Lab was the first private company to reach space in the southern hemisphere in 2009 with its Atea 1 suborbital sounding rocket. Following this success the company won contracts with aerospace giants Lockheed Martin, DARPA and Aerojet Rocket-dyne.

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- Related press articles/videos:
 - [Kiwi's rocket 'redefines' space industry](#) (2014-04-29, ONEnews)

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- [Kiwi company looks to the sky \(1:53\)](#) (2014-04-29, ONEnews)

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- [Rocket Lab: Official Video](#) (2014-07-26)

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- [Rocket Lab: VIP Unveiling](#) (2014-07-28)

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- [Big lift for Kiwi Rocket firm](#) (2014-07-30, NZ Herald)

Silicon Valley fund backs NZ rocket-maker's bold bid to slash satellite costs.

The New Zealand aerospace firm planning to launch a rocket to carry satellites into low earth orbit for a fraction of the cost of competitors has the backing of a Silicon Valley venture capital fund keen to build the company into a niche leader in the space race.

Khosla Ventures was revealed as the principal backer of Auckland company Rocket Lab which yesterday unveiled a prototype of its Electron carbon composite rocket, which it aims to launch next year.

Rocket Lab has some way to go before it can blast off - it has to find a launch site in New Zealand, patent its engine technology and build the final vehicle.

Founder Peter Beck said he was confident of making next year's deadline, but was not prepared to give a firm date.

"We like to over-deliver," he said after the unveiling of the Electron at simultaneous events in Auckland and the United States.

The materials in the fuselage and fuel tanks of the rocket are similar to those in fuel-efficient airliners - light and strong.

Beck said this meant his vehicle could be much smaller and lighter than those of competitors.

The size and weight of satellite cargo was also shrinking.

He said the 18m Electron was less than a third the size of average rockets that took satellites into space, and could be launched up to once a week.

Rocket Lab says the average cost of a dedicated satellite launch system is \$155 million, but it will be able to do the same job for \$5.7 million.

The seven-year-old company has received \$25 million of government funding over five years.

It has also had money from The Warehouse founder Sir Stephen Tindall's angel investment fund and from Khosla.

Neither Beck nor Khosla chief technology officer and operating partner Sven Strohband was willing to disclose the extent of the venture capital fund's support.

The fund was started by the billionaire co-founder of Sun Microsystems, Vinod Khosla, who is worth \$1.7 billion, according to Forbes.

Strohband - who said the Khosla fund had \$3.4 billion under management - has high hopes for the New Zealand rocket company.

"We invest in very young companies and try to build very large companies at the end of it," he said.

According to its website Khosla also supports the New Zealand-founded bio-fuel company LanzaTech.

Strohband said Rocket Lab could start a revolution.

"If you wanted to get into space you had to ride-share with the big boys, go wherever they wanted to go and when they wanted to go," he explained.

Beck said Rocket Lab hoped to more than double its staff of 25.

"Our vision at Rocket Lab is to make space commercially viable and more accessible than ever before, doing what the Ford Model T did for consumer automobiles," Beck said. "This technology will really open space for business."

Electron could be launched from a site the size of a rugby field. The site required a northeasterly aspect and had to be clear of populated areas.

He said there was a shortlist of possible locations for a space port, and any regions interested in hosting the facility should get in touch.

Rocket Lab has successfully launched smaller vehicles from New Zealand sites, including one which flew to an altitude of 100km.

- [Kiwi rocket trials new form of propulsion](#) (2012-11-13, TV3) ([Article](#))

... In fact, it's a thixotrope – something that's safe and solid while inert, but turns into a liquid when force is applied. ...

- [Rocket Lab Instant Eyes](#) (2011, PopSci Top 100 Innovative Technologies)

Today's hand-deployed UAVs can be assembled and launched in minutes, but that's still too long for a soldier looking for intel to plan an urgent escape. Rocket Lab's mini UAV reduces the assembly-to-reconnaissance time to 20 seconds. The eight-inch, one-pound, rocket-powered UAV launches with the push of a button and snaps five-megapixel shots throughout the 120 seconds it takes to parachute 2,500 feet back to Earth, transmitting them by encrypted Wi-Fi to the soldier's phone, tablet or laptop. Once the UAV hits the ground, it self-destructs.

- [Space company sells its rocket technology to US](#) (2010-12-01, NZ Herald)

Rocket Lab said it had signed a deal with L2 Aerospace, a company focused on developing innovative flight systems, technologies and solutions for the commercial, civilian and military markets.

- [Local rocket buffs catch Nasa's eye](#) (2010-09-12, NZ Herald)

Beck told the Herald on Sunday that Rocket Lab had received a research grant from the US Office of Naval Research to study new rocket propulsion methods and fuels.

- [NZ rocket launches into space](#) (2009-11-30, NZ Herald)

New Zealand's first space rocket has launched this afternoon. The Atea-1 took off from its launch site at Great Mercury Island just before 3pm, after technical problems delayed this morning's planned launch.

Atea-1 Launch Video