

URL: <https://stvp.stanford.edu/clips/why-cleantech-investing-is-different-this-time>

Lowercarbon Capital co-founder and managing partner Chris Sacca acknowledges that previous waves of cleantech investing yielded subpar returns, but insists that things are different now. Technology advances have dramatically lowered the cost of getting to market, he finds, meaning that climate-positive products can now be competitive in the open market without relying on subsidies or regulatory mandates.



## Transcript

- All you have to do is kind of look 00:00:03,480 at what happened with YCombinator and the web era.. Right before YCombinator, and YCombinator I use as kind of a marker in time of a bunch of things that were happening, but before then it cost millions and millions of dollars to start a software company, an app.. And it just it, you had to get, I mean and I'm 46.. I'm ancient.. So, I remember these things.. Internet connections cost tens of thousands of dollars per month.. You had to actually build your own rack of servers.. Like, not kidding, you had to have a person or multiple people to build that rack of servers in a hosting center.. You had to buy an Oracle development environment and a Sun development environment, and maybe a Novelle environment before you could code anything.. So, what was getting funded back then were very thick business plans, and they were mostly bunk and it was mostly kind of like snake oil salesmen, who were able to charm the VCs into giving them millions of dollars to start these things..

But it was just incredibly risky and when you talk about getting burned, like that's what happened in web 1.0, right.. I mean, we, there was a time where I got laid off from my law firm in well, four days before September 11th.. And for that next year, you couldn't get a U-Haul out of San Francisco, because they'd all gone one way back to Indiana and shit.. So everyone had moved back with their parents.. It was bleak.. Right.. But what happened with the arrival of open source software, cloud hosting, ubiquitous internet connections at fricking coffee shops, like suddenly now, you had this explosion of entrepreneurship because the cost was so low.. Now the result was there was a lot of crap made back then because the barrier to entry was lower.. But there was a lot of amazing stuff too, because we didn't have all these gatekeepers and we didn't have all these things standing in the way of building stuff and trying it.. And so the result was we saw this shift where the cost came down, the (indistinct) economics made more sense..

And now there was a direct relationship between the app developer and their user.. You know back, even when I was at Google, I was there '03 to '07.. We had to do deals with the carriers before users could see an app.. And so now you think about it, like you can just post something up in the app store and as long as it complies with their rules, users just get to go download it.. And that wasn't the case back then.. And so what we've seen in clean tech and I, and believe me, I am grateful to John Doerr and the Kleiner team and grateful to, you know, coastline, all the other folks who really pioneered this stuff, they were right.. It was just a lot slower than, you know, and so John Doerr's billion dollars into clean tech turned into \$3 billion.. It just took a while.. And the reason was those companies were really expensive to start.. They didn't benefit from any of the

things we benefit today that I'll mention in a second..

But, and then the (indistinct) economics of what they were selling didn't make sense either.. And so they counted on government for subsidy and they counted on regulation.. What's changed is that these companies are so much cheaper to start now.. A lot of that is just all about machine learning, compute clusters, about CRISPR cas9, available to teams of like two people when you needed a half billion dollars just a few years ago to do that.. What's happening in synthetic biology and protein folding, all of that has brought the cost down to where the (indistinct) economics of what they're selling just makes sense on their own.. And so without any governmental regulation, and I'm allergic to that stuff.. Without any of that intervention at all, we can now go direct to a consumer, direct to business as a buyer and direct to government as a buyer.. And so that's what's changed and that's what's dramatic.. And it's funny, you know, I had a, I have a good friend named Andrew Beebe, who's a partner at Obvious Ventures.. And a couple years ago, Andrew saw me at a climate event and we'd been friends..

He was selling solar panels back when I was at Google and I was buying solar panels from him.. And so we'd known each other forever and he pulled me aside and he is like, "Dude, save yourself.. Don't get involved in this space.. It's like where, it's like where passionate and idealism go to die." And I said, "No, no, no.. I, we really think it's changed.. Like the numbers are there and they move.. And this is like the, this is the golden era right now." And about six, seven months ago, he came back to me and was like, "You know what, thanks for saying that, man.. I got my second wind." And he's seeing it too.. Like it, it is, you know, and he's one of the OGs and the leaders and someone I really respect in this space.. And so that's what's happened, is we've got companies like, I'll give you an example..

We've got a company called Solugen.. Solugen makes industrial chemicals using enzymes instead of petroleum.. Now they do this because look, digging up and burning old dinosaur bones is expensive.. And so anytime you can use the sun or a natural process, you're just gonna save money.. So they make hydrogen peroxide for instance, at industrial scale.. And they take it to a guy.. And I like to imagine him as like a, with a, you know, a Make America Great Again red cap on and like a jumpsuit.. Maybe he's got a tobacco dip in and he asks two questions.. Is it hydrogen peroxide? Is it cheaper? Well then, fuck it.. I'll buy it..

And like, that's my ideal customer right now.. Someone who has no shits to give about the climate whatsoever, but just wants to buy the better, faster, cheaper, more delicious, easier to use, easier to maintain option.. And so, that's a company right there that's doing a nine figure run rate with 60% margins selling a commodity.. In parallel, we see stuff like Heart Aerospace.. We have this team, when they came to pitch us.. And I shouldn't even say they, it was a guy, a guy named Anders from Sweden.. We were kind of like, "Where's the rest of you?" And he's like, "No, no, I got this.. I'm going to build a 19 seat, fully electric, regional commercial aircraft." And we went and gut checked it with Boeing and Airbus.. And they both told us, physically impossible.. Bill Gates' team was even down on it..

And so we invested, I wish we had invested more in hindsight, but we invested and we stayed close to him.. And what he did was he took the seed money and he rented a hanger in Sweden.. So he's got this huge hanger, but for the first year and a half, he just sat in the corner of the hanger and started hiring some computer scientists and some aerospace engineers.. And they built the plane in the computer, using machine learning and AI, they built the entire plane.. And then as they started to hone in on the final design, piece by piece, they built that full scale power train and reduced scale fuselage in the hanger.. And they went from, in an industry where usually introducing a new airframe takes 10 years and billions of dollars, on single digit millions of dollars, with a team that was small enough to fit inside their 19 seat airplane.. They went from zero to billions of dollars in orders from the major airlines.. And those major airlines aren't doing that because they're like tree huggers.. They're doing it because these are, these are airplanes that make their least profitable routes, profitable.. And so, they're doing it on sheer greed..

And so for me, that is again, that typifies what's changed, which changes that the tiniest team can build something massive, leveraging computers and that the market is there to buy it without anyone telling them they have to.. And so that's why right now is different...