General Fusion (Analyst Day)
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NASDAQ, 10th Floor

General Fusion Speakers

- Josh Nycholat - Manager, Investor Relations
- Greg Twinney - Chief Executive Officer
- Michel Laberge - Founder and Chief Science Officer
- Megan Wilson - Chief Strategy Officer
- Mike Donaldson - SVP, Technology Development
- Rob Crystal - SVP, Finance

Q&A Participants

- Mark Shooter - William Blair Analyst
- George Gianarikas - Canaccord Genuity, Analyst
- Marc Bianchi - TD Cowen, Analyst
- Sameer Joshi - HC Wainwright, Analyst
- Carter Gorman - Needham & Company, Analyst
- Chris Souther - Truist, Analyst
- Ryan Pfingst - B. Riley, Analyst
- Tim Moore – Clear Street, Analyst
- Derek Soderberg - Cantor Fitzgerald, Analyst
- Craig Irwin – Roth, Analyst
- Rob Kaplan - Spring Valley, COO

PRESENTATION

Josh Nycholat [0:00] All right, good morning, everyone and thank you all so much for taking the time to be here today with our team. We're extremely excited to take you through General Fusion's technology, our strategy, and path to commercialization.

Yeah, so my name is Josh Nycholat. I'm Manager of Investor Relations at the company. And happy to be here with our executive team who's going to present to you today.

So just before we get started, I'm going to just flash up the legal disclaimers as required. So, not an investment solicitation, here to tell you all about the company and answer your questions. Yeah, so just a few housekeeping items while we get going. We'll do question periods; we'll have a slide up to call on the questions. When we pass the mic around, just put up your hand, we'll come around, pass you the mic. Just state your name and company name so that we know who's asking the question and for those online. And then we'll get going.

So yeah, I'll kick things off by introducing our agenda. So, we'll first start off with a speaker introduction. We'll then do a founder presentation from Dr. Michel Laberge, our founder. We'll give you an overview of the company, a dive into our technical approach and how we're doing fusion. We'll then pause for a Q&A on that technology section specifically, because there's lots of things we're going to discuss about the company, the technology. After lunch, we're going to get into our path to commercialization and the financial profile and the de-SPAC transaction that we're working on at the moment.

So, save your questions for those two areas and topics for after lunch. We'll have a final Q&A just to wrap things up at the end. So yeah, to get things going, I'll pass it off to Greg Twinney to introduce himself.

Greg Twinney [1:41] All right, thanks, Josh. Some familiar faces, good to see a lot of you again. Share the story, share the progress, where we're at. And great to see some newcomers, people who are starting to learn about fusion, learn about General Fusion. I'm excited.

So, for those of you who know me, this will be a repeat. But I'm Greg Twinney, I'm the CEO of the company, of General Fusion. And I am a serial entrepreneur. And most of you who know me have seen me throughout this journey, turn disruptive technologies from an idea into a business, commercialize, scale up, and ultimately build successful businesses that turn into long-term businesses and also good shareholder return through IPOs and M&A.

And so I come at this from the perspective of enabling an incredible technology and an incredible team and putting all the pieces together in order to take what we have here at General Fusion from the lab through to commercialization and do that first. And so, you know, prior to coming to General Fusion six years ago, I was doing this in many other industries, assembling teams around industry leading technologies to disrupt them and own a category. And I did this sort of over and over again for a couple of decades.

And six years ago, when I jumped into General Fusion, I looked at the opportunity in two ways. One, the ability to take all of that experience and apply it to fusion and basically transform the world's energy supply and leave the world in a much, much better place for my four kids, incredibly exciting. So, I jumped in for that reason.

But also, I'm still very, very attracted to the fact that I know that the company that commercializes fusion first and owns that market will have huge financial returns and rewards. The opportunity is massive. So, I come at this from two perspectives, that leave the world in a better place and also go after the large opportunity that fusion is going to offer. So, I spent the last five years at the company setting us up to win. That means getting the technology advanced to a point where we are today, as we have a 50% scale machine that is going to demonstrate our uniquely commercializable approach to fusion in the next couple of years with some really industry game-changing milestones, and the team will talk about those. Also, setting us up to take advantage of the public markets, where I'm seeing that companies like ours that have milestones that are achievable, incremental, are getting valuation and capital for doing that.

So that's where we are today. We're excited to share everything. I'm going to introduce Megan next to come up. She's one of the members of our team. And as you see the team and see all the people that are working on this, you'll see a bit of a difference from some of the other fusion companies. Of course, we have deep science and technical and engineering capabilities, but we also have commercial know-how and entrepreneurship. And that is very different in this industry. And that's one of the reasons why we're leading the race with such a small amount of capital that we've raised to date.

So, Megan, you're one of those members. Come on up and introduce yourself.

Megan Wilson [4:40] Thanks, Greg. Hello, everyone. Great to see you all here and see some of you again. As Greg said, my name is Megan Wilson. I'm General Fusion's Chief Strategy Officer. I've been with the company four years this week, actually. But I am an engineer by training, and I've spent my career in nuclear power and commercial power generation.

I started out as a U.S. Navy nuclear officer, so operating nuclear fission reactors at sea for several years. So I know what it is to operate a nuclear power plant. And then after the Navy, I spent just shy of 15 years at the Babcock and Wilcox Company, a company some of you may know, working on defense nuclear, commercial nuclear, small modular reactor policy and funding and development. And then shifted over to the B&W side and spent some time in corporate development, mergers and acquisitions, investor relations, and corporate strategy, really focusing on clean tech, development, demonstration, and strategy.

Fundamentally, though, I am a fission geek. And for most of my career, I've been a fusion skeptic, because there are significant challenges to taking fusion science and making it a power plant. General Fusion and this team at General Fusion, is the first company and the first technology that convinced me that practical fusion power is possible. And that's why I'm here. And today, I am responsible for our long-term strategy development, working with the folks you see sitting here, as well as all of our external relations, including strategic partnerships. So looking forward to telling you our story. First, I will hand it over to Mike Donaldson.

Mike Donaldson [6:30] Thanks, Megan. Hi, everybody. Welcome today. So, my name is Mike Donaldson. I'm General Fusion Senior Vice President of Technology Development. I have a couple of degrees in engineering physics. And I've spent my career developing early-stage technologies through testing and physical prototypes. I've also spent a lot of time building and leading the teams that do that type of work.

I joined General Fusion in 2009 as employee number five. And I've helped develop the technology that you'll see today, as well as enabling the team that's delivering the results that we're happy to talk to you about today.

So, with that, I'll introduce our finance guy, Rob Crystal.

Rob Crystal [7:18] Thanks, Mike. So yeah, I'm Rob Crystal. I'm the Senior VP of Finance. I've spent my career over 20 years helping companies commercialize new technologies, mostly in the clean tech space. I started out with KPMG. And I was working on a lot of their renewable energy clients when they were building their first production assets and then moving into operations. Then I spent close to 10 years with a water technology company that was in the R&D phase. And we built a couple of first of kinds, or FOAK's, and then built operating plants, and then scaled globally.

So yeah, I joined General Fusion about six years ago. And I lead the finance function. In that time, I've been very focused on getting the company public ready. So I'm pretty excited about being here today. And overall, just excited about our path moving forward, and not just there's the financial opportunity, but also the opportunity to leave the world in a better place. Thanks for having me.

I will now pass over to our founder, Dr. Michel Laberge.

Michel Laberge [8:23] Thank you, Rob. Well, good morning, everybody. I'm Michel Laberge. I'm the founder and the chief science officer at General Fusion. Fusion is heating up. The lab, the big lab, the national lab, they've been working on fusion for 60 years. And during those 60 years, it improved. It got better slowly and slowly. And about three years ago, they passed the big threshold, the threshold where they make more energy out than the energy they put in. And nowadays, they can actually do four times more energy out than in. Now, seeing those fantastic results, there are a huge pile of companies that are jumping in the fray and that are trying to turn that into a real machine.

Well, there's a bit of a problem. The big lab, what they were trying to build is very complex, very difficult, very touchy, and not very practical. Those machines, they were designed to show that fusion can be done. And at that, they're good. They succeeded. But to make a power plant, it sucks. So at General Fusion, we took a different approach. We say, "Okay, what would be good for making a power plant?" And we're going to do a machine that's more practical. Now, all this fusion has been a pipe dream for a long time. There's lots of bad jokes about this. But fusion is an happening thing.

I started my work with a degree in physics and a master's in physics at Laval University in Quebec. I am a Quebecois, you may notice a little French-Quebecois accent here. After that, I went to Vancouver in Canada and I did a PhD in fusion-related work. This is where I got my little fusion bug. Now, when you start to look at fusion, you will notice there's two big ways of doing fusion. The first way is magnetic fusion. You make a big magnetic field. You put a very hot gas, which is called a plasma, in the middle. And the magnetic field kind of levitates in the middle and doesn't touch the wall. This is very important because if the hot gas touches the wall, it cools down, fusion stops.

All right, there's somebody stealing the clicker because I forgot to click. Anyway, so in magnetic fusion, you need big, big coils making very, very strong magnetic fields. And for that, you need to pass a lot of electrical current to make a very big magnetic field. But if you use normal copper wire, you will dissipate so much energy in making the magnetic field that you will burn all the energy that the fusion makes. So those people are using something called a superconducting coil. A superconducting coil is a very weird material that if you freeze it to near zero, minus 273 degrees C, it becomes a superconductor and it doesn't dissipate any electricity. So this is why it can make very big magnetic fields without burning all the energy required.

However, those coils are a nightmare. Trying to keep them at minus 273, when over there, there's a gas at 100 million degrees C, there's a little issue with doing that. So this is usually, there's lots of machines using magnetic fields. The most popular machine is called a tokamak. The tokamak has been invented in the '60s by the Russians. The tokamak means toroidal chamber with magnetic coil, something like that. It's a Russian term.

So it was invented in the '60s. In the '60s, it's a long time ago. And now we're trying to make power plants after using this very old technology. Very hard to do. The other method to do fusion, which is what I work on my PhD, is laser fusion. Laser fusion, you take a little pellet, then you take two football fields full of high-power lasers, and you focus all the energy on this little pellet, and then you crush it. Now, if you crush something, it gets hotter and denser. If you crush something really fast and really hot, then it makes fusion. However, those lasers, they're also very finicky and very expensive.

Now, I did my PhD on this thing, and I passed most of my PhD twisting a little mirror to align the beam through the lab so it hit where I want. Very finicky. All the time I was thinking about that. How the hell are we going to turn that into a practical power plant?

Now, after my PhD, I started to look for a job. But for physicists, it's kind of hard to find a job. I think, actually, there's quite a few taxi drivers that have PhDs in physics. But the academics have invented something to deal with their PhDs called a post-doctoral. So I did two post-docs. The first one I had an offer in northern Ontario in a nuclear lab, a bit like Los Alamos, and another offer in Paris, France. My girlfriend, now wife, selected Paris. Go figure out why she preferred Paris over Chalk River.

But anyway, after a few post-docs, I did manage to find a real job. I found a job at Creo Product in Vancouver. Creo Product was a big company that makes laser printers for the printing industry. Big laser printers, not what you have on your desk there.

So I worked there for 10 years. It's quite interesting. And there I learned to be a little bit more practical. You know, in the academia, you drink coffee, you go to conferences, you write the odd paper. You know, it's a pretty nice life.

In the private, there's something very, very annoying. It's called a customer. And the damn customer wants his machine now. And he wants it to work. It has to be cheap. This is a little bit different than the usual academic career. So I learned to be a little bit more practical there.

Now, after 10 years of that, between 1990 and 2000, I look at what I was doing. I was cutting the forest, and I was covering you all with junk mail. So that was what my big effort was providing. I knew that the energy situation was a bit of a disaster. It's even more of a disaster today. And as most physicists know, fusion will eventually fix all that.

Now, they don't all agree when, but they kind of agree that fusion will do it. So I decided something a little crazy. I decided to make a fusion company. This was my middle life crisis, by the way. Like, some people got a Porsche, and some people do dubious life choices, I decided to just start a company. So General Fusion started it. My wife, tell you what, my wife was not very pleased with that. She said, "What? You're dumping your nice paid job, and you're going to start, what, a fusion company?" Anyway, that was quite interesting.

So the first couple of months, I sat on the sofa, and I looked at the literature. My wife said, "This is starting a company, like reading paper on a sofa?" Anyway, I went through it, eventually, and I hit something called Magnetized Target Fusion, MTF. This is something that was working a little bit in the '70s at the Naval Research Lab in the U.S.

So I look at that, and said, "You know what? This is a good idea. This could actually produce a real power plant, something more practical. How does it work?" In Magnetized Target Fusion, you take a big vat of liquid metal. You spin the vat. The liquid metal gets pushed on the side. You shove in the center some plasma, this hot gas, with magnetic field, a bit like the Magnetized Fusion people, with magnetic field, which keeps the plasma in the center. Then you use big pistons. You squash the liquid, compress the plasma. When you compress it, it gets denser, it gets hotter. It makes fusion. The fusion emits its energy as neutrons. The neutron gets absorbed by the liquid metal that's spinning around it. The liquid metal gets hot. You pump that into a steam generator, a kettle, essentially. Make some steam, spin a turbine, make electricity the normal way. So this is actually quite a good idea.

Now, one of the biggest problems with fusion is those fast neutrons. When you make fusion, neutron comes out. If you do that in a metal chamber, the neutron hits the wall, and it destroys the steel. And if you have laser, the neutron will hit the lens, and it will destroy the lens. So this is a very big problem.

The people in the business say, "Oh, no problem. We will invent some non-actinium material that will resist the neutron." Now, inventing new material, if at all possible, will take a long time. However, for Magnetized Target Fusion, when the fusion happens, you're at the middle, all compressed, and it's covered with liquid metal in all directions, and the metal absorbs the neutron. The liquid, you cannot break it. The liquid, the atom, all kind of loose in there. So when you hit it with a neutron, well, they stay loose. But a solid is a crystal, and the atom are different places. You hit that, the neutron, the atom moves, and the metal falls apart. So this is the biggest advantage of magnetized target fusion. But that's not the only one.

Also, in fusion, most fusion anyway, you have to make your own fuels, a process called rebreeding. In Magnetized Target Fusion, the liquid is chosen, so when the neutron hits it, it makes the fuel. And that makes enough fuel to make the machine go around and around in a circle. Other machines, they will catch neutron and try to make some fuel, but because they lose a lot of neutron around, it's very difficult for them to make enough fuel to run the machine. But we have 4 pi coverage, 4 pi is in all direction, 4 pi is a technical term. Anyway, all direction, we can catch the neutron and make fusion. So this is very good.

Finally, it's cheap. This is one of the big advantages. Superconducting coil, big football field of laser, those are very expensive technologies. Pump, bearing, seals, piston, piston ring, you get that in your car. Well, maybe not anymore, you have an electric car. Anyway, it used to be the thing.

So more broadly, fusion with MTF is designed from the ground up to make a power plant, not an experiment to show that fusion is doable. Now, making fusion is not that easy. So when I started my company, I started my company in a garage, like a good company should start it. At the time, I live on Bowen Island. It's a little island off Vancouver. And on the street corner there, when you get off the ferry, there's a street corner with an abandoned garage there. I rented that. So I built my first machine there, which was the previous picture. And anyway, so the people on Bowen Island were looking at this and say, "What is this guy doing in this garage?" That wasn't quite interesting.

But anyway, so after three years of work, between about 2000 and 2003, I managed to squeeze a plasma with magnetic field, small machine about this big, and extract a few neutrons out of this thing. Like, we put a detector around it, and you detect the neutron. I call that my marketing neutrons. So now with my marketing neutrons, I've decided to start this company and grow it a little bit bigger than a guy in a garage. And I needed a CEO, because I'm pretty good in the lab with a wrench, you know, that's my cup of tea. But this business thing that you guys are into is, I don't like it, nothing personal.

But anyway, so I decided I needed a CEO. So I hired my ex-boss at Creo Product for zero money, zero bonus, and zero hope of anything. So he said, "What a great deal," and he went for it. So anyway, between the two of us, we managed to convince some local VC in Vancouver to invest in General Fusion. That VC, they knew us personally from the time at Creo. Actually, they made a bit of money when Creo sold to Kodak. So they said, "Ah, those guys are not totally crazy. Perhaps we should invest in that." And then when you get a VC, other VC are a little bit easier to get, you know, so you get more VC, you get more in it. And then for the next 20 years, we managed to raise enough money and built all sorts of bits and pieces for this big power plant. Different tests to test this and that.

I'm an experimental physicist. I like to build gear. So the General Fusion approach is you design something, you build it, you test it. It usually doesn't work the first time, so you modify it a bit until you make it work. I don't like passing all my time designing on a computer. There's rather a lot of PowerPoint companies out there on fusion. So we actually built some real gear.

Now, after 20 years of work, of practical approach, we managed to get some results, some of different piece and pieces. So we got patents on that, which is quite useful. And then we managed to go to some conference and drink some coffee. And then we published a couple of peer review paper in ScienceFict magazine. And we also built an ecosystem of different people to help us out, like the National Lab, the other, like, university, other company are making bits and pieces for us and helping us in solving some of the problems in fusion.

Which bring us to today. So today at General Fusion, we have this big machine called LM26. LM26 is a two-meter diameter plasma crushing machine. We built that in about a year and a half. We started operating that in 2025. And since then, the plasma that could crush got better and better and better.

So now, we got all those nice results from us. There's not a big result from the National Lab. There's companies producing all sorts of results. So fusion is having a huge amount of momentum. And it's never been such an exciting time to work on fusion. So I'm quite excited with my job right now.

Thank you very much.

Over to Greg, our CEO, that will talk in a bit more detail about those things. Thank you.

Greg Twinney [21:08] Thank you, Michel. That was the story, generally, that sucked me in six years ago. Very inspiring. I'm sure, hopefully, you feel the same as I did six years ago. And even every time I hear that story today, I feel the same. I'm excited. I'm like, "Wow, I'm a part of this team. This is incredible." You know, if you took anything away from Michel's introduction, at least, I think I want to just hit on a few things before I dive into this. And really, you know, obviously, the promise of fusion has been out there for quite some time. And the progress that's been made since the beginning up until today has really, really accelerated.

And it's put fusion at an inflection point right now where demonstrations at scale, including our own, are going to demonstrate these fusion conditions are achievable and, in our approach, also commercializable, ultimately.

And so there's been a lot of progress around an inflection point. What's really, really important, if you leave today with anything, it's think about not just that we can create fusion conditions, but how you create those fusion conditions and how you execute really, really matters. The how really matters. So while there could be many demonstrations of fusion achieving milestones in all sorts of different ways over the next couple of years, including our own, you need to ask yourself, are they climbing the right mountain? Are they climbing the mountain to commercialization? And as Michel described, we started this company with the end in mind for a power plant. So you start with the end in mind of a power plant design, and then step by step, we've de-risked the pieces, the components of the technology to that end goal. This is not a science experiment that we're going to try and convert into a power plant. It's exactly the opposite approach.

And so think about the how in terms of the technology. Also think about the how in terms of the investability. So there's different ways to build a company. You can, especially in fusion, you can see people could raise billions of dollars and then say, "Give me five years, I'm going to build a machine," or in some cases, the ITER machine that Michel described, "Give me decades, and I'll build a machine, and then we'll flip a switch, and hopefully we'll do exactly what we expect." Or you can take the General Fusion approach, which is you know what your end in mind is, you decouple the technology, and step by step, as cheap as possible, as fast as possible, you de-risk that power plant design, so that ultimately when you do go build your FOAK in the mid-2030s, you have de-risked all the major components and done it in a way that's investable, milestone by milestone. Investors can follow along and can see the milestones being hit. And that's how we've built the technology roadmap here at General Fusion. It's unique in the industry. It's a unique technology, and this is all designed with commercialization at the end of the road.

So we'll just jump into a little bit more around the investability. Why General Fusion is so investable, and why we're making this move to the public markets today. So I probably don't need to convince this group about the incredible demand for energy. This almost insatiable demand, really. You're talking about electrification of everything, data centers, AI, all of these things. It was all stacking on top of an already growing demand for energy. Nearly insatiable. And when we look at coal and fission, solar, other renewables, gas, all these things are going to be an important part of the mix, but will not be enough to satiate this demand, and especially in time.

We believe the only way that demand gets satiated is through fusion, and that's why we're doing what we're doing.

Next, what Michel described was taking this engineering approach to fusion. That's what I was alluding to before. The end in mind is a power plant. And a power plant needs to be able to run for 40 years in order to get the return on the CapEx. You need to be able to make sure that the machine is going to be able to produce energy, last that time, produce its own fuel, do this all at a cost that's going to be economically competitive. So, start with an engineering approach, and then de-risk it step by step. And that's what we've done at General Fusion.

Step by step, Mike will talk a lot about the development we've done, hands-on, our own results. And then after we get the results from our machines, as the fusion industry should, you put your results out for peer review. And you have your peers look at what you've done and criticize and validate. And we've done that in a huge, huge way. In fact, we're probably one of the leading companies when it comes to publishing results of our own fusion results.

So not designs, not concepts, not PowerPoints, not simulations, our own results from our machines, peer reviewed, we have [35] plus peer reviewed papers today. And then as we've been doing that, we've also been capturing the IP. Got over 200 patents, so a very big patent portfolio, which allows us to monetize that work and protect that work for the ultimate goal. So, we've got this engineering approach, and it allows us also to decouple a lot of the systems in a way that we can invest and build, invest and build, and keep doing that step by step.

Michel talked about the newest machine we've got, a machine called LM26. It's built, it's in Vancouver, it's running, it's operating, it's shooting plasmas, compressing plasmas. It is licensed to do all of that. All of that happened in a couple of years here, and it's a 50% scale plasma inside this machine. And this machine is designed to achieve three incredibly important milestones in the fusion industry, well recognized as being important milestones, and make us first to achieve those milestones, and at a cost that is a fraction what I'm seeing others do.

So Mike and Megan will talk a little bit about this machine in more detail.

So we're an entrepreneurial company. We drive the pace. We're not out of a lab, so we're moving at an entrepreneur's pace. Of course, but we're not doing it on our own. We have a lot of partners, as Michel talked about, that we lean on for validation and support. National Labs, UKAEA, as a gold standard national lab, is somebody we work very, very closely with. And so we work with other partners and suppliers and whatnot, and we're bringing the industry together around our unique approach to fusion. Along the way, we've gathered a lot of investors that have helped us to get to this important stage, and we are a leader in the technology front with $400 million of capital invested to do it, which is incredible. It's an order of magnitude less capital than many of our peers in the fusion industry have spent to get not nearly as far as we are.

So we're a really capital-efficient group, and as we move forward, that's going to be in mind. The lesson that Michel learned from those first customers continues to be a thread that's pulled throughout this organization. We do everything with purpose and capital efficiency.

Lastly, of course, we've got a huge group of scientists and engineers that are, I believe, world-class in fusion, but we've also got entrepreneurs and people that, like these people here, that know how to take an idea and a technology and turn it into a business and grow it. And that is also unique, especially in the fusion industry. It's expected in a business. This is a business, not a science project. And so this is the team that's assembled that knows how to do all of that.

So I'll dive a little bit more into some of the details around General Fusion. As Michel stated, we were founded in 2002. That makes us the second longest-tenured fusion company in the world, and it gives us a head start. It gives us the 20-year head start on doing the work necessary to prove out a commercial design. And if somebody tells you that they can flip a switch in a couple of years and be at the front of the pack in fusion, they probably are either naive or not telling you the truth. It takes time. We've taken the time, and it's brought us to this moment, which is a really incredible time for us.

We're headquartered in Vancouver, Canada. It's way more exciting to tell this story in front of our fusion machines, so I would invite, all of you have invitations to come anytime for a tour and stand in front of our LM26 fusion machine, meet the team, everything else, and right at the end of the runway. So we love to have people come in. We were going to do this event there, but we thought, let's do the first one here, and then invite you all to come sometime later to come see the machine. We're a fairly lean team, 115 employees, as you would expect, most of those very technical, PhDs, engineers, et cetera. And you don't often see retention on a screen like this for a menu of sort of highlights, but this is a team that has got 93% retention of our employees. Fusion is hard. It's a tough, this is not easy. This is not come to work nine to five and put your feet on the desk. This is hard work, and we have a team that's so committed and has stuck through this through the years. People like Mike that has been with this company for a long time, there are many people like that, and that's confidence and commitment to the mission.

Funding, I talked about, we've raised $400 million so far to get us to where we are, which is incredibly efficient. The market size is massive. McKinsey or whoever you ask, I mean, it's a trillion dollars are the numbers that get thrown around. Of course, that is the opportunity that we're going after. We can see in the top center here is a small picture of our machine that is more recently commissioned and now operating, LM26. It sits inside of our 100,000 square foot licensed facility at the end of the runway in Vancouver. At the far side, I talked about investors, but we've also had the Canadian federal government be a strong, strong supporter of the company. About a quarter of the capital that has come into the company has come from the Canadian federal government.

There is a global race happening in fusion, and we are proud to be Canada's horse in that race. We are moving forward onto the global stage in fusion and leading the pack, and we've got the Canadian government that's been supporting us right from the beginning.

We also work with other, and collaborate with other governments, USDOE, U.K. Atomic Energy Authority, different collaborations and engagements on that front as well.

Bottom left, you can probably recognize some of the investors that have helped us along this way, get to this part in the journey. And some of those investors are also, have become technology partners. Hatch is a great example, a Canadian engineering success story that is on the global stage doing engineering, invested and then wanted to become a partner. And so we've kind of got these, we've got some of these people making transitions between investor and strategic partners.

I talked about our big patent portfolio that's global, 210 of those peer-reviewed publications, again, science basis that is important to establish first. Even if your end point is not science, you've got to establish the science basis. And we've done that very, very strong way with the peer-reviewed publications.

And then, you know, when you hear about fusion, we generally show up in the news for anything that's in and around fusion. All right. So, you've got most of the team here that's on the exec side. A couple of members who aren't here, Jan and Grace and David and Kelly back in Vancouver. These are people that, again, you know, have commercialized technology, have worked in clean tech, know what it takes to build the team, the technology, the roadmap, and to execute. And these are people that have been with the company for quite some time doing this execution. So, as we move through each milestone, we know we've got the team that's needed in order to do that.

Beside our employees, we've also got a Science and Technology Advisory Committee. These are individuals led by our chair, Tony Donne, who's the former CEO of Eurofusion. These individuals have, you know, spent their career in fusion running national labs, big programs in fusion, et cetera. And we meet with this group on a regular basis. They keep us between the rails. They give us validation for what we're doing. They help us to plan out what's next. And this is an incredibly important group to us. And we work very, very closely, especially with Mike. When he talks, you'll probably weave in some of this. We spend a lot of time with the Scientific Technology and Advisory Committee.

Beside them, we have recently, fairly recently, I guess, last year, brought on Bob Smith. He's the former CEO of Blue Origin. So, Bob has been incredibly valuable in the business and technology side because he knows what it takes to go from, you know, small-scale to large-scale commercialization in a challenging, deep sort of tech industry. And he's done that before working for Jeff Bezos. And so, I spend a lot of time with Bob on business and technology and team and roadmap. And he's been a really, really valuable resource to bring on as an advisor.

In terms of our Board of Directors, many of these members have been really valuable in supporting the company financially through investment, but also some independence that we've recently brought on. Adding to the mix, we recently added Wendy Kei, who's our new Chair of the Audit Committee and going public. She is the Chair of OPG. And so, we're really excited to have her join the board. We also have Mark Little, who's the prior President and CEO of Suncor Energy on our board. And lastly, as a highlight, I talked about our relationship with the U.K. Atomic Energy Authority, the sort of gold standard in fusion. Well, their ex-CEO sits on our board, Norman Harrison. And so, we're pretty excited to have him on the board as well. And with the Spring Valley team and this Go Public motion, we'll be looking at, you know, different changes to augment and change the board up to be public-ready. And there's a bunch of stuff happening there as well.

So, I'll move on. So, the demand case, you know, like I said, I probably don't need to convince you guys about this. You probably know this better than even we do. You've got your finger on the pulse in terms of demand. But, you know, McKinsey estimates, I think, a doubling of energy demand by 2050 or something like that. I see that our other estimates are even higher. And our belief is that the existing technologies for delivering energy, coal, fission, renewables, natural gas, aren't going to cut it. And there's a big gap. And that gap needs to be filled. And we believe fusion can fill the gap. Why? Because fusion is the holy grail for baseload energy, often talked about as the last source of energy humanity will ever need. And so, that's why for decades, labs and academia and companies, physicists have been working on this.

The promise of fusion is not because of how you do the fusion. It's the actual physics of fusion can deliver the promise. You need to be able to obviously execute it with the proper how. But it's not like fission, where you have an amazing amount of benefits, but a whole bunch of negatives that you're trying to engineer around. You're trying to engineer safety. Fusion , that's not the case. It is inherently safe. Clean energy, reliable, dispatchable, zero carbon emissions, no long-term radioactive waste. Again, no long-term radioactive waste in fusion. So, it's efficient, scalable, minimal land use, cost competitive if you do it the right way, and a limited expected regulatory burden and export controls. That is a key to a massive market versus fission, is a limited regulatory burden and export controls. And we can talk a bit about that later.

From a fuel perspective, we're using fuel called, we're using deuterium and tritium to fuse. Deuterium can easily be sourced from seawater, and tritium can be bred with lithium using our machine, as Michel described. All of this amounts to owning the fuel cycle, and therefore, energy security for those that have fusion at their access.

Lastly, safety. When fusion fails, it fails safe. No chain reaction, can't be weaponized, the fuel can't be weaponized, and there's no high levels of radiation. So, this all amounts to an incredibly huge market. That's that trillion dollar market opportunity, and that's what makes it real. So, the industry is shifting from experimentation to big demonstrations, and the regulatory frameworks are starting to come together in the UK, the US, Canada, all lining up and understanding that the regulations for fusion are very different than fission, and therefore, this market opportunity is going to open up.

Okay. So, I talked about a global race. I don't think a day goes by that there's not a new release of somebody raising capital, milestone in fusion, a government laying down a policy. There is a real race going on around the world, and the race involves scientific achievement, capital, policies, regulations, and as this stuff is happening, we are at the front of the pack. As I mentioned before, we are Canada's horse in this global race, and we have been very nicely embraced by the Canadian government, but our market is global. So, we can develop at home and sell global.

All right. With this, I'm going to hand it over to Megan, take you through a little bit around the commercialization pathway, how we're going to do all of this, and then, yeah, I think we'll break for lunch after you.

Megan Wilson [38:32] Okay. All right. Let's talk about fusion, and I know Michel gave us all a 10-minute master class in the history of fusion, the technology options, General Fusion's history, and our technology approach. Now, we're going to try to break it down. So, I'm going to start with the basics of fusion. And try to create a common framework of language so you can understand how our technology works and how it's differentiated from other fusion technologies out there. But at its very basic level, fusion is a natural process where two atoms are forced by their environment to combine and release massive amounts of energy in the form of neutrons.

Now, I just started the lesson. I'm going to pause the lesson to talk about fission for a second. So, I know a lot of you in this room and online follow fission or cover fission companies. So, I think it's important to draw a distinction between what's happening in a fusion reaction versus what's happening in a fission reaction. And it's really unfortunate that the words sound really similar, but I will try to keep them straight.

So, in fission, you basically have an atom that is bombarded with a neutron and is forced to split. And in that reaction, in that split, you have energy in the form of neutrons and you have highly radioactive, long-lived fission products. That's fission. And the neutrons that are released go on to then split the next atom and the next and the next, and it's a chain reaction. That's the very oversimplified definition of fission.

Fusion, back to fusion now, is completely different. So, I said it before, we're trying to take two atoms and force them to combine through a specialized environment. And when they're combined, they again release neutrons as the energy, but the byproduct is helium, which Michel always says is party balloons. We all love party balloons. So, that is the fundamental difference. There's also no chain reaction. Those neutrons are not going on to cause the next process and then the next and the next. Fusion, we have to keep maintaining that environment so that the atoms can continue to fuse and release energy.

So, going back to the natural process, for those of you who are in the back, if you can see the sun, you are watching fusion in action. We see it happen every day in the sun and the stars. To make fusion happen here on Earth, there are a few things we have to do. So, first, we have to make a plasma. And with all apologies to the plasma physicists in the room, this is basically a special hot cloud of ionized gas. So, we make that plasma. And then, as I said, we have to create the environment that forces the particles in that plasma to combine.

And to create that environment, which is essentially the environment of the sun, there are really only three levers we can work with to produce those fusion conditions. It's temperature, it's density, and it's what we call energy confinement time, which is how long that cloud of ionized gas holds its energy. So, remember that. I'm going to come back to it a few times. We've got temperature, we've got density, and we've got energy confinement time.

So, that's what we need to do for fusion science. But to then take that process and turn it into a power plant, as we've touched on, we've got to do it in a way that we can capture the energy from that fusion process and then put it to work to produce electricity and power the world. So, as Michel touched on, academia and government facilities and research institutions have really been focused for the last several decades on the first two steps. And they have been incredibly successful in proving that fusion science works.

But what differentiates General Fusion's technology is the fact that we are achieving this process in a way that can then efficiently and practically capture that energy and put it to work. That's what we're about at General Fusion.

So, now I want to take it one layer deeper. So, hold on to what I talked about, about those three levers. As I said, research institutions and academic facilities have achieved really incredible results. They have done that by operating at the extremes of those physics parameters. So, first let's talk about temperature for a second. Everyone's got to get to really, really hot temperatures. And that temperature varies depending upon the fuel you're using. Most in the industry are using deuterium and tritium. So, we're just going to stick with deuterium and tritium. Within the confines of deuterium-tritium fusion, where you've got to get to about 100 million degrees Celsius for sustainable fusion, then you can vary the other two levers. The energy confinement time and the plasma density. And so, those traditional academic approaches have achieved those results by going to extreme levels on one of those two levers. Either extreme energy confinement time or extreme density.

So, if you google fusion or you've been poking around in different fusion approaches out there, you probably first found what looks like a glowing donut. And that's the tokamaks of the world. And that donut might be twisted, and those are the stellarators of the world. That's magnetic confinement fusion. In that approach to fusion, you are using extreme magnetic fields. That's where those superconducting magnets that Michel talked about comes in. An extremely strong magnetic field to force the plasma to hold its energy a long time to give those atoms the opportunity to combine and release energy. Pretty successful from a scientific perspective, but not appropriate for a power plant. We'll talk about why in a second.

But on the other end of the spectrum on plasma density, then you've got what I call the laser guys. So, you've got inertial confinement fusion, and Michel talked about this as well, where you're basically taking a very small plasma. You don't care about how long it holds its energy, a nanosecond, but you basically crush it with a huge array of lasers to increase the density, try to approach the density of the sun, and make those particles fuse.

Again, this has been even more successful than the tokamak and magnetic confinement approaches. I'm sure you've all heard of the National Ignition Facility about three years ago at Lawrence Livermore National Lab. They achieved scientific break-even. They achieved the conditions where they could produce more energy out of the plasma than they put into it. That was laser fusion. That was inertial confinement fusion. Very, very successful from a scientific perspective. So, we know it can be done, but not practical from a power plant perspective.

So, at General Fusion, we are taking the best of both worlds, and we're operating in what we call a sweet spot of parameters. So, we're working with moderate plasma density and moderate energy confinement time. So, our plasma has to hold its energy a little while, on the order of milliseconds, long enough for us to increase the density a moderate amount through mechanical compression. We'll talk a little bit more about what that means.

So, Michel gave you the, I don't know if I can recreate the hands, but I got the first tour back in 2017, and it sort of made sense then, but it makes a lot more sense now. So, I'm going to walk you through how it works, and then I'll show you an animation to hopefully put it all together.

So, our approach is called magnetized target fusion, and we like to call this the diesel engine of fusion. We are essentially combining fuel injection with compression, but in a fusion context. So, first, we are forming a liquid metal cavity inside our fusion vessel, and this is essentially our compression chamber. So, we're taking a big vat of liquid lithium, and we spin it, and that forces the liquid metal up against the wall, and we form a liquid metal wall, compression chamber. Then, we've got to form our fuel. So, our plasma is our fuel. We form that plasma and inject it into that liquid metal cavity. So, fuel into the compression chamber. Then, we have an array of pistons that surrounds that liquid metal wall and pushes on that liquid metal wall to both compress it and reshape it, completely encase the plasma, increasing its density and forcing fusion to happen.

The fusion happens. Those neutrons that represent the energy radiate outward into the liquid metal wall. The entire system resets, and we repeat it once per second or one hertz in a commercial machine. So, let's look at how this works in motion.

All right, this gives you a bit of a sense of scale for a 150-megawatt fusion machine. You can see, as we peel away the layers, we've got that rotor full of pistons that's spinning. Those arms in the machine, that's compressed gas. It's not the pistons. The liquid metal wall is spinning, forming a wall. We inject the plasma into that liquid metal wall. The compressed air pushes the pistons, which are the red dots you see, inward, compresses that liquid metal wall to completely encase that plasma, fusion happens. And the system resets, and we repeat it. So, this gives you a sense of the timing in a commercial plant. Compressed fusion, compressed fusion, over and over again, just like a diesel engine.

That liquid metal wall then is run on a continuous basis to a heat exchanger to produce steam, turn a turbine, produce electricity, and we'll show you what that looks like more in a little bit. Okay.

So, why do we want to do it this way instead of the glowing donuts or the laser approaches, which have had such great results from a scientific perspective?

Well, I said in my intro that I'm a fission geek and a former fusion skeptic, and General Fusion converted me, and this is really why. There are a number of barriers to commercializing fusion that have made it nearly impossible for those other technologies to translate to a power plant. And the way we see it, there are really four major challenges. So, the first is that the neutrons from fusion are much higher energy than the neutrons from fission, and those neutrons will essentially destroy any fusion machine over a matter of months. In fact, we've heard some of our more traditional competitors talk about the need to plan for rebuilding the machine every three to four months. Well, if you've ever visited or worked in a power plant, you know that that's incredibly impractical for our utility customers. So, that's problem number one. The neutrons destroy the machine.

The next is that the fuel we're using, deuterium and tritium, well, deuterium is easy. We can get that out of seawater, but tritium does not naturally exist on Earth. We've got to breed it. And those traditional approaches that we talked about don't have an efficient way to produce more fuel than they consume on an ongoing basis. So, that is a challenge.

Then, we've got to find a way to actually capture that energy and put it to work, or we're all wasting our time. And those traditional approaches don't yet have an efficient and effective way to capture that energy and put it to work. And then, we've got to do this in a way that's cost competitive so that it can be scalable and we can deploy fusion around the world. When you think about high temperature, superconducting magnets, or football fields worth of delicate lasers, we believe that all adds up to potentially astronomical costs for fusion power, which would ultimately limit its addressable market.

So, what do we do? General Fusion's approach is designed to solve for all of these challenges. And that liquid metal wall that I talked about that squeezes and encases the plasma is really the secret sauce to it all. So, first, the liquid metal wall that surrounds the plasma captures 99.9% of the neutrons before they can reach the outer solid wall of the machine. So, effectively, shielding the machine from any neutron damage. That means we can build our machine with existing stainless steel alloys, and it will last the 40-year-plus lifetime of the power plant.

This is a big deal. Approaches that don't have this type of solution are looking at developing materials that don't yet exist to be able to withstand this neutron interaction. So, the liquid metal wall absorbs the neutrons, protects the machine. Next, that liquid metal wall is 100% natural lithium. When neutrons interact with the lithium, they produce tritium. And because we completely surround the fusion and are so efficient and effective at capturing the neutrons, we can produce more fuel than we consume on a continuous basis. Our current estimates, and this is backed up by analysis from the U.K. Atomic Energy Authority, is that we can achieve what we call a breeding ratio of 1.5. So, for every tritium that we consume as fuel, we can produce 1.5.

So, that means an individual plant, wherever it's located, can be self-sustaining from a fuel supply perspective, from an energy security perspective, and we can use the excess fuel generated to provide startup fuel for the next General Fusion plant, and the next, and the next, and essentially own the fuel cycle for the broad fleet.

Then, we want to capture all that energy, and I said it and I'll say it again, because we're capturing all the neutrons, we're capturing the energy very effectively. We can then send that liquid metal to a heat exchange system, produce steam, turn a turbine, make electricity. And then, because we are doing this without superconducting magnets, without high-powered lasers, without having to frequently rebuild the machine, or use materials that don't yet exist, we believe we can achieve cost-competitive fusion power on an LCOE basis. So, this is the General Fusion value proposition. This is why I am here.

Okay, so now let's take this framework and apply it to the broad ecosystem of the fusion industry. And Michel touched on this in the last handful of years. The industry has grown incredibly. There are more than 50 private fusion companies in the world. The majority of those have been founded in the last handful of years and are still very much in the startup phase. Some are much more mature. General Fusion is, we believe, the second oldest private fusion company in the world. But regardless of when they started, the majority of fusion companies out there are focusing here in the more academic approach, right? The magnetic confinement we talked about, the donuts, twisted donuts, or inertial confinement, the laser guys.

And I've walked through it before, but it's worth stressing. While we expect those companies to achieve meaningful scientific results because it has been done in government institutions, ultimately, those approaches don't have a solution to the neutron damage. They might be able to sort of reverse engineer and add on some sort of energy extraction, but because it's not inherent and within the machine, will not be effective or efficient at extracting that energy.

The estimated breeding ratios that they can achieve, they're struggling to get above one, still working out how to approach that. And then I mentioned the cost before and the use of existing materials. Those are major challenges for those approaches.

Now, we are taking an engineering approach. I would say we're not alone in that. There are other companies out there who are trying to take creative approaches to fusion because these challenges I've described, they're not a secret. The broad industry recognizes that these are challenges that need to be solved. And there are others out there doing some interesting things. I would say approaching that sweet spot of parameters that we're working in, but none of them address these challenges as comprehensively as General Fusion's magnetized target fusion.

Then if you layer on, and we talk about our peer-reviewed articles a lot, we're quite proud of our library, but you layer on among those companies, those who have actually built fusion machines, achieved results, and put those results up for public scrutiny, you can quickly see that the funnel of fusion companies narrows to a very small group of companies who both have real fusion results and are pursuing approaches that could address some of these challenges. And we believe we float to the top because we have done both.

Okay, so what does this look like in a power plant? As I mentioned, our machine is designed to be one machine, 150 megawatts electric. We anticipate that the sweet spot of size would be two 150-megawatt machines for 300 megawatts total, sharing a balance of plant. What you see here is one fusion machine. But if you're in the energy industry, this would be a very recognizable schematic to you. So we are very focused on the fusion machine, the fusion island, which is meant to replace the heat source in the plant. But because we're using this practical approach, we have the opportunity to use existing balance of plant and power generation equipment, existing infrastructure, and in some cases to actually repower old, retired, or retiring power plants, including coal-fired power plants.

So as you can see, this looks fairly predictable, and this is important to our potential early adopters. But you see this blue loop is the liquid metal coming from the center of the machine, going to a heat exchanger, passing off that energy, and returning to the machine. What's a little different from what you'd see in a normal or a conventional power plant is the green loop, which is related to the fuel cycle to be self-sustaining. So extracting that tritium from the liquid metal before it goes to the heat exchanger, processing it, and then reusing it to close that loop on the fuel cycle.

Okay, so let's talk a little bit about cost. So you can have the best technology out there, as we've said, but if you can't provide it to customers in a cost-competitive way that can be scalable, your addressable market's going to be quite small. And because of our approach, because we are using existing materials, we're using technologies like pistons that have been around for a little bit, and so on, we believe we have a good line of sight today and are able to estimate our costs on a levelized cost of electricity basis. And so we currently estimate that our 300-megawatt plant LCOE will be between $64 and $73 per megawatt hour on an nth-of-a-kind basis, which makes our technology quite competitive as compared to both legacy nuclear and what leading SMR companies are putting out as their LCOE targets, as well as non-nuclear technologies and non-dispatchable renewables.

So this is, we believe, very important for any fusion technology, not only to be able to make the fusion happen, do it in a practical way, but also do it in a cost-competitive, scalable way. And this is underpinned by, you know, Greg mentioned that we're always quite capital-efficient, and that capital efficiency has not only informed the way we have put our investors' and shareholders' funds to use, but also the way we think about our technology.

From the beginning, it's been about a power plant that can be deployed widely, and that means keeping cost reasonable.

And now I will hand it over to Mike. He'll talk us through what we've done, how we got there, where we're going.

Mike Donaldson [1:00:28] Thanks, Megan.

Okay. So General Fusion, as one of the longest-tenured fusion companies out there, has a very strong history of milestones towards commercial fusion. The timeline shown behind me here shows two decades of testbeds and machines that have de-risked our technology and scaled up key systems step by step. Each machine that we show here has demonstrated and answered a specific question to get us the results that got us to where we are today. This program of testing and demonstrating really solidifies the foundation of our approach to commercial fusion, and that foundation really has three things.

One, we have demonstrated that we can form and inject the plasmas that have the parameters for our approach at scale. Two, we can form a liquid wall, and we can compress it and shape it with the characteristics that we need. And three, we validated that MTF works at small scale by compressing a plasma with a solid wall and seeing the fusion reaction rate, the neutrons, increase throughout that compression. We've laid this foundation over 20 years by designing, building, iterating, and testing machines. You might have gotten that feel from Michel. He likes to say that I'm an experimental physicist. That's our culture. We go build machines and we test them. And we've used those machines to deliver results that are peer-reviewed and published.

Megan mentioned this. We are one of only four private fusion companies in the world to have published peer-reviewed meaningful fusion results. And what I want to do with my time today is I want to dive into a little bit more of the detail on how we got those results. Okay. So this is a picture of PI3. PI3 is our large-scale plasma injector. So remember that plasma is an ionized gas. It's the fuel that gets injected. That fuel is compressed by a liquid metal. And when you compress a gas, it heats up. But we need this to heat up to fusion temperatures. Fusion temperatures are about 100 million degrees centigrade. You can't just compress any old gas and get it to those temperatures. The first thing you need to do is you need to be able to form it into a plasma.

Now, the reason for that is hot things like to cool down. And what a plasma has is the plasma has the ability to hold in its energy as it's compressed. That's what we mentioned by energy confinement. In a plasma, that energy confinement, that ability to hold onto its energy is achieved by the currents and magnetic fields that get trapped in the plasma when we form it. The plasma injector that we show here that forms that plasma is called PI3. And it formed plasmas that are two meters in diameter, about 50% of the scale that we would see in a power plant. So I like to think about a plasma as a smoke ring or a bubble. It's got a structure and it's got a shape to it. And it's that structure and that shape that helps it hold in its energy.

In a smoke ring, that structure is supported by forces like air currents that are swirling around the smoke ring. In a bubble, that structure is held together by forces in the surface tension of the film. And all of us that have seen a smoke ring or seen a bubble know that those forces eventually dissipate and the smoke ring disappears and the bubble pops. But in our plasma, as long as the plasma has that shape to it, as long as it has that structure, that's an indicator to us that it's holding in its energy and holding it in well enough for MTF.

So with PI3, we've demonstrated at 50% power plant scale that we can make plasmas that have the starting temperature, can confine their energy, and last long enough to be able to be compressed by MTF.

So the graphs on this slide are from a paper that we produced on PI3. And it shows some of the currents, the temperatures, the density associated with our plasma. Now, I recognize that there's a lot of technical detail here. But there's a key takeaway that you want to take from this slide, and that's the time scale.

You can see that all these parameters last much longer than the time scale of the graph. We've also overlaid what we call the compression window. The compression window is the time that it takes to compress that plasma. And you can see that these metrics last much longer than the time that it's going to take to compress. Put another way, the plasma lasts and holds in its energy much longer than it takes to compress it. And that is a key requirement for heating it up.

So what this shows is that we can make the initial plasma that we need before we compress it, but then we need to compress it.

All right, so we've had a couple of people explain to you that we inject the plasma into a cavity of liquid metal, and then we collapse that cavity with pistons to compress the plasma. And as we said, the plasma has to stay together as you compress it. So the compression can't destroy the plasma when we're doing that compression. So that means that as we compress it, the surface of the cavity has to remain smooth. And if it has a rough surface or if the cavity just explodes into a series of droplets, that's going to totally snuff out the plasma.

The cavity collapse also has to have a shape to it, as Megan talked about. It has to totally encase that plasma. So go back to my bubble analogy. Picture that you're compressing a bubble, and you're just bringing your hands in together to compress the bubble. What the bubble's going to do is the bubble's going to adjust. It's going to stretch. It's going to elongate. And it's going to come out the top. And as it does that, it's eventually going to pop. So rather than just coming in with the walls straight like that, they need to come in shape. They need to cup it and totally encase that plasma.

So the way that we've demonstrated that is, this is a machine. It's called the-- it's another test bed. It's called the cylindrical water compressor, or the CWC. And it's a prototype cavity formation and compression test bed.

With the CWC, we demonstrated that we can form a smooth liquid cavity, and we can compress it while keeping the shape smooth and shaped as we come in. And we show a video of this on the slide.

Does it go? No, I guess not. It was going. Okay, good. Did everybody pick up on it? All right. So this is an actual video from inside the CWC. And if you'd taken a look at that video, you would have seen that it remains symmetric as it came in, and it remains smooth. So how do we know that it's smooth and symmetrical? Well, we measured it. So in these videos-- OK, these videos, we're going to show you how we did that measurement. So the video on the left is actually another video-- a lot of technical detail again-- but is actually another video of a real cavity collapse. It's one that we filmed with a fisheye lens as we looked down into the cavity. Then what we did is we took some rings of lasers, and we projected those rings of lasers onto the surface of the cavity. And as the cavity collapsed, we could measure the reflection of those lasers. And by measuring the reflection of lasers, we could see the shape.

We then did some machine vision. So we took that video, and we asked the machine vision, please find the laser shape, the laser rings. And those colors on the video on the left represent what the machine vision found. So now we've captured a video of the cavity collapse.

Now, remember, it's a fisheye lens. And you probably don't have to be a physicist to remember that a fisheye lens is going to distort the image. So we do a little bit of back calculating to see what the actual shape is. So the video on the right is when we project that onto the real world coordinates of what the shape of that cavity collapse is. So pick up a couple of things from the video on the right. First, you can see that they are all round and symmetric as you do the collapse. That indicates that the wall is smooth. That indicates that it's a symmetric collapse as we want. The other thing that you're going to notice is all of the lines start out lined up on top of each other. That means they have the same width, the same diameter. Then as we compress, you're going to see the blue line and the green line coming in earlier before the red and the orange lines. So that means that the cavity is shaping as we collapse it.

This was a great test. The other thing that we did with it is we lined it up with some computational fluid dynamics simulations, which essentially means that the experiment lined up very well with what the computer predicted it would do. So what we've got is we've got a physical demonstration of our fundamental approach to compressing plasmas. And it lines up very, very well with computational modeling. And I'm very proud to say that we got a very good peer-reviewed paper out of this one.

Okay, so let's use my notes here. We can make a plasma. We know how to compress it. But then the big question is, what happens when we actually compress it? This is a slide from our plasma compression program. And in our PCS program, we injected subscale plasmas, about 40 centimeters in diameter, into a cavity, that cavity down there. And then we rapidly compress that plasma to compress it. We mentioned that the plasma has to have the right starting conditions to stay together through the compression. If we don't start with the right plasma, it will dissipate when we compress it. If we don't compress it with the right shape or a smooth wall, it will dissipate then too.

So in this test, we demonstrated that we can successfully compress these plasmas. We started with good plasma conditions and compressed it smoothly. The plasma stays together. The bubble doesn't pop throughout the compression. And when this happened, we saw the neutron production rate increase during the compression. And that's what's on this graph. These crosshairs show the neutron production rate in the plasma as a function of time. And that dashed line is when we started to compress it.

So when we started it, we had some neutron production rate at the beginning. And when we started to compress it, that neutron production rate went up and to the right. And you can probably guess, we got a good paper on this one too.

Okay, so as we've said, we spent 20 years demonstrating MTF technologies and scaling up our key systems. We validated that MTF works at subscale by compressing plasma with a solid metal wall and observing the expected increase in the rate of neutron production as it goes up and to the right. We've also scaled up two key systems to commercially relevant scale. We can form and inject those initial plasmas with the right parameters at large scale. We can form a liquid metal wall and compress it and reshape it with the characteristics that we need. All these results are peer reviewed and published. And as I said, we're one of only four companies in the world with meaningful peer reviewed fusion results. And we're the only one that's doing it in this practical way. So all of these steps have prepared us for our current program, which is called LM26.

So what is LM26? Well, LM26 is a first of a kind machine that creates the fusion conditions of our approach at 50% power plant scale. LM26 is going to validate our MTF approach with industry changing milestones, three milestones. First, we're going to compress the plasma and heat it to 1 keV or 10 million degrees centigrade. Two, we are then going to heat to 10 keV or 100 million degrees centigrade. And three, we aim to be the first company in the world to achieve the Lawson criterion. And the Lawson criterion is the combination of plasma parameters that can produce net fusion energy in the plasma. And we aim to do that with the machine that we have built and are operating today.

As you might have guessed from Michel and Megan, we move very fast. We've designed and built LM26 in 18 months. It was fully assembled and under vacuum and licensed -- but not licensed by that point-- and under vacuum by December '24. Then we got the license. And in 2025, we achieved our first plasma and our first set of plasma compressions. So I'm going to tell you a little bit about how LM26 works.

In LM26, we form and inject a plasma that is, again, 50% power plant scale into a solid lithium cavity. With the plasma in the cavity, we use a pulse magnetic field to push on that lithium and collapse the cavity and compress the plasma and heat it up. Now, this does not look like a power plant. It has a solid lithium liner. It doesn't repeat one time per second. But what it does do is it compresses plasmas with a moving metal wall at 50% of the power plant scale. This is the machine that allows us to rapidly demonstrate the fusion part of MTF and achieve those milestones that we discussed.

Now, that's an animation. But as I said to you, the machine is actually operating today, forming and compressing plasma. And I'd like to show it to you. We have a video, which is a wrap up of our work in 2025. Video really gives you a strong sense of our machine and the milestones that we achieve. So in the video, you're going to see the team working on the machine. And you're also going to see the control room where we operate it. When we form and compress plasmas, the whole team is in the control room. Everybody's looking at the monitor of their individual system, watching the data that comes off the machine, seeing whether or not everything works.

You're going to see a picture of everybody putting on their hearing protection as we charge up the machine to take a plasma shot and do a compression. Then when we hit the fire button, the fire button initiates that reaction. And you're going to see real videos of the plasmas that we've already compressed. So let's take a look. And hopefully this will work.

(VIDEO PRESENTATION)

Mike Donaldson [1:17:53] Okay. So I hope you enjoyed that. But I have to tell you, it's way better in person. So I want to make sure that I invite you all to come visit us and we'll give you the full tour. It really gives you a good sense of who we are and what we're doing in real time.

So thank you very much. And with that, I'll pass it back to Greg, who will lead some Q&A. So thank you.

QUESTIONS AND ANSWERS

Greg Twinney [1:18:26] Great. Okay, great. So after lunch, we've got some commercialization and pathway and a finance section as well. But I wanted to pause here. You've had the opportunity to hear a lot, especially on the technical side of things. So I wanted to pause and allow for some questions. And please, bring it on. And I'll look to facilitate, field some of the questions, but also be inviting the team to make sure that we all have a chance to respond. Yeah, please. Maybe if you could just state your name and where you're from when you ask the question.

Mark Shooter [1:19:01] Thank you all for the presentation. This is Mark Shooter from William Blair. Congrats on all the progress. Look forward to seeing more. What I didn't hear is the regulatory pathway. And we think of nuclear. We think of, okay, the NRC, the DOE. How can we get to the burdensome regulatory process? Is that a factor here? Is there something different with fusion? Is there not a regulatory process set up yet because fusion is still new? Can you walk us through what that may look like? Or what are the differences between what we've gotten used to from AP1000 large-scale reactors, or even the new advanced SMRs?

Greg Twinney [1:19:42] It's a great question. I'm going to hand it to Megan. But before I do that, why it's a great question is because the opportunity for fusion is all about making sure that the safety profile of fusion is recognized in those regulations.

And if fusion were to be regulated in the same way that fission is regulated, the market size would be much smaller, like the size of fission. And that would destroy the huge opportunity that fusion fails safe. And so the regulators are making progress and do recognize the difference. And as Megan said, the biggest challenge we're going to have in this regard is that fusion sounds like fission. And I actually think that the bigger hurdle-- Megan will update on the regulatory-- is the market perception, the marketing perception with the everyday people to understand that fusion is safe. Not because it's been engineered, but because of inherently what it is. But the regulators are already well up the curve.

Megan, do you want to maybe talk a bit about that? Yeah, sure.

Megan Wilson [1:20:42] Well, it's a great question. And there's been some really great progress in multiple jurisdictions related to the regulatory framework. So the U.K. actually took the lead. And I think it was more than three years ago now, put out their regulatory framework and essentially said, we recognize that fusion is fundamentally different from fission. We're going to take a risk-informed approach. And they determined that their nuclear regulatory body that regulates fission actually would not have a role in regulating fusion, that fusion power plants would be regulated by their existing industrial safety regulations and environmental health and safety regulations.

So the U.K. came out with a very clear leadership position that fusion is different from fission. We're going to regulate it differently. The U.S. Nuclear Regulatory Commission followed very quickly. A couple of years ago, the commission voted unanimously to separate the regulation of fusion from fission. And at the same time, when Congress passed the ADVANCE Act, which I know has a great deal related to fission, it also directed the NRC to develop the regulatory framework for fusion on a specific time frame. The NRC has been moving forward with that, again, taking a very risk-informed approach. Fusion in the U.S. will be regulated like a particle accelerator, medical isotopes, and so on. So you've got fission in 10 CFR part 50 and fusion in 10 CFR part 30, so completely separate. And they actually just, this month ,put out their proposed rulemaking for review.

So the U.S. NRC has been moving quite expeditiously to create the framework for regulating fusion. In Canada, where we are, the CNSC, of course, LM26 that you just saw is licensed by the CNSC. So we've been through that process for this machine. The CNSC is a little bit behind the U.S. in terms of timing, but they're working through their public process, have been holding workshops and public comment, and so on. And we're working with them, as well as various industry associations, to work towards an approach that's harmonized with the U.S. and the UK. And the U.N. has efforts related to fusion regulation, G7 Working Group on fusion, Agile Nations. There is a significant effort underway to ensure that we have globally harmonized fusion regulation that recognizes the fundamental differences.

So we're very pleased with where it is right now.

Mark Shooter [1:23:18] Thank you both.

This administration seemingly is receptive to business input on regulation. Is there anything that you got-- are you currently engaged with both the DOE and NRC? And if you are, is there something that you think we should go for? Is there regulations or something that you see that you'd like to change or to input?

Megan Wilson [1:23:44] So on the NRC, we are founding members of the Fusion Industry Association. And Greg sits on the board. The fusion Industry Association has been representing all of the players in the industry and working with the NRC. I would say, broadly speaking, we're quite pleased with the approach they have taken. And there's nothing significant that we would look to change as it relates to those regulations. On the DOE side-- and I'll talk about this a little bit after lunch as well, but happy to talk about it now. We have worked over the years with a number of U.S. DOE labs through their INFUSE program within the DOE Department of Science.

There is a growing effort within the DOE. They recently stood up a standalone fusion office within the U.S. DOE, which didn't exist until recently. There is a milestone program that does some cost sharing for U.S. fusion companies, which is quite interesting. And we are, of course, seeing that the current administration is very, very pro-nuclear and pro-fusion.

I will say, Canada, as well as Greg touched on, has been a huge supporter of General Fusion and has quietly provided a significant amount of capital for our efforts over the years. They've recently announced the creation of a center for fusion excellence. And we're seeing a real effort within the current government to support the fusion industry as well.

George Gianarikas [1:25:21] Hi, George Gianarikas from Canaccord Genuity. I was wondering if you could explain the technical requirements you need for 100% Lawson to achieve that. And maybe second, related to the pistons that you're using, it sounds like you need to get them to fire once every second. And what happens to the structural integrity of those pistons over a 40-year period? Thank you.

Mike Donaldson [1:25:48] Can we take that? Okay. So first question, what do we need to get to Lawson? I think was the question, right?

Three levers-- temperature, density, and confinement time. And we'll go-- the step-through step that we're going through, the milestones that we've laid out, is we're going to get to temperature and confinement time first. So when we hit 10 keV, 100 million degrees centigrade, we will demonstrate that we have the confinement time and the temperature that we need. In order to get to Lawson, we need to increase the density to a -- it's about 10 times than what it is for the 10 keV milestone.

So that's the Lawson question. And then the other question is about the pistons. Can you repeat the question just to make sure I got it?

George Gianarikas [1:26:44] If I understood correctly, you need them to fire once every second?

Mike Donaldson [1:26:46] Yep.

George Gianarikas [1:26:48] So what happens to the structural integrity of the pistons over a 40-year period?

Mike Donaldson [1:26:53] So, certainly nothing from the neutrons. Because the reaction is surrounded by a thick blanket in a power plant, it's going to be about 2 meters of liquid metal. There's no damage from the neutrons or the radiation. We will need to demonstrate that they can have the reliability required over 40 years.

With that being said, it's technology that exists. General Fusion is not going to become a piston expert. We will partner with people that are experts in moving metal pieces, in moving metal cylinders, like, for example, car manufacturers, to hit those requirements. There is engineering that needs to be done. But we haven't identified any fundamental reason why we can't do that.

Greg Twinney [1:27:55] The only thing I would add-- if I could, the only thing that I would add to that, George, would be that as part of our levelized cost electricity over the lifetime of the plant, we have included in replacement, repair of these pistons in the capacity factor and in the cost, all of this as well. So many of the components don't need to last the entire 40 years on their own. We've built all of this into the LCOE as well.

George Gianarikas [1:28:25] Thank you.

Marc Bianchi [1:28:30] Hey, thanks. Marc Bianchi with TD Cowen. Following up on the timeline here to get to Lawson, can you help us understand how long it's going to take to get to each of those milestones? And then related to that, the-- I'm probably going to butcher this because I'm not a technical person. But the LM26 looks different than what the power plant's going to look like. Why is that the case? And how should we think about the mechanical or technical complexity of making the step from the test device into the power plant device?

Greg Twinney [1:29:10] So, I'll start and then invite the team to jump in. In terms of the timing for the milestones with LM26, we aim to achieve these milestones between now and the end of 2028. We're not providing guidance and outlooks on the exact timing within that range. However, what's important to think about in terms of our confidence levels around that is, machine's built, it's licensed, it's operating. This team knows how to build, operate machines. And through this transaction, we fund it. We fund that program. The pipe capital we're raising, which we'll get into later this afternoon, we'll fund that program through to the end of 2028.

So all the right ingredients in place on the other side of this transaction will be there and we'll execute the plan. So that was the first question on the timeline. And the second question was-- repeat that, if you could repeat that for me.

Marc Bianchi [1:30:04] Yeah, it was the design of the LM26 looks different than what the power plants would look like.

Greg Twinney [1:30:09] Yeah, I'm going to get Mike to answer on the technical components of that. But really what we're talking about here is we are proving out the fusion at 50% power plant scale works when we compress it using our magnetized target fusion approach. Mechanical compression of a plasma heats up and ultimately achieves these loss and conditions. We need to prove that at the right scale. As Mike talked about, we've done a lot of other smaller scale tests and peer review papers. This is a 50% scale. So we want to prove that. And how we wanted to prove it was as fast as we possibly could, as capital efficient as we possibly could, with the capabilities that this team has to do all of that, which would allow us to do it first.

And so that's what this machine is designed to do, is just test that centripetal. It's not going to test our ability to repeat it many, many times. That comes later, and we'll talk a bit about that path. But it's really that core compression of a plasma and those attributes that come from that compression mechanically. Mike, do you want to talk a little bit more about--

Mike Donaldson [1:31:15] Yeah, I think Greg explained it really well. The best way that I like to think about LM26 is it's the fusion part of our fusion machine. So it's got a moving metal wall compressing a plasma. Another way to think about it is that if you were on the inside of that machine with the plasma, you couldn't do that, by the way. But if you were, from that perspective, all you see is a moving metal wall coming at you. You don't care whether or not it's a liquid metal wall or a solid metal wall, and you don't care about how it's being driven, with pistons or not. What you care about is that you're being compressed by a moving metal wall. And as Greg said, by doing it in this format, it's cheaper than going to the full machine with the liquid metal and the pistons. It's faster, and it allowed us to do it at our facility in Vancouver, where we are really good at building machines of this scale and executing on them.

So it really addresses the core plasma physics of MTF. It's not just that we're doing fusion, but we're doing fusion in the way that we would do it in the power plant. And then the rest of the power plant stuff has to come after that. And you had questions about the technical complexity of the other components. We're going to get into a little bit of that after lunch.

Marc Bianchi [1:32:38] Thank you.

Sameer Joshi [1:32:48] Sameer Joshi from HC Wainwright. Congratulations on all the progress that you have made, and it's really impressive.

Greg Twinney [1:32:53] Thank you.

Sameer Joshi [1:32:55] On slide 25, you had the schematic, and there was a green loop and a blue loop. And it was lithium and gas plasma. Have you done any work on the engineering materials that will be used there? Also, have you done any work on extraction of the heat from the plasma or from the metal into the heat exchanger?

Greg Twinney [1:33:22] I'll let Mike-- you can take that on. We've done a lot of work with liquid metal, working with liquid metal. Some of the test beds you saw were regarding that, in terms of the extraction of the tritium. We've not yet crossed that bridge. It's in our roadmap. We'll talk a bit about that this afternoon.

Mike Donaldson [1:33:40] Yes. I guess I would say is-- so General Fusion's expertise is going to be on the stuff that was on the left of that side, the core fusion engine. Tritium extraction is not something that all fusion approaches out there will need a way to extract tritium from liquid metal, so we will partner with somebody on that.

Heat exchangers-- liquid metal heat exchangers exist, and General Fusion does not want to be an expert on heat exchangers, so we will partner with somebody on that. Our core focus as a company, and in terms of creating value, has been on the stuff that we are really good at, which is the integrated machine.

Sameer Joshi [1:34:22] Understood. We understand that tritium is generated in the process, but lithium is probably depleted. And is there a mechanism to inject lithium into the process and make sure it's a continuous process?

Mike Donaldson [1:34:38] Yes. So to put it into perspective, there will need to be a lithium loop just to keep everything pure and clean, but we are talking about tons, if not tens of tons of lithium in the reactor, and we will consume about 30 kilograms of lithium in a year. So fusion is very highly energy dense, so in all intents and purposes, we're using a very, very, very little bit of fuel and material.

So on the list of things that we think about, it's on the list, but it's not very high. We should be able to take care of that.

Sameer Joshi [1:35:18] And just one more.

Mike Donaldson [1:35:20] Yes.

Sameer Joshi [1:35:22] The energy-- I don't know the exact technical term, but you have to contain the energy for some time.

Mike Donaldson [1:35:28] Yep

Sameer Joshi [1:35:30] So is the energy contained in the lithium or in the plasma when it comes out?

Mike Donaldson [1:35:34] Right.

So when we talk about energy confinement, what we're really talking about is the plasma. So in order to get more energy out than you get in -- so the energy that goes out comes out as neutrons. But in order to get enough neutrons to come out and more energy out than you put in, when we talk about energy confinement, it's the plasma's ability to hold that energy, hold its own energy. Again, think of it like a bubble. Just think about the bubbles sitting there in space. The bubble has some energy in it, some tension in that film.

The minute the bubble disappears, that energy is gone. So when we talk about energy confinement, it's all about the energy that's being stored in that plasma. It's the liquid metal that extracts the results of the reaction.

Okay.

Sameer Joshi [1:36:28] Very impressive. Congratulations.

Carter Gorman [1:36:42] Thank you guys for all the information. Carter Gorman from Needham & Company. So I think tokamak's been around for a while. And it sounds like they would say the superconducting magnet is a key reason why we're at this inflection point today where the technology is viable. I think Michel mentioned that MTF was tried in the '70s, maybe by the Navy. Is there a corollary here to that superconducting magnet that makes MTF more viable today? Or is this just gradual learning over time? And then is there a key piece of IP or two? I know you guys said you have like 200 patents or something like that that prevents others from taking a similar approach to MTF if they wanted to do that.

Michel Laberge [1:37:35] First part of the question, we do not use superconducting magnet for MTF. That's one of our big advantages. So all this progress that comes with, say, that you have this new HTS superconductor, we don't need that. And by the way, those superconductors are quite difficult to achieve also. They can produce bigger magnetic fields, which actually create more neutron problems. But anyway, we are not using those. So this improvement in technology does not affect us.

As for improvement in technology that allows us to do things compared to the Navy in the '70s, yes. There's a large amount of technology that are better now than they were in the '70s. So when the Naval Research Lab was trying to make MTF, they had some issues. Now with the new technology, we can fix that. One of the big things is actually computer. We have to synchronize all those pistons. So all those pistons are electronic that monitor where they are, and then we try to synchronize that with fancy computer systems. They didn't have that in the '70s.

The material is better. The understanding of the plasma, the plasma target in the middle, much better than in the '70s. So the idea was good, but it was a little bit premature. And now with the new technology, we can do it.

Chris Souther [1:38:55] Hey, Chris Souther, Truist. Thanks so much for the presentation and education here. Maybe just for the LM26, you know, the big difference here seems like is, you know, the liquid metal wall versus using a solid wall as you're kind of testing. Can you talk through differences in the compression? Presumably it's kind of a one time for each wall that you'd be getting a shot with. And just like as you're progressing, like how many walls are we going through to kind of reach each one of these? I'm just kind of curious from a practical standpoint, and if you could walk through some of those differences. Thanks.

Greg Twinney [1:39:32] Yes, I'll start with that. And Mike, who really runs the LM26 program, you can jump in to help me out if we've got some more detailed questions. But LM26 is designed to achieve these conditions on a sort of, you know, once -- one pulse basis. And, you know, as a power plant, it's once per second. And, you know, using the solid metal wall means that, you know, when you compress that solid metal wall, it's destroyed. But that's part of the design in this is that you can measure all the results and then you replace the wall and you can do it again.

We're not -- it's never going to reach once per second. We need to move to liquid in order to do that. And there's a whole commercial systems development program that's in place beside all of this, and we'll talk about it after lunch, that's designed to do the repeatability.

In terms of the existing machine and the cadence, it depends on so many different things. You know, how quickly we can get that initial starting plasma to be where we want it to be before we do the collapse. How quickly we can produce the liners and do the swap out and that. And, you know, we're working with lithium. Lithium, you need to, you know, contain it inside argon. And so, you know, it's a bit of a complex process to do this in, you know, sort of changing of the liner on a regular basis. But that's part of the design and why we're able to do this for an order of magnitude, even cheaper than that, and sort of do it at this rapid pace is not dealing with the pistons and the liquid metal just to prove out the plasma performance isn't necessary.

So, you know, we're not currently publishing any sort of forward looking how often we're doing compression shots and all of that. But, you know, as we achieve results, look forward to sharing those with the group.

Chris Souther [1:41:14] And maybe just separate, you gave a little bit of color on the, you know, LCOE as, you know, ongoing, you know, I guess, replacements of pistons and different things. Could you give kind of general buckets of how you got to kind of the number as far as, you know, CapEx operating expenses, you know, kind of what are the big buckets that went into those LCOE targets for the nth of a kind.

Greg Twinney [1:41:39] Yes, so currently not -- you know, hate to dodge a question on that one but we currently -- we have not yet published our -- and put out there sort of the all the inputs into our levelized cost electricity. I would say we're not doing it alone. We're doing with partners that understand how to build these types of models. And, you know, there are also no sort of anything super unique about our LCOE.

We're not actually factoring the fact that, you know, helium is a byproduct. We're not bringing that in to reduce the cost. We're not, you know, looking to sell tritium to others or anything like that is strictly CapEx amortized over the lifetime of a 40-year plant. That's really making up the bulk of this because the regulatory burden, the op ex, the fuel costs, extremely low when compared to fission. So it's really all about the CapEx of the machine and the power up but over that 40-year lifetime. And of course taking into account the maintenance cycles and whatnot.

I'm not sure what the plan is overall when to sort of start talking about what that LCOE looks like in the various components, but we've yet to sort of put that out there.

Ryan Pfingst [1:42:50] Hey guys, thanks for having us. Ryan Pfingst with B. Riley. Just to follow up on a question from earlier. Are there other companies taking a similar approach taking this MTF approach or using similar technology? And, you know, what are the key pieces of your technology or approach that are protected by your patents?

Greg Twinney [1:43:14] Sure. Start with, you know, broadly speaking, we don't see anyone else using this approach, the MTF approach. Michel can talk to this much better than I can. You know, people that are working in sort of this, trying to work in this sweet spot that Megan described. So we do see some other companies that are working in that space but nobody else directly competing on the approach that we've got.

We've got [210] or something patents that are really all around the core technologies in the fusion island that you would expect. You know, compression systems, plasma injector systems, our ability to create these cavities and whatnot. Because, you know, we publish our papers. So we put the results out there for peer review, but we want to make sure that when we do that, we don't lose the value of the company. So we protect that in the form of IP.

So we've done all of the sort of wrapping around those key technologies and, you know, we're going to have a license model ultimately for a lot of these technologies. And so -- and we have a permanent person on staff that's all they do is wrap these various outputs and ideas and everything else in IP protection through patents. And that patent person sits in almost all of our meetings. So feel pretty well protected there.

Ryan Pfingst [1:44:31] Thanks.

Tim Moore [1:44:39] Yes. I'm just kind of curious, you know, maybe kind of hinted at this just now. You know, how are you thinking about the revenue model for, you know, partnering maybe with an EPC to stay asset light versus licensing? And is there kind of -- you know, will that depend on whether it's 300 megawatts or 150, or just kind of the scale of maybe the customer purchase orders for, you know, larger utility customers?

Greg Twinney [1:45:10] Yes. So I will -- I think that's maybe the first section right after lunch. However, yes, asset light model to getting to market. And, you know, we have a market development advisory committee that we work with now in order to shape, of course, you know, our results and our timeline and bring them along with us, but also to shape, you know, on the other side of all of this work, we want to commercialize. And we want to make sure that what we're doing, what we're bringing to market is something that they are going to be able to, you know, work with and become customers of.

And so when we think about the model, we don't want to own, finance, operate power plants ourselves. We want to stay focused on the fusion island, the licensing of those major components, providing those major components. And then over the lifetime, you know, the maintenance and the technical support in and around that. And, yes, use the partnership model, EPCs to build and work with partners that are going to operate it over the lifetime. But we'll stay involved. And we can talk about this a bit more after lunch.

Derek Soderberg [1:46:18] Hey, everyone. Thanks for doing this. Derek Soderberg from Cantor Fitzgerald. So seems like a pretty simple system. A lot of similarities to like a combustion engine. But you do -- you will have some moving parts, liquid metal. My understanding is there are certain ways that that metal can interact with the other magnetic fields, right. So how much variation are you guys seeing in the plasma bubble? What's sort of the tolerance level before you sort of get a total loss in the system? And do you have anything baked into the technology that helps manage maybe some of the natural variation in that bubble over time?

Greg Twinney [1:46:59] Yes. So maybe I'll ask one of the team to come up. You know, we work -- the liquid metal we work with most is lithium. And the good news is from is that plasma and lithium like each other and the interaction can be often helpful. We use it in that purpose. So I don't know if someone wants to come up and talk a little bit about the interaction. Maybe the tests we've done already with lithium and whatnot.

Mike Donaldson [1:47:24] Yes. So I think your question was about primarily around the interaction of the lithium with the magnetic field?

Derek Soderberg [1:47:31] Yes. Just how consistent is the plasma bubble? Do you see a ton of variation just from test to test? And how important is that? You know, kind of coming back to energy efficiency, how much do you really need to manage that to keep the smoothness to make sure you're getting the full energy?

Mike Donaldson [1:47:49] Yes. There's no doubt it will need to be repeatable. And while I wouldn't say that -- so we are not a power plant company right now. We are demonstrating that we can make those plasmas. It will need to be repeatable. But I don't see any challenge associated with that when we get to the power plant.

If we think about it being a technology development spectrum, the -- I don't see any fundamental reasons on the reliability of repeatability or anything, as you say, that need be baked into it to be able to control that. But you will definitely need to demonstrate that reliability and repeatability.

And as I said today, I don't see any -- it's reliable enough for the way that needs to be right now. And I don't see any fundamental barriers to that going forward. As to when we put it into a power plant, we have big integrated system models where all the different components come together. And the interaction of the plasma, the magnetic field and the liquid metal is all accounted for in our models.

Derek Soderberg [1:48:52] Thanks.

Josh Nycholat [1:48:59] Any additional questions before we break for lunch?

Greg Twinney [1:49:02] We will have some time after, you know, after the -- after lunch, after the presentation is there for some more questions. So we'll do this again. Awesome. Let's eat. Thanks.

PRESENTATION

Greg Twinney [1:49:27] All right. Great. Well, hopefully everybody had a chance to enjoy a little bit of lunch, get fueled up for the second half here, as I described earlier. We'll have some question. We'll have some time sort of at the end for questions.

We're going to talk a little bit about now the path to commercialization. We've talked a lot about where we want to go ultimately, we've talked about what we've done so far with LM26 and how important that test bed and the next couple of years are with those milestones. But, you know, we're going to advance a little bit further along the journey technology roadmap.

And we'll start with, this was a question that came at the end of in the last question period was sort of how are we going to go to market? What's the business model for making money, right? And that's the end goal here. This is, again, not a science project. This is all about many, many General Fusion power plants deployed all over the world.

And so in order to do that -- in order to do that, we are taking the business model approach that the industry and the players in that industry, in the power industry, which Megan is going to talk about shortly, are very, very familiar with, right. This is an asset light, scalable, technology centric business model. And what that means is we are, again, not going to finance own operate power plants ourselves. We're going to enable others know how to do this, those capabilities to do it. And we will play in the high margin, high growth, scalable area of the power plant.

And so that means, you know, in the construction phase, the sort of 3.5-year construction phase, we will scope the sale, the engineering installation commissioning of our fusion island, which are 150-megawatt machines. And the reference configuration for us is two of those machines. So a 300-megawatt fusion power plant. And would have the sort of two islands and one balance of plant.

So we'll play the role of all of those things, working closely with the EPC to build the plant constructed -- post construction. A role switch into these services. And this is not new. This is a very typical model going to market, working on the replacement of the pistons, the components and all of those various services and the technical support.

And again, you know, this is the high margin component of a power plant for us to participate in that area and be able to do it with partners means high margins at scale. So many power plants enabled around the world. And think about the types of technologies that are involved in a General Fusion power plant.

Again, we're talking about mostly existing technologies, different scales and whatnot, pistons, bearings, seals, these types of things. So the ability for partners to play a meaningful role in power plant is pretty high with the General Fusion design. And that is all part of the plan right from the beginning.

So there is work to do to get there. And I am going to pass it over to Megan to talk us through what that path looks like to get from where we are today to ultimately a first of a kind by the mid-2030s.

Megan Wilson [1:52:39] Thanks, Greg. All right. So this is why we're all here, right. We want to put power on the grid. So let's talk about how we get there. And you heard this morning, Mike walked us through the LM26 program and the really meaningful milestones that we're aiming for. But a lot of your questions, I think, got to, well, okay, what's next? How do you get from there? What LM26 is designed to demonstrate to a plant that actually produces electricity?

And what you hopefully also took away is a little bit about how we think about retiring risk at General Fusion. If you think back to the slide that Mike showed with all the bubbles, all the machines we've built over the years, we like to take meaningful but manageable bites out of risk at a time so we can progress the technology, be capital efficient and demonstrate progress and value as we move along our development path. And that philosophy is really built into our plan to get from where we are today to a power plant.

So LM26 is ongoing right now. The program is expected to run into 2028, which is the timeline we aim to achieve these milestones. But if we think about it from a risk perspective to some of your questions earlier, across the top of the slide in black, you can see how we think about our transition through different types of risk over this pathway. So LM26 is very much focused on the remaining science risk of magnetized target fusion at large scale. So we've demonstrated magnetized target fusion at small scale. We are now scaling up and demonstrating that we can achieve these really meaningful milestones at large scale.

As we think about what comes next then, you remember the power plant schematic. This is the fusion island that we're focused on in terms of our offering to customers or to an EPC developing a power plant. So very focused on the fusion island. But what we've called out here are a number of systems that take the fusion itself, the core fusion process, and translate it into a power plant. And so we're calling out here things like the plasma injector repetition rate. So Mike talked about, we talked about how LM26 is not high rep rate. We've got to get to one hertz. And so that is a key technology area.

Seals and valves. You know, the seals and valves, there is a lot of folks out there who know how to make seals and valves. These seals and valves need to be compatible with lithium and tritium fuel and so on. The center shaft in the machine needs to be regenerative. It needs to function with the one hertz repetition rate. The compression itself has to repeat at that one hertz rate. We've got an energy recovery system built in and then the tritium extraction and the heat exchange system. So we've got a very clear view of the key systems that will require development, design, and demonstration to take these results and translate them to the final design of an energy-producing power plant.

So we think about this effort as, what we call our Commercial Systems Demonstration Program. And this is a defined program to develop, design, demonstrate these technologies so that we can take the LM26 results and wrap those support systems around it and complete the final design of the first-of-a-kind plant.

Now, Rob is going to talk in a minute about the financials and capital and so on, but I think we mentioned earlier that the PIPE commitment that came with this transaction with Spring Valley fully funds the LM26 program into 2028. So we are well positioned to, with the capital we have on hand, without any trust capital, to achieve those milestones and demonstrate that value.

As we think about the Commercial Systems Demonstration Program, we would like to start executing this program in the 2027 timeframe. What we are doing today is taking the long-term strategy that we've developed that takes these technology development needs and splits them into those bite-size manageable programs. We're working to take that strategy and refine it into the actual tactics of what are we going to do where, what facilities with what partners, what's the resource loading need to look like for that, where are our gaps, the make-or-buy analysis around what are we good at, what are others good at, and then working to translate that into the dialogue with the partners who we want to bring to the table.

So 2026, where we are today, as it relates to this program, is very focused on the detailed planning for execution of this program, and I'll talk a little bit more in the next couple slides about partners.

But, again, this is a program, spans 2027 into 2030, that is designed to address a lot of the challenges and questions that were raised in our earlier Q&A session, that are all things we recognize that need to be done. But we've designed this program so that it is very decoupled, and it's suitable to working with partners, and it's suitable to being flexible in terms of availability of capital, while still demonstrating progress and demonstrating value on that path to commercialization.

Now, the first-of-a-kind plant, then, is intended to be a 150-megawatt engineering break-even plant. So when we talk about engineering break-even, that tends to be a fusion term. When we talk about Lawson, we're talking about the conditions that can produce net fusion energy out of the plasma. When we talk about engineering break-even, that means net energy in a power plant, so across the entire plant, which no one in the world has yet achieved, but we've got a path to get there. So this would be a first-of-a-kind, and it would aim to demonstrate that we can produce that 150 megawatts worth of energy in that plant. And I'll talk a little bit more about siting and other efforts related to that in a moment.

But backing up, just trying to connect this to what we talked about this morning in terms of our differentiation and the way our technology addresses those barriers to commercialization that other fusion approaches face, we believe our timeline is made possible, our timeline is made possible because of the engineering approach to fusion that we are taking.

So there are -- I showed you that slide with all those, the other kind of buckets of competitors. There absolutely are others in the industry who are currently building large-scale fusion machines aiming for the same transformative technical milestones we're aiming for with LM26. And absolutely, some of them will succeed. I have very little doubt about that. I won't tell you when, but I think they will, mostly because they're demonstrating technologies that have already been demonstrated in government institutions.

However, and this is worth dwelling on, when we're successful, and if they're successful, at that point we expect we will diverge from what is already a small group of fusion competitors building real machines, because we have front-loaded the solutions to those challenges we talked about into our designs.

So while we have a fair amount of work to do in that Commercial Systems Demonstration Program, we understand what the solutions are to these challenges, and we're working in that program to design, develop, and engineer those technologies. So again, as we think about risk, here right now we're focused on retiring the remaining science risk with LM26. The Commercial Systems Demonstration is really about that technology engineering risk. And then when we put it all together in the first of a kind machine, that's when we're addressing the integration risk for that large-scale machine and then moving into full-scale commercialization and deployment.

Okay. So, but I always say we are not doing it alone. We are working with a broad ecosystem of technology partners and commercialization partners, and you can see a number of them listed here. We talked a little bit about the U.S. Department of Energy. We work with a number of U.S. national labs through the DOE's INFUSE program and gain really valuable insights and sometimes manage to hire some people out of those labs, which is great. We also work with the U.K. Atomic Energy Authority. I'll talk more about that in a second.

But you also can see names here that are not what you might typically think of as fusion companies or even playing in the nuclear space, and that is because our approach draws on technologies from across different industries. You can see aerospace. You can see -- it's currently confidential, a major automaker. We have an MOU with a major automaker who is working with us to collaborate on the compression system, Mike talked about before, the piston technology, where they have an interest in diversifying because the industry is moving to electric vehicles, but they have a great deal of expertise in the pistons and combustion engine side of automaking.

I will point out just a few before I talk about our potential end users. Greg touched on earlier, Hatch is a great example, who started as a partner and then became an investor, so supporting that commercial system engineering as we progress through this path.

Kyoto Fusioneering, so I think there was a question earlier about tritium extraction, and I know Mike said everybody needs tritium extraction, so we're not planning to develop that technology. However, we are working with a number of companies. There are a number of companies out there working to develop these technologies. We're working with a number of them. One is Kyoto Fusioneering. We have an MOU with them related to the liquid metal systems and tritium extraction and so on. We're also working with Savannah River National Lab and others on developing the right solutions for our technology.

Now, I want to focus for a minute on the map at the top of the slide. So we have what we call our Market Development Advisory Committee. This is a group of 13 utilities, energy developers, industrial steam heat users who have signed agreements with General Fusion to work with us on our technology development efforts and our commercialization efforts. And so these are all names that I think you would recognize and with a great geographic span; so four in Canada, three in the U.S., five in Europe, and one in Asia. And we're always happy to bring others to the table, although this is quite a lot to manage.

So these potential early adopters meet with us regularly as a group and individually. They provide us invaluable information as we think about how we stay within the guardrails of our value proposition, right, which is ultimately developing, designing, and deploying a solution that they can buy. And so we provide them updates on where we are with our technology, where we are with our commercialization efforts and so on. And they provide feedback and they provide us insight into how they think about and are thinking about their investments in advanced technology and in Fusion in particular.

We're now working with what I'd call a subset of this group on potential siting of that first-of-a-kind plant. And we're taking our time with this decision and with this process. It's important to us that we find the right site with the right partners, the right regulatory environment, the right access to workforce, financing structure, and so on. But we're happy to be engaged with a number of these partners on that discussion.

I will highlight that Bruce Power in Ontario is one of the earliest, maybe the first member of the Market Development Advisory Committee. And we also have an MOU with Bruce Power along those lines to evaluate a potential Fusion Power plant in Ontario. But no decision has been made yet in terms of siting of that first-of-a-kind plant.

So if we slice and dice these partners a different way, and don't worry, I'm not going to go through all of them, but partners work with us on everything from our core Fusion technology, but with really great guardrails around the IP and diagnostics, which I think Mike touched on is a really important part of all of our efforts, understanding what's happening inside the plasma, inside the fusion, so we can continue to improve and optimize the system.

But also those we're working with as we're looking forward into that Commercial Systems Demonstration Program and the first-of-a-kind. And you'll see a number here, including Kinectrics. Kinectrics helped us through the licensing process for LM26 and has great expertise in that area.

But I really want to highlight the U.K. Atomic Energy Authority for a second. So there is a lot of fusion expertise around the world, but we are very pleased and very lucky to have a longstanding collaboration with the U.K. Atomic Energy Authority, with a formal partnership and framework in place.

The U.K. Atomic Energy Authority, for those who don't know, have operated -- I think, Michel, the longest-running operating fusion machine in the world, so the Joint European Torus, JET at the Culham Campus outside of Oxford. So they have more than 40 years' experience in both building and operating a fusion machine, working with tritium and so on, as well as all the permitting and community engagement and everything else that goes with it. And they have thousands of fusion scientists and diagnostic experts and so on. And so this is a really important collaboration to us. They send scientists to our facility in Vancouver frequently. We just had a few out a week or so ago.

And this is a partnership that continues to develop, and I expect that it will continue to be very important to us in the long-term. Because at the end of the day, not only do they have amazing experience in operating fusion plants, they really are the gold standard in terms of fusion validation and fusion science validation. And it's important to us that we work with third parties and peer-reviewed results and so on, so that when we stand up here and say we did this, that there are others who are validating, yes, they did that. So that is a really important partnership to us.

But as we think about the Commercial Systems Demonstration Program, one of the things we are working to address, as I said, is that make-or-buy analysis. What do we do well? What do others do well? And how can we leverage others while we maintain our pace? And so we are selective in terms of the partners we work with and really thinking ahead about not only who are the right partners, but what does the organization need to look like as we grow to support that effort?

Greg mentioned we are 115 strong. We recognize to execute that program, and even if we're working with partners to manage those partners and integrate with them, we will need to grow. And there is a great deal of thought and planning going into what that organization looks like to support that future.

So I get the question a lot, well, what should we be looking for? How do we know you're making progress, given that this is long tech, this is 2035 with your first-of-a-kind operating? And I can't say I have a perfect answer, but I have some answers.

So we have -- we believe that the technical milestones we're aiming for with LM26 are value-creating. These are truly transformative milestones in the near term. However, we recognize we got to walk and chew gum at the same time, right, which is our three-pronged approach, LM26, Commercial Systems Demonstration, first of a kind, are designed to overlap, feed into each other, but really designed to get us to power on the grid in a timeline that works for the market and can address that market.

And so, what we're focused on now really falls into these six buckets. But as we think about both the Commercial Systems Demonstration and the first of a kind, first, of course, I talked about partnerships. There are a lot of technical partnerships. There are a lot of specific component partnerships that we're exploring. But also, broadly speaking, our business model relies on being essentially an OEM to an EPC, and we need to develop the relationships, or relationship with selected EPCs who are the right partners to help us deploy this technology.

As it relates to the first of a kind, then, I would expect this effort to progress. I mentioned we're taking our time with selecting that site, but progress through selecting multiple potential sites and then working with those partners, whether they're utilities or hyperscalers or other partners, other hosts for that potential first of a kind, to work through a real feasibility study to ensure that that project is set up for success, and then make a down selection to ultimately select the site for that first of a kind. So that is something to be looking for. And then the agreements that then support deploying that first of a kind or deploying further follow-on sites, of course, are very important.

So again, we have 13 potential end users. There are, of course, other interested parties who are not part of the Market Development Advisory Committee, but we're working to be very thoughtful about the commercial agreements we enter so that those support our long-term deployment strategy. But that is another work stream in progress that you can keep your ears peeled for.

And then we touched a little bit earlier on government engagement and regulatory engagement. So right now, I think from a regulatory perspective, everything is trending in the right direction. I won't repeat what I said earlier about the U.K. and the U.S. and Canada. But right now, that is a framework. The U.S. has put out their rules and so on. This, for us, will progress in conjunction and in parallel with selecting the first of a kind site. So part of the feasibility studies for the small group of options will include assessing the regulatory framework, doing early analysis of the site, the environmental studies needed, the regulatory process needed, and so on. That will be a key criteria. And that will include, necessarily, engagement with the regulatory authority in whichever jurisdiction those sites are.

That will also necessarily include government engagement, whether that is the U.S. DOE program, the Canadian Centre for Fusion Excellence, or others. There is a great deal of interest in supporting deployment of first of a kind plants. And so we'll be looking to advance that engagement, to assess the opportunities out there for supporting that plant, both financially and in other ways, with those government entities, and we'll see how that will play out over the next few years. So that is how we think about the big ticket items that will progress our progress towards that first of a kind while we are focused on the LM26 program in the near term.

And now I will turn it over to Rob to talk numbers. Thanks.

Rob Crystal [2:14:26] I'm going to get into a bit of the financial profile of the transaction, and as you know, we're doing this through a de-SPAC with Spring Valley.

So just at a high level here, just some highlights of the transaction. I'll get to a bit more detail in the next slides. But, so Megan mentioned before, we have a funded business plan for our LM26 program through 2028 that aims to achieve the three value-enhancing milestones we've talked about. So it's funded through the committed and oversubscribed PIPE capital of $108 million. We think we're coming into market with a very attractive valuation.

We'll get into that more in the next slide. The transaction here has been validated working with a leading SPAC sponsor in Spring Valley, who have deep expertise bringing first movers to market, and by leading institutional PIPE investors that is committed. And last, our interests in the transaction are aligned with the public markets. So shareholders moving forward are going to have a lockup for 6 months. And then there is an earn out provision of $135 million to current shareholders that will kick in as the company achieves share price growth targets in the next 5 years.

And lastly, on timing. So we've been trying to track for a midyear close where we are tracking roughly on there. We announced the deal in January, filed our first registration statement, the F4, on February 24th. We've done a couple of amendments since. And so we're tracking roughly to that midyear closing.

So a little bit more detail on the transaction. So we're coming to market with a roughly $1 billion pro forma equity valuation. So that is built up with a $600 million value to General Fusion. And then there is $108 million of a committed and oversubscribed PIPE from institutional investors and $230 million in the Spring Valley Trust account, assuming no redemptions.

So most importantly here, again, is the PIPE capital of $108 million will fund the LM26 program through 2028. So this puts us in a great position having the committed funding and a predictable path to hitting those milestones and setting us up for the next phase of commercial development, which is those commercial systems, if you saw that timeline in the middle. So we have the milestones to show value and raise more capital as needed to keep funding the commercial systems. Any capital we get out of the trust would likely go more towards the commercial systems.

Just a couple of data points here. So you can see in the bottom right, the ownership General Fusion will own between 58% to 74% of the new combined entity, depending on the level of redemption. So it's 58% with zero redemptions and 74% on the other extreme. And there is up to net $314 million of new cash to the balance sheet in the new entity, which is made up of the committed PIPE, plus up to $230 million out of the trust account.

Just on redemptions, again, we don't know that until we close, but working with a partner like Spring Valley, they've had a good history of lower redemption rates relative to SPACs in general. So we do anticipate getting a meaningful portion there, which would accelerate and give us more flexibility in working on our commercial systems.

Last, I would say overall, we think this transaction rewards General Fusion and Spring Valley shareholders. It's a great deal for both sides and comes to market at a very attractive valuation for new investors to participate with on the journey and potential significant upside.

So just a bit on Spring Valley. I mentioned we're going public through the de-SPAC transaction. So we're partnered with Spring Valley Acquisition Corp. It's their third one. We actually have Rob Kaplan over here. I think a lot of you know in the audience, who is the COO of Spring Valley.

As we were looking at paths to go public, Spring Valley presented the most compelling case for us relative to any other path. We view them as a differentiated partner. They have deep expertise with taking companies public, especially first movers. They're conservative. They won't take a company public unless there is at least 2 years of cash runway. Me being the finance guy, that was very high on my checklist. Most importantly, they also focus on first movers, and they've shown through their track record of success creating value for first movers in public markets, and they've worked on many next-generation decarbonization technologies.

There’s a resume there, but their team has successfully executed many complex transactions, scaled emerging growth businesses, private and public, and they've been involved with 17 different IPOs.

On the right here, some examples of their success, particularly with first movers. There was a renewable energy group IPO-ed in 2012, acquired by Chevron in 2022 with a 10x valuation growth. NuScale, which was Spring Valley 1 was the first mover in the SMR market, and has since doubled in value. And then Eagle Energy just de-SPAC'd, I think, about a month ago or so, already showing some growth in value. Again, another first mover.

From Spring Valley's perspective, it was a good partnership on their end. They saw with General Fusion, we have a -- they liked our practical, capital-efficient business plan with near-term value creation milestones with the LM26 program, and an experienced team that knows how to iterate, test, and also knows how to commercialize new technologies.

So a bit more on the valuation, to put it a bit more in context here. When we partnered with Spring Valley, one of the characteristics they look for are first mover opportunities who can IPO at a valuation that is at least a little bit lower than peers in public markets or in private markets. So again, we're entering the public market with approximately $1 billion pro-forma equity value, of which $600 million value is attributable to General Fusion.

And historically, you can see some examples here, a lot of companies IPO-ing in a new industry have come to market with two to five times higher valuation than we're coming. NuScale, Oklo, a few other examples here, you can see they came in at the $1 billion to $2 billion range, and have shown quite a significant increase in value and attraction of a lot of new institutional investors, as you can see on the bottom. X-energy is a new one we just added here. As you all know, it went public just last week. Went up. I think it came down a little bit since, but a great opening day of trading.

Across the private fusion industry, there are other companies valued around $1 billion and some in the multiples, but they don't have short-term liquidity. So we think with our capital efficient plan, the LM26 milestones that we're going to deliver in the near term, we have that opportunity to come in and provide investors with that near-term liquidity.

We also don't need the billions that many other approaches need to demonstrate these core scientific milestones of 1 keV, 10 keV, Lawson that we've talked about. We have a very capital efficient program, again, and we do it in a capital efficient way with our magnetized target fusion approach and engineering approach.

So overall, just thinking about these slides, the main things we want you to take away is we have a funded LM26 plan with three value-enhancing milestones we're aiming to achieve by 2028. We have validation from an excellent SPAC, a very experienced partner here, and institutional investors who are putting in the PIPE capital. And we are coming to market at a very attractive valuation with meaningful upside.

So as Greg mentioned a few times, I think we have an experienced team. We have a practical and efficient approach and an execution mindset to commercialize our technology. So I am going to pass it back over to Greg now. He is going to take you through final Q&A and wrap up slides.

Greg Twinney [2:24:39] Yes, this is a wrap. We wanted to take you across all areas of the business, the progress, the work still to be done, what the path looks like. And hopefully you caught a bit of the energy that we're giving off here. We're a passionate group that is very focused on power plants on the grid. That is the goal here. It's easy to get distracted by vanity metrics or agreements and things like this that don't have the substance.

If there is anything you should take away is this team knows how to align on the critical path, deliver results, which it's challenging in fusion. There is work to be done. But aligning on the critical path and making progress step by step. The tailwinds for fusion, I think, are only going to continue to increase. The demand for electricity is just going up. Every time I turn around, there is more demand and more gaps in the future for energy.

And so those tailwinds are going to continue to blow at our back. It's up to us to capture those. It's up to us to bring forward our unique technology. Again, remember, how you do fusion really matters. So demonstrating fusion is only a part of the whole picture. It's how you do it, and doing it in a way that can ultimately commercialize is the only way to do it. Otherwise, you're just a science project.

LM26 is set up to achieve some incredible milestones in the next couple of years. I invite you all to come have a look. We'll show you the machine. You can meet some of the team that are working on it every day. And it's an incredible team, a small team, very focused, but supported by partnerships that will continue to grow as we think about the next stages and Megan pointed out.

Rob touched on it, from a valuation perspective, we are building this step by step. So as we achieve milestones and demonstrate de-risking on the path, we expect that we will be able to see valuation increase with those steps. This isn't a raise a massive amount of money up front, hold your breath for 5 years and hope that it works. This is a very clear path to milestone by milestone, making progress towards the end goal and being able to share that with investors, make this investable. And we're pretty excited about the opportunity now to have a larger set of investors.

The public markets participate in this huge opportunity and all of you paying attention and spending the time with us today, really grateful for that. And we're going to open it up for some more questions now that you've heard everything that we wanted to say today.

So maybe I'll pass it over to -- yes, pass some mics around and get some questions going. We use the same format. I'll take what I can but we want the team to lean in and answer questions too.

QUESTIONS AND ANSWERS

Marc Bianchi [2:27:27] Thanks for that. I guess just a following up on the financials presentation. So LM26, like a $100 million kind of project. What is the shape of that spend look like? And in what circumstances would we be needing more to complete that project? Maybe talk a little bit more about what's going on. What is the money going towards? Just people continuing to do what they're doing or are there certain things that ramp it up or ramp it down?

Greg Twinney [2:27:54] Sure. Well, why don't I start, Rob, and then if you feel that you want to lean in with some details.

But look, the overall program that's remaining is, you know, over to the end of 2028 is -- yes, you're right, around a $100 million of capital to be spent fairly evenly throughout that, because of the fact that the machine is already built and paid for. It's operating. The machine is licensed. The facility is there and we're operating with the team in place already. So really it's about -- and it's not just the program cost, that is the entire entity, General Fusion's costs over that period of time.

And so the expectation is that we would continue to run the program as it is achieving those milestones, and sort of a pretty linear rate of spend across that period of time. The things that could throw us into -- if we aren't able to execute in the way that we believe we can execute, then yes, things could go -- take a little longer or it could be faster as well.

And so we've built a lot of gear. This team has put together a lot of large-scale test beds, gone through this entire process many, many times. And so we've got pretty good confidence in our ability to execute over these next couple of years and with the machine already built, it's pretty smooth sailing.

I don't know, Rob, anything you want to add on the finance side?

Rob Crystal [2:29:11] Just to add a little bit. Yes, so because the machine's built, we already de-risked the CapEx. I mean, there are operating supplies and we have to change the liner. Certain instrumentation needs to be updated each time, diagnostics. But the CapEx is not significant on this machine. It's very capital efficient. We build a lot of the parts even in-house. We manufacture the liners. So that $100 million-ish covers the whole company's cost, not just LM26.

So to Greg's point, I think there is not so much risk on the machine CapEx because it's not a very high CapEx machine. There is time, which, what if it took longer or could be shorter too, which would save a lot of money.

George Gianarikas [2:30:00] What are the most significant learning curve gains you expect to achieve from first of a kind to nth of a kind?

Greg Twinney [2:30:09] The learning curve from first of a kind to nth of a kind? Oh, yes.

So look, we've designed the power plant with the end in mind to do this over and over again, repeated, and with partners many times in parallel around the world. So if you think about the manufacturability of the first of a kind, and even just the ones between that and the nth of a kind, it's going to be about just manufacturing capabilities ramping up. And as we build the first of a kind, it's a first of a kind, an enormous amount of R&D going into that, and repeatability of that process over time.

What we've built into our model is really just efficiency in the manufacturability and the repetitiveness of that, not so much efficiencies inside of the FOAK -- from the FOAK to the nth of a kind in terms of what we need in order to build it. It's really on the manufacturing side of things.

And we've considered a lot of these things. If you think about big, large vessels, for example, if you've got a commercial mindset, you recognize that shipping big, large vessels all over the world can be impractical. So when you design your vessel, you better do it in a way that maybe it can be broken up into pieces so that you can ship it anywhere much cheaper, and you can have it manufactured in many more places.

So as we think about building out the sets of suppliers that can provide all the equipment and the manufacturability, that is where we see the big improvements. And of course, the first of a kind, you're going to have lots of challenges with capacity and that kind of thing, so that will also improve.

Anything you want to add on that in terms of the modeling and how we think about it?

Megan Wilson [2:31:44] I would just elaborate on the capacity factor, right? So nuclear fission plants today are operating 85%, 90% capacity factor. A first of a kind machine is not going to start out operating at 85% capacity factor in any new technology. And so I think the economies of scale and manufacturing improvements from first of a kind to nth of a kind are a critical component in the reduction of costs and then conversely, just operational experience for us and for our first customers in terms of improving that capacity factor and getting to that 85% are key.

Sameer Joshi [2:32:35] So post the de-SPAC, what are the plans for continued investor engagement and providing liquidity to the stock? And part two is, what are the puts and takes on the backstop for the Spring Valley?

Greg Twinney [2:32:53] Could you just repeat the question? I want to make sure I am answering the right question that I understand.

Sameer Joshi [2:32:58] Sorry. Post de-SPAC engagement with investors and continued liquidity for stockholders.

Greg Twinney [2:33:06] Right. So we plan to run a pretty standard process. I don't know, maybe there is a standard process in terms of engagement with investors. And we talk about maybe announcement of milestones and those types of things. Of course, we want to make sure that we're setting an expectation for what investors should expect. And this is one of the reasons why we're taking this company public now, is we want to set the narrative and the path clearly out to this new set of investors, public investors, what that should look like for a fusion company. How should investors think about the progress towards commercial power plants? And it might be different than the way that private investors think about it and have been funding private fusion.

My belief, our belief, is that this should be -- this is a capital efficient process to be able to, milestone by milestone with flexibility, make progress. And so as we're making that progress, it's going to be upon us to be able to communicate to the market that we're making progress by announcing milestones and things like that, because we're pre-revenue, right? And we're going to be pre-revenue for a handful of years.

And so from a pure financial perspective, cash is going down every year, every quarter. We need to prove to the investors that the value we're creating is higher than the cash being burned during that same period of time. I believe that we set this program up in the milestones range to be able to do that. But it's going to be on us to be able to communicate. Because it's new. It's new for all of you. And so it's going to take some time.

Anything you want to add to that? Or am I hitting the mark with returning on the question?

Sameer Joshi [2:34:57] (Inaudible) -- the backstop or any puts and takes on the redemptions?

Greg Twinney [2:35:01] Oh, I see.

Rob Kaplan [2:35:02] No formal backstop. I mean, I think one of the opportunities -- and just to tag on to your answer there, one of the opportunities that we see from a SPAC sponsor perspective is we ran the same playbook with NuScale. The opportunity to be the first to market and have all eyeballs on you and help define the industry going forward is real. And so from a liquidity perspective, from a conference, institutional conference perspective, retail perspective, all those things are built into being a first of its kind out there on the marketplace.

And then what was the second part of the question?

Greg Twinney [2:35:37] The backstop.

Rob Kaplan [2:35:39] The backstop. What I think we did here is we're not everybody's cup of tea on the Spring Valley side. We run a demanding process. We're great partners. We're thoughtful. But I think the valuation is intentional here. The valuation here compared to what you're seeing versus some of the competitors is meant to retain capital in the trust. And I think we ran that same playbook with a private company valuation in the public market on NuScale, and we retained 70% of the trust, an additional $150 million in capital. So, I think we feel pretty good compared to what you're seeing out there in the marketplace on the public side that we priced this the right way.

Rob Crystal [2:36:27] I would maybe just add again, and we said it, but there is no backstop on the trust. We don't know where redemptions are going to be. Obviously, we think we'll get a good meaningful portion of it. But the PIPE again funds the LM26 program, which will give us that ability to achieve these key milestones. So, depending, irrespective of where the trust lands.

Greg Twinney [2:36:51] Questions?

Craig Irwin [2:36:57] Thank you. It's Craig Irwin from Roth. Greg, so if Rob and Chris from Spring Valley are successful and have a similar redemption rate to what they had on NuScale, you keep 70% of the $230 million of cash in trust, is there an opportunity to use that cash to accelerate the timeline to first of a kind? Is there something that maybe you could spell out for us as far as specific projects that you think would hit the top of the heap that you would find an exciting opportunity to drive value faster?

Greg Twinney [2:37:39] The timeline that we've laid out is already an aggressive but achievable timeline. This is how we operate. As Megan would have talked about, the timeline that we laid out to start the commercial systems piece, the piece that overlaps LM26, starts in 2027. That's just coming upon us pretty quickly here. And so we intend to start working on that pretty quickly.

If we are able to retain some of the trust capital, then the speed at which we could do some of those things, the risk, the parallel development we could do could be increased. And there could be an opportunity to compress the timeline somewhat, but we haven't run a model to figure out whether we could, how much -- it's all about risk and speed, right? And we could do everything in parallel and take all the risk or do this in the thoughtful way that we've done it historically, which is milestone by milestone is forming the next and a little bit over up.

So long-winded way to say, we'll see what comes out of the trust and then we'll, in the way that we do things, apply it to the highest use possible to move forward, right? But I wouldn't make any promises on accelerating the timeline until we have a better view of how the trust shakes out.

Craig Irwin [2:38:58] Okay. And then second question, off the top, you made a powerful case that this is not a billion dollar science project, that you have been focused for more than 20 years on developing fusion-based power plants, that the end goal is clear. And you showed some pretty compelling economics to us as far as capital costs versus some of the other competing technologies or all of the other competing technologies.

But when other people in the audience have asked for more detail around how you get to those capital costs, you appropriately were cautious in the amount of detail that you shared. Do you envision being able to get more specific on that over the course of this next year? Are there specific learnings that will happen that will help you shape that? This really will be about LCOE. And do we have to wait for the mid-2030s to get a crystal clear ball there? Or do you think we'll have a much less cloudy view in the relative near term?

Greg Twinney [2:40:12] Yes, it's a great question. And while we are very focused on that LCOE, recognizing that that is an important part of the mix, we need to be able to deliver what we're delivering at a cost that is going to be competitive. The beauty of our approach is a lot of existing technologies, and we can estimate now what our capital costs look like in first of a kind and nth of a kind, because we're not using lasers and superconducting magnets and these sort of things, which would -- or new materials that, if invented, how much would they cost? I don't know.

So by using this practical engineering approach, we're able to estimate what the cost could look like. And even though that is 10 years out. And what we don't want to do is put out sort of guidance or estimates that we don't feel we can stand behind in detail. And so we need to work our way through the process here with the technology development roadmap. And as we do that, and as we get more information out of LM26, which does inform our first of a kind design and size and that type of thing as well, then we'll start to release some of these details.

But the last thing we want to do is put out some numbers today that we don't believe in, you know, we can continue to be standing behind all the way through. And so that is why we're being a little bit cautious about that. And I appreciate the patience in -- being patient.

But what I can say is that our historical track record of being incredibly capital efficient is going to continue. That's just the thread that is weaved throughout this entire organization. Everything we do is fast and low cost as possible to get things moving to the next stage. We're going to continue that way.

But hopefully, Craig, we'll be able to share more information in the future as we refine our numbers as well.

Craig Irwin [2:42:06] Thank you. I think we all appreciate that. Appreciate it.

Greg Twinney [2:42:09] That's a good question.

Greg Twinney [2:42:15] What else we got? Got a bit more time. There is a bit more food and some drinks. And we can mingle and talk more as well. But any more questions, please feel free. No? Okay. Well, Josh, I think it's a wrap.

Josh Nycholat [2:42:33] Yes. Thank you, everybody, very much. And we have some drinks out on the patio. Please feel free to join us and hang out for another hour, if you would like to ask more questions. And yes, thank you all very much for coming.

Greg Twinney [2:42:45] Awesome. Thank you.