Conference Call Transcript

GE - General Electric Global Research Security Analyst Meeting

Event Date/Time: Sep 17, 2009 / 12:30PM GMT

"**Results are preliminary and unaudited.** This document contains "forward-looking statements"- that is, statements related to future, not past, events. In this context, forward-looking statements often address our expected future business and financial performance and financial condition, and often contain words such as "expect," "anticipate," "intend," "plan," "believe," "seek," "see," or "will." Forward-looking statements by their nature address matters that are, to different degrees, uncertain. For us, particular uncertainties that could cause our actual results to be materially different than those expressed in our forward-looking statements include: the severity and duration of current economic and financial conditions, including volatility in interest and exchange rates, commodity and equity prices and the value of financial assets; the impact of U.S. and foreign government programs to restore liquidity and stimulate national and global economies; the impact of conditions in the financial and credit markets on the availability and cost of GE Capital's funding and on our ability to reduce GE Capital's asset levels and commercial paper exposure as planned; the impact of conditions in the housing market and unemployment rates on the level of commercial and consumer credit defaults; our ability to maintain our current credit rating and the impact on our funding costs and competitive position if we do not do so; the soundness of other financial institutions with which GE Capital does business; the adequacy of our cash flow and earnings and other conditions which may affect our ability to maintain our quarterly dividend at the current level; the level of demand and financial performance of the major industries we serve, including, without limitation, air and rail transportation, energy generation, network television, real estate and healthcare; the impact of regulation and regulatory, investigative and legal proceedings and legal compliance risks, including the impact of proposed financial services regulation; strategic actions, including acquisitions and dispositions and our success in integrating acquired businesses; and numerous other matters of national, regional and global scale, including those of a political, economic, business and competitive nature. These uncertainties may cause our actual future results to be materially different than those expressed in our forward-looking statements. We do not undertake to update our forward-looking statements."

"This document may also contain non-GAAP financial information. Management uses this information in its internal analysis of results and believes that this information may be informative to investors in gauging the quality of our financial performance, identifying trends in our results and providing meaningful period-to-period comparisons. For a reconciliation of non-GAAP measures presented in this document, see the accompanying supplemental information posted to the investor relations section of our website at www.ge.com."

"In this document, "GE" refers to the Industrial businesses of the Company including GECS on an equity basis. "GE (ex. GECS)" and/or "Industrial" refer to GE excluding Financial Services."

CORPORATE PARTICIPANTS

Trevor Schauenberg
GE Corporate Investor Communications - VP

Mark Little
GE Global Research - SVP, Director

Steve Bolze
General Electric Co. - SVP, President, CEO - Power & Water, GE Energy

Rick Stanley
General Electric Co. - VP, Engineering - GE Energy

Jeanne Rosario
GE Aviation - VP, General Manager - Engineering

Mike Harsh
GE Healthcare - VP, Chief Technology Officer

Michael Idelchik
GE Global Research - VP - Advanced Technologies

PRESENTATION

Trevor Schauenberg - *GE Corporate Investor Communications - VP*

Good morning, everyone, and welcome to our GE Global Research Investor Meeting and Webcast. Today's meeting is being webcast. And for those that are on the phone, not here present, you can find the materials at www.ge.com/investor. If you're having trouble with the slides, please press refresh in your browser and you should be able to see them. The broadcast will be replayed later this afternoon, and we'll give you details on our website about that after the meeting.

Today, we're privileged to have some of our senior leaders in the engineering and technology field with us today led by our Senior Vice President, Mark Little, Head of the Global Research Center and several centers around the world. We also have -- privileged to have our President and CEO of Power & Water, Steve Bolze, which will be presenting to you today, and also several of the senior engineering leaders at many of the businesses will also present.

Today, we have about a hour and a half to two hour presentation, and we have plenty of time for Q&A. If we could save them to the end, that would be great. But if you have some burning questions as we go through, we do have a microphone available. So please raise your hand, we'll call on you and bring a microphone to you so that the folks on the webcast can see that. So, Scott Davis, just pause this if you could, until they get to you this time.

As always, elements in this presentation are forward-looking and based on the world as we see it today. Those elements can change, so please take them in that light. And with that, I'll get out of the way and turn it over to our Senior Vice President, Mark Little. Thanks, Mark.

Mark Little - *GE Global Research - SVP, Director*

Thanks, Trevor. Good morning, everybody. It's wonderful to have you all with us here in Niskayuna and on the phone as well. I've been here about four years now after spending 27 years in GE Energy in technology functions and business functions, and every day that I'm here I learn something new. So, I hope that you too will learn something new here today. I'm very confident you will.

We have a very packed agenda for you, as Trevor just described, but I'm going to talk to you a little bit about the way the Company thinks about technology and the way we're structured to win with technology. Steve's going to talk about the business connection, and then some of our great technology leaders from the businesses are going to show you what's going on.

And for those of you who are here in Niskayuna, I think we're going to have a very exciting set of tours through our healthymagination activities, our ecomagination activities and a great set of things we have to drive productivity in the manufacturing area as well. You'll only see a small portion of the great stuff we have going on here, but I hope you leave with some taste of the excitement that we share about where we're going with the Company.

So, you hear Jeff and all our business leaders talk about our technology. It's at the top of every discussion about the Company. Why is that? Arguably, we're going into a slower-growth world, and innovation is going to be driving a force as we go out and try to make our own opportunities.

It drives growth in margins. It'll enable us to have more products in more segments. It will give us access to new markets and bigger markets, and our services install base as you know is outstanding, and we want to build off that with great and powerful technology. And GE has the size, the scale, the global reach and the depth to really drive technology and make it matter for the Company.

Here's a little look at how we think about our business model. The core product technologies and service technologies are driven by the businesses. GE Global's research role is to have deep technologists, and I'll show you some more about how we work with that, and to share that technology across each and every business segment, to drive some thinking about services, to drive a platform for globalization, and we'll show you how our great global centers enable that, and really to push forward our two great thrusts on ecomagination and healthymagination. This really is in our DNA to connect up our teams this way.

We continue to drive technical and service leadership through very strong investments in all cycles. You can see our commitment to drive product and service technologies over the upcoming next years. We think about our technology in three pools. One is around kind of our core technology in the segments that we're already in, and so this would be things like driving the next generation of aircraft engines or CT scanning and MRI imaging in healthcare or the next generation of gas turbines or wind turbines in our Energy business.

Then we think about adjacencies, those things that are in markets that are near to us and customers that we know that are important to us, things like solar, things like business jets, things like handheld ultrasound and carrying our products into new niches and then finally, big sweeping systems thinking like Smart Grid, like healthcare IT, or even broad healthymagination and ecomagination sorts of thing.

We have pooled our activities in these three sets. We have a set and a rhythm with Jeff and the corporate team and the business teams to look deeply at how we're doing along each of these areas to make sure we have all the resources in place to drive forward as we intend to do, and we are investing strongly despite any economy tone-off.

Here's how the GE Global Research Centers are set up. We have about 3,000 people. It's about one-tenth of the technologists in the Company, in fact, a little less than that, and we're set up around four great global sites. And I want to take you through each and every one of them.

With about 1,200 PhDs, we're like -- we're on the scale of the largest of the great universities, but yet we focus on one thing, and that is driving great technology for the growth of the GE businesses. So, we're not worried about teaching or any of those other sorts of things that universities do. We're very much focused, and that gives us a very, very significant power and scale.

So, you're here today in Niskayuna, which is our oldest global site, we've been 109 years. The site was founded when the early electrical genii in the Company thought we should start the first industrial research lab. They encouraged a young professor to come out of MIT to begin that. He wasn't so sure this was a good idea, so he came part-time at first. But then he thought it was a great idea, and he stayed here to run the center for 32 years. And he brought in a number of really powerhouse people from around the world and created the first and most significant industrial research lab to this day.

The 550-acre campus I hope you'll find as attractive as I do. We've got a great cadre of people. We have 60 nations of the world represented here, and it really is a very diverse group of very smart people focused on technology for the good of the Company.

The next center we opened was the Jack Welch Technology Center in Bangalore, India. It's been open about ten years. We put a nice investment in there. It's a beautiful campus. I hope you will get a chance to come there some day. It may be the most attractive facility we have in the whole company. And you will see a group of people who are smart, passionate, energized and excited about what they can do for the world.

We're structured there with about 4,000 technologists. We run that center for the businesses. We provide the infrastructure and the leadership. About 500 of those people are associated with the GE Global Research Center and the rest are directly tied to the businesses, so the folks you see sitting here have very large groups of people. Rick, I think you have about 1,000 people here in Bangalore, India. Jeanne has 500, 600, Mike, another 1,000 people there. This is a very consequential set of technologies for the Company.

The next center we opened was our China Technology Center in Shanghai. It's a bit younger, opening in 2002. Again, we have a great group of global people fired up about what they can do for the Company, a similar sort of set-up and division of resources across the Company. Michael Idelchik here with us today opened up this center and drove it through its early days.

And today, we -- our last opened center is in Munich, Germany. It's a smaller center focused purely on research. We have some absolutely terrific international folks working there. It's intended to be a foothold and a networking place to get us into the Europe Union, and it continues to grow in strength and breadth and scale.

Now, I hope you've heard our announcement of a manufacturing technology center that we're going to build in Michigan. This is alongside the 1,000-person IT center that we'll have there as well. This group will be focused on advanced manufacturing technologies and scaling up the great technologies that we develop here in the businesses to get it through its early prototyping stages and its early phase so that we can then go effectively into the businesses or into our supply chain to bring this technology to life.

It'll be about 1,000 square-foot facility -- 100,000, excuse me, square-foot facility, so it's a large-scale, manufacturing-type facility. We'll have high bays, large-scale manufacturing. It'll be very exciting, and I hope some day we can host you over there. And that'll be opening up in the next -- in the course of the next year or two.

And we talk also about a center in Abu Dhabi that we're discussing with the folks there as part of our activities with Mubadala, and we're talking about a clean-tech center in Masdar City, which is their zero carbon-emission city.

We are continuing to invest for the future, and despite the vicious cycle that we've been living through we are continuing to focus very strongly on technology across the Company. You can see at the top here our profile of spending as they put the money the Company is putting in and despite this toughest of tough years, we are continuing to focus strongly across all our businesses in investing in great technology.

Over the past ten years, we've spent over $50 billion on technology positioning the Company for some great innovation, and you'll get some sense of what we're doing there today. And during this period, the [Butigi] Research Center has grown its profile quite substantially year over year, well ahead of the pace of inflation.

And we're -- while we're doing that, we're looking at external funding. You can see here the dramatic upturn we've had in external funding. We continue to focus on great programs, not only but principally with the US government across all of its agencies, and in this time when stimulus money is available we are very aggressively after rate programs. We show some key wins there.

I'll just call your attention to EFRC. This is an energy frontier research center awarded to us by the Department of Energy. We are the only industrial company in the country to be recognized as such by the Department of Energy and to be funded with programs as a result of that. It's a great win for us.

And we get technology through acquisition. We are very excited about these platforms and the opportunities that they bring to us. You know that we got into the biosciences side around our acquisition of Amersham and some related businesses. These are great platforms, and you're going to get some sense today of the wonderful opportunities that they create for us to build new technology and to use that platform to connect up with customers around the world.

Same sort of thing with water, I'll show you later an aspiration we have around water to make a big difference in the way the world cleans up water. And we have some really great technologies to do that. In the oil and gas business, as we moved into the acquisition of Vetco Gray, we got a new play into subsidy and we have some fabulous technology to take advantage of their presence. And you can well imagine that when you're trying to get oil from two miles under the water you need some really robust technology to do that, and our team's can bring that to life.

And finally Aviation Systems, with our acquisition of Smiths we've got a great platform there. We have some world-class technology in power electronics and avionic systems and a number of things that really can enable a new day for GE and Aviation Systems.

I want to talk a little bit about the things that we do for the Company. We have many roles that we play. We show here eight different things, and I want to walk you through examples of each of these from bringing new technologies for new product introduction to services and so on. So, let me step you through some examples here.

Delivering core technologies for new product introduction, or NPI; is really at the heart and soul of what we do. We connect up very closely in a partnership with our business team partners to make this happen, and here's an example out of healthcare. This is VCT, or volume computed tomography, machine that we brought to market a couple of years ago. You probably know it swept over a couple of billion dollars of orders already. It's a very, very attractive product.

That product was developed hand and glove GE Research and the team in the business. We brought some core technologies around algorithms for evaluating the data, around power electronics to move some of the electrons around the processing systems that you need in there. And our success is reflected in the business success. This is the way we win. Ultimately, everything we do is aimed at getting great products and services like this to market.

We have a role to drive variable cost productivity, and here are some examples of the activities going on in our businesses that add up to many hundreds of millions of dollars of cost-out across each of our segments. And we're very intimately involved in these things.

In the wind area, for instance, you're going to see some of our work on composites. It will help us to drive bigger wind blades to drive the cost of electricity down for wind turbines. We have work in the healthcare area, and you'll see some work around coils where we're doing dramatic simplification of very high-end technology to enable higher quality at lower cost.

And in aviation, we are driving new material systems to drive cost out of very expensive alloy sets and to make lightweight systems that can achieve the efficiency goals that we need in our modern aircraft, again a very close partnership with our team and the teams in the businesses to bring this to life.

Inventing new technology is again at the core of what we do. Here's an example of electrification where our team saw a trend in the industry emerging around aircraft that need two to four times the electricity that the predecessors would need, around an oil and gas business that is moving to an electrification in its drivers and a whole set of technology across energy and healthcare.

We put in place the resources, the technology and build up the fundamental strength that the Company needs to play in that. And a good example of the way this works for the Company is that Vlatko Vlatkovic, one of our core technologists, has left the research center, is now the leader of this thrust in our Oil & Gas business. So, we have many examples like that across the Company.

Here's our set of very advanced technologies that my great colleague, Michael Idelchik, will talk about later on. These are things like nanotechnology, advanced propulsion, advanced power electronics, very deep, very long-term, advanced technologies that the Company will need to take its businesses where it needs to go in the future. And I'll leave that story for Michael to tell.

A big part of what we do is spread technology across our businesses, and a real power of our center is that across these many great businesses with premier positions in the industry we can very rapidly exchange technology. So if one day we invent a new alloy or material set for GE in aircraft engines, the next day Rick can take and put it in an energy gas turbine, and Mohammad Al-Shabi, who leads our Oil & Gas technology team, can take it and put it in an oil and gas driver.

And similarly on imaging technologies, one day we might develop CT scanning for healthcare, the next day put it over into our Security business and the next day put it into our Inspection Technology business and, as we're doing today, create a whole new segment around using CT scanning to evaluate very large metallic parts like engine structures.

And services, we have a very significant set of technologies across all of our infrastructure-type businesses where we have very large installed bases. These go from inspection and repair to remote monitoring, diagnostics and PHM, prognostics and health monitoring, technologies and lots of thinking about how we can use our knowledge of the installed base to create incredible value for our customers and tremendous competitive advantage for GE.

And, of course, a very important role that we have is developing world-class talent. I'll show you in a minute how we're organized, but we're organized around deep talent, people come here because they want to work in deep technology, build careers around that, but getting that pool of people to connect together in cross-technology teams is the really the power of what we've got. And for any project that we run, for any one of our businesses, we pull from this great pool of people so we might have a metallurgist, a statistical person, a chemist, all working on the same kind of a project bringing that real pool of talent to GE's advantage.

And we have a very substantial role connecting up with what's going on with the world's technology. I mentioned some of our work with governments. We have connectivity, certainly in the US, but also in the EU and increasingly in places like Russia, Japan, China and India, great connectivity. We have connections with the world's universities. We have literally hundreds -- hundreds of connections with universities.

They are typically researcher-to-researcher rather than large-scale, special grants to big universities. They are very focused. Our people know the researchers, leading researchers in the world, very well and they connect up with them and use them for our key projects. It's a thing -- it's a system that's worked very well for us for a long time.

In the lower right there, you see a small set of the many great collaborations we have with world-class companies. They can range from healthcare to energy to aviation. These partnerships are very meaningful relationships to build our businesses and to drive our company forward.

Just think about our partnership with Snackman, which has been a key to our aviation business for a very long time. And a more recent example is the cooperation we have with Eli Lilly where we, for the first time, are co-developing on their side a therapeutic drug and on our side the diagnostic tools to enable the appropriate use of that therapeutic drug, and that is leading to some very, very exciting breakthrough technologies, as you'll see today.

Now, this is a little retrospective on some big R&D wins. And here, we look at some core technologies that enabled big wins in our business from creation of digital x-ray back some years ago creating a $6 billion opportunity to composite blades now in our big aircraft engines, creating many, many billions of dollars of wins in aircraft engines all the way through diesel locomotives and finally wind.

And you may know that our Wind business is a relative newcomer to GE. We got the Wind business in no small part because there was a fantastic IT at Global Research who believed passionately in the idea of wind technology, convinced us that we could make a difference in this area. We went and enquired Enron's wind business, and Steve is going to tell you about the tremendous success we've had taking that small company, bringing the power and scale of our technology and our global presence to make it a world-class business.

And here's how we work. Folks like Steve, who are big product managers in each of the businesses, work very closely with their counterparts, as you see here today, and they know very well their markets. They connect to the technologists through a group we call the business program offices, so just to pause on that for a second.

We have a set of ten people, one for each of our businesses, whose job is to sit here at the Global Research Center and work closely with the technology and business teams to understand the technology needs of each business. The businesses fund 50% to 60% of our activities here, so they have a very significant pool of programs that they manage. They provide an interface, which helps the business know of our capabilities and helps us understand quite intimately what the businesses need. And they drive the activities across our organization.

The pool of technologists reside in these global technology organizations. You can see the kinds of technologies that they support. They're very deep, world-class people. I hope you'll get some sense of that today as you meet our great team. And, of course, we have the technology center leaders who matrix across that, and I already showed it's set up across our great global centers.

So, we have a way of connecting up the power of our business presence with the great technologists in the business and driving great technology through the steep pool of people we have here at GE Global Research.

So just to close out here, our charter is to drive breakthrough technology to give our GE businesses competitive advantage, and I wanted to just run quickly through some big themes that we're working on. These are things that we will not accomplish overnight, but the motivating force is to help our team think of the great things we can do to make the world a better place to live and give our company a great place in the marketplace.

Solar, we have a vision of driving solar to be as cost-effective as coal is today. And, as you well know, that requires dramatic cost reduction and improvements in efficiency at the same time. We have very significant programs going on in that area and watch to see what we can do over the next several years.

In water, we have very substantial programs to do things like cut -- cutting the cost of desalinating water in half. As you know, there's lots of activity today in desalinating water. As we drive the cost down even farther, we'll make that much better, much easier for people, we can probably add access to clean water to 1 billion people when we achieve that goal.

We want to electrify transportation. As you know, locomotives are effectively electrical -- electrically driven. They are -- have a diesel engine driving a generator, which drives a motor, which drives the wheels. That system is a perfect example of where the world is going with electric power. We're developing a technology, not only to drive the electrical systems but to develop the battery technology to enable electrification, not only of locomotives but of things like ocean-going vessels and cars and trucks and even a technology you can -- that can split us over into telecommunications and utility backup and so on.

Now oil and gas, I already mentioned the fact that oil and gas will come from strange and difficult places. We're working very hard on some great technology to enable us to get oil and gas from way under the sea, to make the reliability efficiency that we need to be able to separate out the oil, the gas, the sand and the water that comes up on the ocean floor instead of pumping all that up two miles to the surface to do it up there. And that will enable much greater efficiencies at much lower cost for the oil and gas industry.

And finally in healthcare, we're on track to try to drive cancer to detection in its earliest stages. I'm sure you well know that if you can catch cancer when it's just beginning to do its damage, you have a much better chance of really getting dramatically after improvements in health. And we have a very focused program on prostate and colorectal cancers, and we think we can make a very substantial difference in the diagnosis of these damaging cancers that can really enable longer and better lives for people.

Now, these things I just showed you are big sweeping ideas, but they're not some fluffy talk that we have. They're real things that drive program activities, and we continue to watch and report out to our people the progress that we're making on the very real activities we have in each area. So, stay tuned and watch what we can do there. So that's what I wanted to talk about, and I'm glad you're here to share and listen with us today. Questions? Bob?

QUESTION AND ANSWER

Unidentified Audience Member

It's certainly an impressive presentation. Some of us were here a couple of years ago --

Mark Little - ***GE Global Research - SVP, Director***

Thank you.

Unidentified Audience Member

But, how would you compare what GE is doing relative to some of your bigger global competitors like Siemens for example, or pick another company, one of the Asian bigs, Toshiba for example. I mean the scope and scale of your effort relative to the scope and scale of what a Siemens and a Toshiba, Hitachi might be doing?

Mark Little - ***GE Global Research - SVP, Director***

Yes. These are great companies with great global scale, but I think more than any company in the world we have a system that drives connectivity to our businesses, that gets our teams to focus on the research and deep technology needs of the business and really enables fast play to market. So, I feel our connectivity is a real system advantage for GE.

Any other questions? Okay. We'll come back later at the end for more questions, but right now I'd like to introduce Steve Bolze to tell you a little bit about how this all works for this business. Great.

PRESENTATION

Steve Bolze - ***General Electric Co. - SVP, President, CEO - Power & Water, GE Energy***

Thank you, Mark. Good morning. You saw from Mark the breadth and depth of our technology investment across the Company. What I'd like to spend a little time on is how we translate that technology investment into profitable growth. And I'm going to particularly focus on how we're doing it within the Power & Water business. Okay?

And what this first chart lays out for you is that translation of technology to profitable growth really comes to focus with very clear product management accountability in all of our businesses. So, as you would imagine, the product manager is kind of the leader of that cross-functional team. As you can see here, we've upped our investment -- just in Power & Water upped 3x the resources in the last four years.

These people are at the hub of what is our business strategy. These people not only cover our strategy for product but span it for the product life cycle, so touch services also. And as you can see here is -- regional opportunities, we've got product managers in China, India, Russia, Latin America as well as across our major locations in western Europe and in the United States. But, this critical partnership between the product managers and the technology teams and the rest of the organization, that's where it all comes together.

What we do in our business is try and capture the opportunity we see, and Mark touched on this a little bit. I think a couple of you have seen this chart before. The world needs double the amount of electricity over the next -- between now and 2030 and triple the amount of clean water. And even with the economic environment we have now, everybody's well aware of that. The needs are still there. And it's really driven by infrastructure growth around the world, population growth, and you have to be flexible on where that is regionally in any given year.

Now, Power & Water is one of the three businesses amongst John Krenicki's GE Energy Infrastructure. You can see it's the left-hand side of this chart, and that's the business that I'm responsible for. That's about $23 billion of the $38 billion in 2008 revenue. So what I'll talk about is how we go through this.

Power & Water is a diverse set of solutions and, as you can see across the bottom of this chart, it's a number of products that we've been into really dating back to the initial days of GE. That's about half of our business area, gas turbines, nuclear, cleaner coal and steam. But also, to Mark's point, we've been making some investments over the last six, seven years. All the product lines on the top of this chart we got into six years ago. We'll get into it, but wind is now a $6 billion business.

Jenbacher scaled from a $200 million business to $1 billion, all organic, and we'll talk about some of these other platforms. But, what's interesting here is that if you look at our growth, organically largely we've driven over the last four years $10 billion of growth for GE roughly split between the bottom half of this chart and the top half, with operating leverage and with the scale we're driving, good impact on return on total capital.

What I'd like to talk you through is kind of how this works within the business, and I tell you technology differentiation is the key point to driving margin accretion and scale. Just thought I'd touch on a little bit of a market outlook.

A lot of you that don't know GE well, we just walked out of our Growth Playbook reviews about two months ago. We had a couple of different views of the world on how it might evolve over the next five or ten years, but the aggregate view is the power generation investment in the world, cumulatively in the next ten years, $5 trillion, still a good place to be. It's diversified in terms of coal, wind, gas, nuclear, et cetera, and there's a number of things that are changing around the world from energy independence, emissions, environmental, everyone reads the papers.

The last one I want to touch on is resource constraints. Mark touched on water resource constraints, driving some of the needs there. But you saw on Monday, we announced the -- our latest gas turbine order in Kuwait. That was a $1.3 billion order for our business. It was announced as $2.6 billion with our partner Hyundai. And what it was is it will be the largest single power plant when it's constructed in Kuwait.

To give you a sense, they have 11,000 megawatts of power and they have chronic power shortages today. So when this power goes on line in 2011, 2012, they're going to need the next set of power. And again, our technology differentiation is one of the key reasons why we can win. And again, they have that need and I'll talk about some of the other examples, but with this evolving landscape there are new opportunities, and that's where we're putting our money.

If you look at this next chart, we're always looking at how we stand versus some of our benchmark competitors, how we stand competitively, and you can see some of the things we look at. GE growth is defined by primarily our growth in contribution margin rates in dollars over the last two or three years, and then we also look at our relative profitability versus our competitive set.

And you can see on the right-hand side, these are some strategic moves we're making as a business, and I'll show you those at the product level as I go through the presentation but everything from our next-generation gas and steam turbines for our thermal business, our investments in coal gasification, which Mike Idelchik will talk about and Rick Stanley.

Wind, we're moving from our investments in the 1.5 to bigger platforms, and some of you saw on Monday, if you picked up the Financial Times, right on the front page was our investment that we closed in our offshore platform that we purchased in Norway that will grow out in that space and then some of the other spaces. So, we keep this in front of us and our goal is to be the best, know where we stand and then continually move forward.

Now, it wouldn't be a good GE presentation without a process chart. You all know dashboards. This is a dashboard, one of the dashboards we use to track how we operationalize technology from the research center or from our engineering teams into the business.

So you can see, we track innovation; we track number of patents by product line. Rick's going to show you a chart. Across Energy, we've doubled the amount of annual patents coming out of our business over the last 4 years. And our relative patent positions have significantly jumped up by product line over the last four years, and we go through those patent positions every year for an half-day session.

So, you see we look at cost-out productivity and responsiveness, but just to give you a sense too, every Friday Rick Stanley and I and John Krenicki, we go through all of our product lines and we rotate them through every other Friday. To give you a sense, regent's wing, I'm up here at the Research Center all the time.

My headquarters are in Skenektity, 15 minutes down the street. We have 3,800 people. I'm here at this research center all the time. I'll be in India all next week. I'll spend a good part of the day on Tuesday in Bangalore, so rip through all the product lines, and then I was just at the Munich, Germany center about 4 months ago. And then, we'll plan to get back out to the China, Shanghai center in December. So if you want to pull technology into the business, as a business leader you've got to go.

And it's all about translating. Some of things, you can translate in one or two years. Some of the things take three to five years, and some bets will take ten plus years. Those ten-plus-year investments, we leverage Mark Little and research team for those. The one to three-year bets, we pull into our process and track with scorecards like this. But, what I want to leave you with is there is a very tight linkage between the technology teams, be it GRC, or the engineering teams and then the business.

So, what I'd like to do now is step it down a level. I'll talk about how we do this but really at the product level. And the first example I'll use is gas turbines. You know, this is one of our biggest franchises we have in our business. These are the numbers for the equipment side, '06 to '08. You see a growth of almost $4.5 billion.

That growth has been a good bit driven on outside the US. Some of you remember the US gas turbine bubble. That was back in '01/'02. That was when almost 70%-plus of our gas turbines went to the US. The majority of our gas turbines now are going to the Middle East, western Europe, Asia.

That's what this growth is driven by, but in able to do that we had to translate technology differentiation in fuel flexibility to be able to win. And that's what I'll talk about on the next page, but also this drives -- this installed base growth drives our business for Dan Heintzelman.

Winning with flexibility, gas turbines, again we spend a lot of time at the Research Center on not only burning gas in gas turbines but oil, crude oil. You go to the Middle East, they want to burn heavy crude. That's tough to do without taking up the machine. That drives down your outage intervals. That's what we work on at the research center.

And as we translate those technology trends, one of the key reasons why we were able to announce last December our largest single gas turbine order ever in Iraq, it was because we have tri-fuel capability. We can burn gas. We can burn oil. We can burn heavy crude. That's why we won, and we're delivering those units now.

You see Saudi, Arabia -- between Saudi, Arabia and Iraq, $6 billion of orders since '06, and with the announcements we made with Kuwait and others, close to $9 billion of orders in the Middle East over the last 18 months, and you see China in this space here is -- there's a new space emerging, industrial gases, blast furnace gas, industrial gasification where you take coal, gasify it, blow it through a gas turbine.

There's modifications we have to make to that gas turbine to allow us to do that. Otherwise, you shorten the outage intervals. That's what we're working on. The gas turbines in the Duke coal IGCC plant is a GE gas turbine. That's the only large IGCC plant being built in the world today, by Duke Power.

And then the last one here is the China Technology Center. When I'm in Shanghai on -- in December, (inaudible) I'm going to go spend an hour on how is that new gases working, because you can get into coke oven gas, you can get into other areas. And, by the way, the reason why we also do this work at the technology teams and the research center is I can take that technology and weave it into Jenbacher engines. If we can't burn it in the bigger engines we'll burn it in our smaller engines, and I'll show you that opportunity on the next page.

This also translates into Dan Heintzelman's Service business. So you see how that business has grown since 2002, so as the gas turbine fleet grows service opportunity grows. But you see here, we're focused on technology leadership on upgrades, extensions and emissions. But again, our product manager for gas turbines is working on the investment deck, not only for equipment but services. And that's how we run through this.

I'll shift gears, talk about renewables, and I think this is probably one of our best examples of identifying a business area at the research center, wind, and translating that into we need it to buy a platform to get rolling. That was the Enron acquisition. As you all know, we spent less than $400 million, and we've scaled that organically into a $6 billion-plus business.

This is 100%-plus ROTC, good margins. And yet, why? How can we do this? Number one is we didn't start with a great product. We had to completely redo with Rick and Mark's team the generator, the blade, the control system, the tower. We went from 88% reliability to 99% reliability. That's dollars for our customer, which translates into price for us, which leads to margins.

We didn't scale it to -- we now have over 15,000 in the fleet, 1.5. Then, we translate now into now I'll show you on the next page product expansion. Now, we go to larger platforms. The other thing, is this going to open up for us a nice service business? And, by the way as you -- many of you know, China is now becoming the largest single wind market in the world. So three years ago, we put a product manager in China. It's a slightly different wind turbine that's required for China. Many of you know, we manufacture our wind turbines in China in Shenyang, but we also have an engineering team in Shanghai and we build out that capability there.

Where are we going next from the 1.5? Bigger turbines, when you go into Europe it's a land-constrained environment. So as opposed to putting a 1.5-megawatt, you put a 2.5-megawatt. We have had relatively small market share position there. We have significantly redone this product and launched it last year.

This product we already have, as you can see on this chart, $2 billion of backlog, ran it through our process. It is a 100-meter rotor, and you can see it's differentiated and we have our US launch underway. We're investing $100 million in this product line. This is organic. But again, this is our team. A lot of the team is in Salzburg in Germany and in Greenville and with the research center.

And on the right-hand side, I touched on it earlier, offshore space, people ask me a lot about the offshore space. This has been an interesting space. Some people have been in. They lost money. It's a different business model. You have to -- it's -- historically, you not only have to build the turbines but you would have had to put them in the water. You had to put construction capability in the water. Well, that's not an area we're going to see ourselves differentiating.

That business model has changed with governments, incentives and such. We made an investment, and the GRC and the engineering team were key to that. Our investment we made, these are bigger machines, 3.6-plus megawatts, the key here is robust. You don't want to be having to go out and touch the machines. It's offshore. One of the key components is a direct-drive generator that boosts your reliability. That's why we bought this technology. We did not buy a factory.

We're going to scale this just like we make the Enron wind turbines in our Greenville gas turbine facility. So you want technology, we've got to different another piece of it, and then we're going to scale this platform, a lot of government incentives across Europe, UK, Germany for this space. But, as you can see, we're going to put $100 million in this space over the next three years.

So, these are two big moves for us and you can see, just on the 2.5 alone, $2 billion-plus of backlog. Give you a sense, an offshore wind turbine sells for north of $4 million. Most of the unit orders will come in 100-unit order buys. So, you can scale this platform when you're ready technically.

This last one is the Service business. You know, we like businesses in GE that have good product differentiation but then we can scale a service platform. And as you can see, our business model for services, $250 million in '09, this is just our services, sales, good margin business. And right down the street here in Skenektity, we have our remote monitoring center.

We can -- just like we do for gas turbines, we look at our entire fleet. We can pull up any unit. We can find out how they're doing for the day in a second period of time. So, the same things you've seen for service investments we're ploughing into this. And as you look forward, 30,000-unit fleet by 2015, that is a big opportunity for us to expand the service business model here.

Let me shift gears. Let's talk about gas engines. A lot of you know we purchased a technology from Jenbacher. This is in Austria. Some of you might have visited. It was right outside of Innsbruck. A good time to go is in January. But if you look at this business platform, these are smaller engines, 0.5 megawatt up to 4 megawatts. When we purchased the business, $250 million, low single-digit profitability, this business has expanded 4x almost. ROTCs on this business are north of 50%.

Scaled it out of the main factory, but also when we needed to expand we put its capability into our facilities we already had in Hungary in China. What you can see here is, we went to our technology team and said the market wants to burn nonish natural gas. They want to burn biomass. They want to burn landfill gas. They want to burn coke oven gas. That's one of the biggest advantages of our technology. It's efficient, but it also has the capability to burn multiple types of gases.

We went from 5% of our engines burning non-natural gas to today 40%. That is a unique advantage. That team -- technology team's been working on this expertise for six years. You'll hear a little bit more of that from Rick Stanley. But -- and that -- this service business here, they've got $1 billion of CSA backlog. That was built, and good contribution margin rates.

And product expansion, we're looking to take the product line above 4 megawatts. There's room there to grow. You can start to get into the utility space, so we can use some of our channels. But, it's some interesting technology you've got to work through on its various component level.

Aeroderivative, Mark talked on it a little bit. This is where we take the core technology from an aircraft engine off the 747, off the various Airbus platforms, and we take that core engine and we package it and sell it into the utility market. A lot of customers use this for very short-cycle peaking power, because you can ramp it up to full power in less than ten minutes, less than five minutes in many cases.

As you can see, it's expanded here. This again is all organic growth, good margin. And again, the key here is the technology advantage on this one, operating flexibility, you want to be able to start and stop these very frequently. That's a lot of stress on the components in the machine. There is where the technology teams come in. We spend a lot of time on that, and you'll see Jeanne Rosario too. This technology effort here spans both energy and aviation.

So when we look at our R&D spend for this space, we look at both those together. And they'll talk a little bit about -- Rick and Jeanne, how they run their teams together. But, we can expand this portfolio. Right now, we're about 25 megawatts to about 100 megawatts, we can go down and we can go up.

And in Latin America, they want to burn ethanol, new space for us. But again, you've got to get into combustion technology. That's why, again, I spend a lot of time with research centers, and again that's new space to run.

Water, a lot of discussion on water, I water is one of those like wind had to go through. First three or four years of wind, work in progress, now we really like our wind business. Water, I'd say we've got work in progress here, but if you strip it back what do we like? We have two fundamental businesses, engineered systems, wastewater, mobile solutions. And, by the way, you've got a 6,000-plus installed base of units. There's services there.

On the chemical side, this was the best Dearborn that we've largely integrated over time, but this is -- goes into power. These are fundamental chemicals for cooling and wastewater treatment. That's at a power plant. By bringing our water business nine months ago into power, which we've done now, we can drive -- by the way, a lot of our Dan Heintzelman's contractual service agreements use chemicals. We weren't using as many water chemicals. Now, we're differentiating Dan's CSAs to water chemicals.

If you look at the right-hand side, what are we focused on? Water reuse, give you some numbers, 5% to 6% water reuse in the US, Israel 70%, Singapore 30%, 45% of the clean water that's drawn in the US is industrial. 90% of that's power, once-through cooling in power plants. We want to make that a lot more efficient, and there's where we have unique technologies so you see us investing in chemistry, membrane.

And the other thing we did is over the last six months, we opened two R&D centers for water, Singapore where they have 30% reuse, that's up and running, and then the other one is in Qatar where Mark Little has an operation too. That one's in joint venture with Conoco/Phillips, because they know that whole oil and gas space, and we want to get that domain knowledge to burn -- to build out proprietary application-specific chemicals. By the way, very good contribution margin business this year, what we need to do though is scale it and you can see is we're driving double the amount of technology investment.

And the last one I'd touch on on a product level is nuclear. A lot of us know that it's been a $1 billion business, but then we joint-ventured with Hitachi. So between our business and the Hitachi alliance, their business, they have the lead in Japan, between the two of us we have about $2.5 billion. And, by the way, our next-generation ESBWR, what you see it there, Economy Simplified Boiling Water Reactor, just got ten days ago fully sent into the NRC.

Give you a sense, 80,000 -- I'm sorry, 8,000 pages, 23 volumes, we're the first one in line. There's a lot of work on that, so we have to work through that. But, we're looking at opportunities in the US, UAE, that's the one you see in the papers, Abu Dhabi, India and the EU, technology differentiation you can imagine. This is key on this one, and the team is just -- we're beefing up our team in this area.

So, where I'd leave you with is I'll step you back up at the top level. I said I wanted to talk about the translation of technology to profitable growth, and you see what that's done to our business area. And in this economy environment, you see we've spent -- back in '05, we were spending $0.5 billion a year. This year, we're spending $900 million. This is apples-to-apples. And then by 2012, we'll still be in that $1 billion range.

So our view is that -- and I can tell you my view -- I spend a lot of time with the teams is, product and technology differentiation is the key for profitable growth. That drives margin expansion. We've got a tight linkage between the technology business teams, but the other thing is is a I look at the pipeline, and that's really what I spend a lot of time with Rick Stanley on, we're looking out two, three, five, ten years, and the pipeline looks pretty good. So, what I'd like to do this unless there are questions, I'm going to turn it over to my partner as I go through --.

QUESTION AND ANSWER

Trevor Schauenberg - ***GE Corporate Investor Communications - VP***

Watch for just a second and see if there's any --

Steve Bolze - ***General Electric Co. - SVP, President, CEO - Power & Water, GE Energy***

Yes.

Trevor Schauenberg - ***GE Corporate Investor Communications - VP***

Questions in the audience here.

Steve Bolze - ***General Electric Co. - SVP, President, CEO - Power & Water, GE Energy***

Figured there might be. Yes? Go ahead. Bob, or -- oh, I'm sorry. Yes, Nigel is it?

QUESTION AND ANSWER

Unidentified Audience Member

Just to clarify this point on when the --?

Steve Bolze - *General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes?

Unidentified Audience Member

The actual wind segments --?

Steve Bolze - *General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes?

Unidentified Audience Member

You -- is it three years before GE will have a product in that market? And do you think the direct-drive technologies can be then pushed down into the land-based turbines?

Steve Bolze - *General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Two things, one of which is the direct-drive technology has its application. It could be on the land base. It will all come down to is is -- it's a -- as you go land-based, these are smaller units. They're not a 3.6 megawatts, 2.5, 1.5. It really comes down to is, is does it make economy sense because, as you can imagine, when you're onshore you can -- more component technology on the ground. When you're offshore, everything's got to go up tower. That's one of the advantages of direct-drive. There are costs, there are efficiencies associated with it. So as we walk through that, we'll make that decision.

Your other question on offshore is while the units -- we have -- we purchased with the acquisition 10, 11 units that operate in Norway today. I would say more prototype units, but it's with a utility there. But, we're going to be going to market with our offshore platform next year.

You look at the government incentives that exist across Europe, what you have to do is just show what is the technology that's available and then those units will go into production really in, I would say, 2011, 2012. But, those orders and those commitments will be starting up in '010. But, I would say really we're looking this as an '011 and '012 move. But again, we didn't purchase a factory so we can scale this. We can take it into our existing factories. We might have to look at a factory in Europe just because with offshore, since they're bigger, you've got to be near the shore. Bob?

Unidentified Audience Member

Yes, two questions.

Steve Bolze - *General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes?

Unidentified Audience Member

The first is, IGCC has just taken a long time to get off --.

Steve Bolze - *General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Unidentified Audience Member

The ground and really ramp, and maybe you could give us some understanding of why --.

Steve Bolze - ***General Electric Co. - SVP, President, CEO - Power & Water, GE Energy***

Yes.

Unidentified Audience Member

That is when it's such a -- an intuitively attractive technology, and another thing you didn't mention, the H technology --.

Steve Bolze - ***General Electric Co. - SVP, President, CEO - Power & Water, GE Energy***

Yes.

Unidentified Audience Member

And maybe you could just --.

Steve Bolze - ***General Electric Co. - SVP, President, CEO - Power & Water, GE Energy***

Absolutely.

Unidentified Audience Member

Tell us where that is as well?

Steve Bolze - ***General Electric Co. - SVP, President, CEO - Power & Water, GE Energy***

Two questions, on IGCC, a couple of things one of which we're building, as I mentioned, with Bechtel, the only IGCC plant of really commercial utility scale size today in the world. Its 630 megawatts. We're on schedule. It'll be COD in 2012.

What's the issue with IGCC is that there's some uncertainty in the market, not only in the US but globally, on what's going to happen with carbon legislation. Because of that, when people look at new coal plants or new IGCC plants, do you need to have a certain level of carbon capture? Do you need to carbon-capture like a gas plant? Or, do you need full carbon capture?

That is an unknown. It's really slowed up any new coal build in the US, as many people know. It's also addressed IGCC, because there's a cost premium to capture carbon in an IGCC plant. So -- and for those that -- an IGCC is integrated gasification combined cycle. You take coal. You combust it, create gas, burn it in a gas turbine.

But, I'd say the other piece of that, Bob, is that I think that a lot of the world wants to see one at this scale run. But, we're actively working -- it was in the paper about three weeks. Australia has some major incentives, because they're a major coal exporter, and we have a project that's being kind of positioned there for major government incentives. So, I think that's the key thing, Bob, is I think carbon has slowed it down a little bit, but it's affected the whole coal market.

In terms of the H technology, we continue to invest in the H technology. As you know, we have our plants at Baglan. We have the plants in California, England, and then we have the three plants that run at Tokyo Electric Power in Japan. The issue is the market's a little different. These are big blocks of power. The marketplace is looking for operating flexibility, fuel flexibility. If you're looking at an H plant, it's a very large block of power.

Natural gas prices are a little lower than they were a little bit ago, so that efficiency premium that you have to pay for in the H, it's a lot more difficult to justify with lower gas prices. The other, which is a lot of people are looking at smaller block sizes. So, that's some of what you see going on. You still see a lot of interest in Asia, some interest across the US, but really a large percentage -- more than 90% to 95% of the gas turbine space is FDB-class technology but better efficiencies, more megawatts, better flexibility, that's what Rick's going to talk about. Yes?

Unidentified Audience Member

I had to step out for a half second, so if this --.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Unidentified Audience Member

Question's been asked, just write me off the course.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Unidentified Audience Member

Look, I'm a big believer in water. I knew a lot of the companies that you bought --.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Unidentified Audience Member

Before you bought them, but the fact of the matter is that you talked about the growing pains in wind. You've had something bigger than growing pains in water. I know we live in a blameless world, but do you know what went wrong, and what are you doing by way of counter measures to make it work in the future?

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

You know, a couple of things, one of which is if you look at our water platform, as you know, it's been a built by a number of acquisitions. But, I think a couple of things, you know, over the -- we've got to drive more domain expertise and product differentiation. That's number one.

And number two is, being on the chemical side our competitive set this year as well as on the equipment side, the last 12 months have been pretty rough in the water space. People aren't running their plants, customers, therefore -- and they're not consuming chemicals. Everybody's been hit by that.

And if we look at our relative performance versus our chemical set, we are pretty much neck in neck with them. On the equipment side, our view is, is that the market's going to grow, not in the municipal space for us, but it's going to be in the water reuse space.

The ability to treat difficult waters, oilsands, tailing times, pulling frac water out, that's tough to do. That's where we want to be. That's where our differentiation is. And, by the way, what helped wind, not only good product, warranties went from five years to two years.

We said the business model changed. But also is that there was government incentives, which grew the market. And our view right now is that -- there was just an article in this weekend's Barron's, you know, Warren Buffett's a big investor in one of our competitors. And what you see there is it's an attractive space in chemicals. Look at the chemicals business. It's a service business. Most of the revenue is recurring. We're running that more as a service business now.

And if you look at the equipment side, we're doubling the investment in product development. So, I think those are some of the things. But I would say, back to your question, its work in progress, but it's something where you look at the contribution rates of the water business. It's pretty attractive. You've got to scale it, though. Yes, Scott?

Mark Little *- GE Global Research - SVP, Director*

Yes, I just wanted to say something.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes. Mark --?

Mark Little *- GE Global Research - SVP, Director*

Say something, I don't know if my mike is on.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes, it's on, yes.

Mark Little *- GE Global Research - SVP, Director*

Oh, it's on?

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Mark Little *- GE Global Research - SVP, Director*

Okay. I think there's another powerful thing that Steve may not want to mention. We had growing pains in the water when it was -- wind when it was run as an independent business, when it was plugged into Steve's team, all the power and strength that they have and the know-how about how to run a business like that paid off, I strongly believe the same thing will happen here in water.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Just actually -- just one -- two examples of that.

Unidentified Audience Member

I'm not sure I understand your point.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes. Let me --.

Mark Little *- GE Global Research - SVP, Director*

Okay. Steve has a team who knows how to run big projects, who has incredible commercial discipline, who knows how to drive technology. We started off running independent from that team. When we plugged in with that team, all of those strengths came to play and our wind business took off. The same thing will happen here in water, I strongly believe.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Let me give you two examples, one of which is the water business has a very, large municipal water plant that they're on construction in Algeria. You've got to go through commissioning. These are big plants. By the way, it'll provide 20% of the clean water to Algeria.

We build combined-cycle power plants in Algeria every day. If you're going to negotiate with customers you have to have people on the ground. We had the people that are working in the combined-cycle plant just shift right down the street to the water plant. Now that plant, it's fully operational, running, and that really took about three or four months. That, by the way, will become a good returning asset for us.

The other of which, as we mentioned, the IGCC project at Duke Power, by the way, six months ago they hadn't let the water contracts. By the way, that's a $15 million order now for our water business. So, the water treatment that'll be done at that IGCC Duke plant will come from our GE Water business. So, those connections are taking place now, which is exactly what we had to do with wind. I'm sorry, Scott?

Unidentified Audience Member

Steve, can you talk a little bit about solar power?

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Unidentified Audience Member

And in the same context in Cliff's question, it's probably a little bit of a -- been a weak link.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Unidentified Audience Member

Over the past. I mean, you bought AstroPower, but you haven't really done much with it. We keep hearing about new product technologies.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Unidentified Audience Member

But as far as we can tell, there's really not much of a presence for --.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Right.

Unidentified Audience Member

GE in solar yet.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

I'm going to try and answer that question, that's a larger question. But in solar, you have various segments of solar technology. You have photovoltaics. You have thin film. You have concentrated solar power. There's multiple segments, okay?

AstroPower got us into the photovoltaic business. If you look at the photovoltaic business, you look at the marketplace, look at all the analyst reports, the pricing and the economics of that industry has collapsed in the last 12 months.

You really don't want to be big in that space right now. Pricing's collapsed north of 65%, 70%. Therefore is we're not big in that space. Long term, we're believers in solar. Not every place is going to have wind for renewable, solar's an option. It still is too expensive power. If a gas turbine or coal plant is $0.05 to $0.06 a kilowatt hour, wind might be $0.07 or $0.08, maybe with incentives, you get close; Solar's north of $0.30.

The issue is, is you've got to get cost effectiveness down, and that means fundamental material science technology, which is where the research center comes in. Why did we purchase the equity stake in PrimeStar 18 months ago? Because it's thin-film technology with very unique patents and that's what we're scaling out. And that business area, by the way, Mark Little has a team on it, Rick has a team on it. They've made all their milestones. But you need an efficient module.

The other thing we have in PrimeStar is unique plant and equipment. We design our own equipment. If you want to differentiate in solar, you need materials science, you need a good cost position, which is driven by proprietary P&E. It takes awhile to do that. These are major P&E investments as you build out a line, so that's a space we're going now.

Photovoltaic is largely the space today, but our view is the economics will be set by the thin-film space and that's why you see us, this is a long-term investment in thin film. And we're meeting all of our milestones. That's what's going on. Yes?

Unidentified Audience Member

Okay. Steve, could you update us on what is happening with the Silex technology and uranium enrichment? That it's a huge potential commitment on GE's part, over $1 billion.

Steve Bolze *- General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

It is. It's a big investment we're making. And I can't get into too much detail here, other than there are some UTE technologies that we're investing in. And some of the economics in that industry can be very attractive for us. It's a good margin business area. It's a growth business space, to your point on uranium. But it's probably not appropriate to go through it in a large forum. We can probably talk to you more about that off line. Just because of some regulatory aspects only.

Unidentified Audience Member

Great. Just for the second time.

Steve Bolze - *General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Okay.

Unidentified Audience Member

Maybe we won't. Thank you very much, Steve.

Steve Bolze - *General Electric Co. - SVP, President, CEO - Power & Water, GE Energy*

Yes.

Okay. Thank you very much. And again, my partner, Rick Stanley, as I go through this, VP of Engineering. Thanks.

PRESENTATION

Rick Stanley - *General Electric Co. - VP, Engineering - GE Energy*

Thanks, Steve.

So good morning.

Building on what Steve just talked about for the business, let me start with the overall engineering scope that we do at GE Energy Infrastructure. At GE Energy Infrastructure, we spent about $2.4 billion a year on engineering. About 77% of that, or $1.8 billion, as you see on the chart here, goes for new product development, what we call NPI programs, or new production introductions. So we'll spend over $1.8 billion this year, just developing new products for some of these new market spaces that Steve talked about.

Some of our key programs, you'll hear today from me, some really brief overviews of a new gas turbine that we're working on right now; a new steam turbine, including a steam turbine joint venture that we have with MHI that we announced a few months ago. The Renewables area; we'll touch on wind just for a bit, just to show you what we've done in wind and what our future thinking is on the wind product line.

Nuclear, we talked about ESPWR already and the global laser enrichment, the pilot plant for GLE is now under construction, it's actually going to start running test runs this quarter.

Sub-[scene] electrification, or more in the oil and gas world, where the new technologies, as we go towards the future, will be electrifying things like high-speed electric motors and equipment that actually be used underwater, deep underwater, in very tough environments, both high pressure and what we call sour gas, or very difficult gases to deal with. So a lot of our investment's going towards these new technologies.

What's in our portfolio, if you will, is here's an example of all of the stuff that we're ready to use either in current products, some of these technologies are already going into current products that are in production today, or they're being worked into the new designs that are on our drawing boards today.

And I can't list everything, but there's quite a bit on this chart as it is. And I've grouped them into different categories that are very key to us. Like materials science. Materials and having great material science is really the secret behind a lot of our product successes. As an industrial company, this is a key science for us.

Some of the things you see on the chart that we're doing today is liquid-metal cooled buckets. This is a new way to cast turbine buckets. It's a new casting process. We're using this on today's 9FB gas turbines. It was developed here at the research center. This takes the, if you will, the existing chemistries of the material we use today and it casts it in a different way. We do it in a different way, we get better material properties. WE actually make the materials stronger.

We didn't change the recipe of the material, we just changed how we cast it, the physical process of casting it. And we're getting more strength out of those turbine buckets.

Why is that important? It's going to allow us to go back to our service contract in a lot of our gas turbines and extend the life of the buckets through those contracts and make those contracts more profitable. It all begins with material science.

Combustion; we showed a picture of the production lab, but in Greenville, South Carolina, we have the world's biggest and most sophisticated combustion lab. This is where we do all of our testing for the full-sized gas turbines. We can run a full pressure, full size combustion test on a variety of fuels.

We just reinvested another $30 million in this lab last year with a blending facility, where we can now blend different recipes of combustion gases that our customers want to use. And it seems like every week, we get a new request for a different gas. Different gases in different parts of the world have different recipes and our customers, for us to help them understand how the turbines work, we'll invite them to Greenville, we'll show them, we'll blend the gas on site that they have and we'll show them the combustion process so they can actually see it. That it works, that our combustion hardware works, that our control software works and we know exactly how their gas is going to burn at their site.

E-transfer, we're on our second generation now of cooling hole technologies. Cooling hole is a very small hole that we use in the turbine buckets. It's key for keeping the blades from melting in the turbine. As you may know, the hot gas in the turbine itself is 500 degrees hotter than the melting point of the material itself in the bucket. So the cooling technology is a critical technology to make a turbine and to give it its life.

The cooling hole's shape allows us to make it more efficient. Because we can use less cooling flow to do the same job. If we use less cooling flow, we don't burn as much fuel, we don't use as much air in the cooling process. The turbine gets more efficient.

We're in our second generation shaped cooling hole now that we're putting into production.

Conceptual design tools called Predator. These are tools that we're now using that were developed in our aviation business. We're now using them at GE Energy to optimize, not just the gas turbines, but the total power plant. These are, if you will, algorithms and software that can juggle up to 12 different variables around a gas turbine and a power plant.

And the human mind can handle about three. So as engineers trade off different factors in designing a power plant, the human mind can trade off about three at any given time and do a good job at that.

But to get up to 12, these are second order and third order decision making algorithms and that's what we're doing at Predator, is just extending our science into the actual conceptual design of the plant.

Our latest gas turbine that we're getting ready to announce the 7FAO5 was the first one to use Predator to design it and we actually designed the gas turbine and some parts in the gas turbine that we weren't even thinking of when we first did the conceptual design. It increased the power by another 13 megawatts, over and above what we believe was possible with the same product line. And it was all because of what we do with Predator.

Systems and tests, we're doing even more investment in our lbs around the world. Not just in Greenville, but everywhere. From mechanical labs, we're building a full power gas turbine test lab in Greenville. This will be the first -- the world's first off-grid facility to test large gas turbines, very large gas turbines, at full power, abusive testing.

Why would we do abusive testing? Because we want to push the machine even further and we can't do that kind of testing in a power plant, particularly a customer's power plant, because we can't afford to break it. Power plants that produce power.

We'll have a test facility in Greenville now, where we'll be able to run full-scale, full-sized, full-power and variable power gas turbines in a test cell and do some really abusive things to really push the envelope to make these machines not only better, but it'll help us put some sciences in them and test them out, learn from it, and get their -- get some capabilities on the machines that our competitors won't be able to touch.

Patents; Steve talked about patent creation. This is just the GE Energy portfolio and what we've been doing for the last couple of years. This year, we're on track to do over 800 patents, this year. That's been growing at a pretty good clip over the last four years. You can see now we're over double what we were just four years ago.

I put a snippet up on the side. This is just a section of the wind part of the portfolio. So you can see this, in a wind example.

The other bars that are shown on the chart are our competitors in the wind space. The last bar, the tallest bar there, is GE's portfolio.

The different colors on the bar are -- just represent the different years. So you see 2004 is at the bottom and 2005 and 2006 and 2007 and 2008. So you can see the portfolio has grown.

And we now hold many, many more wind patents than our competitors do. If you've seen the news lately, you know we are getting even more aggressive at defending our patents now. We recently won a case in front of the ITC on three patents against one of our competitors in the wind space. These were three of the patents that were created in the last four years, primarily around power electronics and how you connect turbine to the grid, very important science for any wind turbine manufacturers.

We actually derive royalties from our patent portfolio from, believe it or not, some of our competitors, where we'll license the technology to them rather than have them work around the patent itself.

We do a lot of work here at the global research center and all of the centers around the world. This is just to give you a sense that we don't replicate, we don't do the same thing four different times at four different centers. Each center has a specialty.

Here in Niskayuna, we work high temperature materials, the liquid metals cooled casting that I talked about was developed here.

In India, we work diagnostics. We work steam turbine performance. We have a steam turbine team, advanced technology team in Bangalore that just focuses on how to make the steam turbines better.

In China, we work coal gasification. The chemistry of coal is different around the world. Chinese coal is different than the coal we find in the United States. China has a big interest in coal gasification. So if you visit the labs in Shanghai, what you see is a test set up and a facility there strictly devoted to understanding the science of coal in China. And how ITCC can be optimized for the China market, that will be different than the market in the United States.

We're doing the same thing here in the United States in the State of Wyoming, with the University of -- one of the universities in Wyoming, there's a joint partnership between GE and Wyoming to build a similar gasification science facility right here in the United States and we'll do that kind of work, but for coal that we have here in the US.

And then in Germany, do a lot of work on our renewable systems and power conversion. Power conversion doesn't get talked about a lot as a science. Maybe it's because it's not well understood, but one of the real secrets behind a wind turbine and solar power is the ability to take this direct current that's created from the turbine itself and convert it into alternating current, which we use in our households and in lights.

That technology, this power conversion, and the ability to do that and do it efficiently and reliably, without generating a lot of heat that is a key science. A lot of our patent portfolio is around power conversion and a lot of that work is done in our facility in Munich. A lot of that research work.

Our gas turbine franchise, Steve talked about this a little bit already, our fleet of turbines, if you add everything up, it's out there running today. It's bigger than the combined fleets of all of our competitors. So take Siemens, MHI, Paulson, add it all together, the GE scope of turbines that are out there running is bigger than all of them combined.

The franchise is huge. The strategy is, again, reliability is number one. So the first thing we work on is making sure the turbine stays online when the customer wants it online. No surprises, keep it running when the customer wants it to run.

But right behind that is this thing called operational and fuel flexibility. Operational flexibility is becoming a bigger and bigger deal for our customers. And what that means is the turbines can't always run at full power. At night time, electric demand is down, our customers want to pull the power level of those turbines down. They don't want them running full power. They want them running partial power at night time. And then have them parked and ready to go, so in the morning, when the electric demand picks up again, they can quickly spool that turbine back up and have it keep up with the demand.

So rather than shut the turbine down, they just want to park it at a lower power state, well, the challenge there is being able to do that and still meet your missions requirements. Because running a turbine at low power is very difficult to do while still doing it cleanly and meeting your emission requirements.

Now the industry calls this "Turndown." You may have heard this term before. Turndown means that 50% turndown, they want to run the turbine at half of its power level. And the technology we're working on is, how do we move that 50% to 40% and 30% and 20%? And our goal is, ultimately, 15%.

And as we do that, ahead of our competition, our turbines are going to get more attractive. We can do that. We know how to get down to 20% now. We're working on how do you get to 15%? But operational flexibility is a big, big deal and allows our utilities to use gas turbines in lots of places, where before, you usually just turn them off and then wait a couple of days to turn them back on, they trade them off against one another in the system.

Our heavy duty gas turbines is one of the core products in the business. This is just a slide on two things. One, on how we're improving the efficiency. Our F805 is the new product that we're working on right now. We'll actually have a public launch of this next month in Greenville with a lot of our customers that are interested in the product. This is for the 60 hertz market. This will have a new compressor. It'll have some of this operational flexibility down to the low levels that I'm talking about. It'll also have a coupling with services, meaning we're going to expand our technology in remote diagnostics.

We're going to have the features on the turbine and in the control system that enhance the ability of not only us, but our customers, to monitor the turbine in service, look for things like premature wear-out or emissions compliance. Or lots of other things that they can't physically get to today with the sensors technology that's there today.

And then large baseload, another big space for us, we started the technology work on the next 50 hertz large machine, what we call the 9FB. That work has started today. The goals for that project is an air-cooled machine at greater than 60% efficiency. And that's a big move, our competitors have also talked about making moves like this. We're no different. We're in the game. We don't talk about it publicly very much, frankly we don't want to share the details on what our thinking is of how to get there, but the technology programs have been underway now for a year, we're actively working at the next 50 hertz product as we go forward.

New products, just as the landscape changes over time, as the business grows, as Steve described, we're constantly trying to create new technologies to give the business even more ways to grow. We've talked about a lot of the things on this chart, but I want to stop on this one on expanded partnerships. Because this is one where we might actually see more of this kind of thing happening.

We had some discussions with MHI, which is actually a competitor of ours in most of the spaces we operate in, including steam turbines. But as we thought about the next generation steam turbine there's some things that we do extremely well and we think there's some things that MHI does extremely well.

So we had a conversation with them about what do you think about the next generation combined cycle turbines and maybe working together on that. Let's see if we can work together, technically, to see if we can make an even better turbine than either one of us would make on our own.

And they were open to that idea. In fact, so much so, that we signed an agreement do just that. We're now co-developing the next generation combined cycle steam turbine; we're doing the high-pressure section and an intermediate pressure section. They're doing the low-pressure section. Today, we integrated into one system. We're going to combine the technologies from both companies to actually take a leap ahead of where steam turbine technology is today.

And that's just one example that's working extremely well together and as I said, as we learn how to do that with partners like MHI, we may do more in the future.

A little bit of expansion on the wind turbine piece that we've already talked about this morning. This is kind of a history, if you will, over the last 7, 8 years, of the 1.5 megawatt wind turbine that we got from Enron. In 2004, we really put our nose to the grindstone and worked on this reliability issue with the turbine. That was the biggest need at the time. Make the turbine more reliable. That's what we did. There were lots of things we did to that turbine's hardware to do just that. We improved the reliability of the gear box. We improved the ventilation of the top box so that it wouldn't overheat. We improved some of the power electronics, so that they wouldn't trip so often offline and wouldn't be so susceptible to things like wind gusts, that happen periodically, but don't happen all the time.

A lot of that work is what improved the fleet reliability by 13 points. Next, on the 1.5 XLE, we actually designed components ourselves to put on the turbine, instead of relying on a supplier to design a wind blade, for example. And we buy their wind blade.

We now have a GE designed blade that several suppliers make. So it's GE intellectual property, it's the latest GE aerodynamic design. It's GE's design for a low noise control, which is what we're really good at. The tip of the blade is optimized for low noise. And we own a design. So we shop that design around and we have several suppliers make it. It helps us get the cost of the blade down, because we compete it now, but we own the design.

The same thing happened on our power electronics side. We own the power electronics now. We actually make a lot of the electronics in our Salem, Virginia facility and gear box. We actually are working today on a GE designed gear box that's just about through development and we're going to own our design for the gear box and do the same thing like we do with blades. And that is shop it around to different suppliers and we own the intellectual property now and we'll have several people make it.

The value of working on all this stuff, if we just look at reliability and what it's worth, or capacity factor, which is a way to measure efficiency on our wind turbines.

A 13-point improvement in capacity factor provided the customer $650 million of value per gigawatt; $200 million just from improving reliability by 13 points. This is one of the reasons why you hear us talk about value gap and the fact that we were able to raise price on a lot of these turbines more than what we saw in inflation for the materials themselves. A lot of it's because this is what differentiated our turbines in the marketplace and allowed us to do that. And that's one reason the wind business has not only grown, but grown in profitability.

The Jenbacher, these are machines that are -- think of big diesel engines. Piston-powered type machines, except they don't burn diesel gas. It's not like our locomotive engines, which are kind of a cousin technology, if you will. These engines burn gas, they burn natural gas. They're designed to burn natural gas, landfill gas, coke oven gas, all of these different gases that people want to burn now, particularly with renewable energy requirements that say methane, for example, should be used and burned as a fuel rather than released to the atmosphere.

Why do they say that? Because of the -- a pound of methane is 40 times more potent as a greenhouse gas than carbon dioxide. So 40 to 1. So policy makers realized this and start to drive policies, it's not just policies about carbon dioxide. Its policies about all the greenhouse gases. And if we have a large landfill that creates lots of methane, one of the ways a community can improve their greenhouse gas situation is by burning it. And that's what the Jenbacher machines do. It's just the right size for those kind of operations.

Industrial operations that produce biogases and coal mine gases, the same thing; they produce gases and rather than release the gas to the atmosphere, they want to burn those gases in a machine and make electricity. And that's what the Jenbacher machines do.

Tough waters, we talked about water already this morning, so I won't dwell on this. But as Steve said, our focus has narrowed, if you will, in the water business, to start focusing in on the tough waters. And not be a water business that does everything, but start to narrow that focus and go deep on what we call tough water.

So whether we're talking about oil sands and the tailing ponds that are developed in oil sands, the objective is to take the water in those tailing ponds and reconstitute it for industrial use. Not to make it drinking water, but to make it water that's good enough to be reused in the industrial applications.

And that's important because that means they can use that water over again and not have to draw water from the fresh water sources that we do want to use for drinking water by the communities that have these facilities.

So working on tough waters is really what the water business is going to focus on and is focusing on now whether it's unconventional gas or mining, each one of these industries has a unique need for regenerating their industrial water use. And that's the focus of the water business as we go deep here.

So the next 20 years, again, just go back to the very first chart that Steve showed. Electricity demand is going to double. It may go up and down, it may go faster some years than other years, but in general, looking out 20 years from now, it will be double what it is today.

Clean water demand will be three times what they are today largely driven by industrial processes, as much as just drinking. And it's the industrial side that we're going after.

And then we just think about the world's appetite for oil. When you break it down, over the next 20 years, there has to be five new Saudi Arabia's that come online.

So the potential for technology and the scope of the market for oil and gas, whether it's our oil and gas equipment or downhill -- downhole drilling or the trees that are used subsea on the floor, it's a huge market for us and of course our technology is to get cross all of those areas and use the scope of the company to be successful and to grow there.

So, with that, I'd like to introduce Jeanne Rosario, who's going to talk about aviation.

Jeanne Rosario - *GE Aviation - VP, General Manager - Engineering*

Well, good morning. I think I'm going to take you from generating power at sea level and like a subsea level to about 30, 40,000 feet in the air. So with that, let's see. Okay.

I think it's important though, before we look out at future opportunities for GE Aviation and aircraft engines and systems, that we take a look maybe back at our past and look at where we've been, how we've been successful. If you look at the last 30 years, you can see the GE share of the commercial engine fleet has grown from that tiny little sliver of about 6% to more than 60% of the GE CFM products today.

So we have -- how did we do that? We did it, like Steve said, with great product management and great technology that differentiates that product. It's as simple as that. It's as tough as that.

And how are we going to do it in the future as we look out to the future in the next 20 years? We see 17 big plays for GE Aviation that we can count, that we know of today. We have a line of sight as of today. And that's -- totals about 30,000 aircraft and about $1 trillion.

So we want to play the same game as we've been successful with in the past 30 years. As we look out to the future; great product management, knowing what airplanes are going to be successful, taking those big bets, getting on the right airplane with a great differentiated product.

If you look at our installed base growth, now it's -- you see it by thrust range, but this really installed base growth was generated by a couple of factors. One is we have a -- something we call a derivative engine. Mark talked about having core technologies, new technologies and to be able to architect that into systems.

Derivative technologies, you want to get on as many airplanes as possible. And you want to leverage your technology spend as much as possible to create these differentiated products.

So our strategy is to architect, using great technologies, architect a very versatile engine, an engine that has a thrust capability range that'll suit many product applications. And most importantly, architect an engine that has thrust growth capability.

And that's been very key for us in winning some very nice positions on some of these aircrafts, like the 777. Because we have the capability to grow that engine to 115,000 pounds of thrust, we won a sole-source position on the 777.

So technologies are key. Systems are even more key in that you want to provide the flexibility and the growth capability and leverage that technology spend.

This has done -- has served us well in terms of growth of the installed fleet, which you now see. We've been able to triple the size of that installed base every ten years. Every ten years with this strategy.

So we had some pretty remarkable statistics and milestones that we celebrate and as you look at some of those different market sectors in the commercial aviation, starting with the regional jets and going down to the narrow body, which is really the workhorse of the commercial fleet today on the CFM56 engines, we have multiple models, we have 25 years of successful growth with CFM, 20,000 engines out in the fleet today with over 450 million flight hours.

That track record has been repeated and is on the way to be repeated by the GE90 and the GP7200, and with our newest entry into the commercial aviation fleet, the GEnx.

Now we wouldn't be able to sustain our track record and our great installed base without a great services business, with our commercial engine sales. So today we're tracking through services technologies, we're tracking more than 20,000 of these engines, providing great insights and advice on how to -- how our customers should manage and overhaul these engines.

But more importantly, we also use technology, so when those engines come into the shop for overhaul, we have new technology, new parts that we can put in the engine that give the customer value. And we have innovative repairs that can keep the costs of that overhaul down for our customers.

So as we look out to the future, to this $1 trillion opportunity as we see it today, it's important to know what the customer is focused on. And so we listen to the voice of the customer very carefully.

Now there's two things that are givens. We have to provide the power, the thrust, that the airplane needs. And it has to have a remarkable safety record.

Those are givens. And we spend -- I always say that my 5,000 engineers, each and every one of them is a safety engineer first. And I remind them of that every time I get to talk to them.

And we have a remarkable safety record because of that.

But we know that out in the future, that fuel burn is going to be king. At least that's the way we see the world today. Because not only is the price of fuel going up, but for every pound of fuel that you burn, you generate three pounds of CO_2 and so it has an environmental impact as well.

If you lower the fuel burn, you lower the operating costs for the airlines and you improve the environment. That's kind of a win-win proposition.

So we're very focused on fuel burn, but we know we can't forget about the other environmental impacts too. Community noise is very important, especially as traffic is increasing and tight airport spaces, where there's lots of community around. Particularly, now there's noise taxes and other costs of operating if you don't meet the right noise requirements.

Also we know that NO_x, which is also a particulate produced in combustion, is of growing concern, of growing importance, not only in the land-based units that we have, but now up at altitude as well.

We have taken a very proactive approach on NO_x and CO_2 by new combustions systems that have cut NO_x levels by 50, 60, 70 and we're going to 80%.

Costs are very important, not only acquisition costs, but the cost of maintaining that aircraft engine over its long life cycle, which can be 20, 30 years, easily.

And we have to do all of that with great reliability track records.

The technology investment that we have in place to support this pipeline of technology, and new product development, has been sustainable over the years and growing year after year. So you can see that some of these technologies have to be started ten years before they get introduced into a product.

So that pipeline of technology has to stay full, the business is committed to us, to developing those technologies with a healthy amount of R&D.

And in fact, if I add our new aviation systems business R&D spend, our '08 R&D spend is up to, I see it's included, up to 1.8. So it's growing. And it's producing great products; like the Airbus A380; our GP72 engine, which is a joint venture between us and Pratt Whitney; the GE Honda, a new venture into business aviation; the GEnx on the 747-8 and the 787. And our CF34-10 engine, which is now in flight test in China on the ARJ21.

So these new products, a lot of them currently under development or just entered into service, really are the benefits that we enjoy from that R&D spend.

So we can ask ourselves a couple of things. Where is that $1 trillion of opportunities and how are we going to position ourselves to get a great market share of that opportunity?

We know that some of that opportunity is in replacement, replacements of some of the commercial fleet that we enjoy today. We all are focused on the next narrow body replacement. Airbus and Boeing are continually looking at options for when they'll come out with a new airplane and we have to be ready, with technology off the shelf. When they're ready, we have to be ready to go too. And we have to be able to go with a very competitive engine.

And then we know, for at least for GE Aviation, we've got some new growth sectors that we're getting into. I showed you the GE Honda engine. We have Walter's engine as well. And so we're getting into the business in general aviation in a big way. And we're working more proposals to get on more aircraft platforms.

The great thing about it is we can leverage the technology development from the -- from our current market sectors into these new market sectors to really create competitive, differentiated products and win positions there as well.

We do this through -- I'll go back to what Mark said earlier, we've got core technologies and systems. And so you'll see, as we're able to leverage our technology spend, to cover more market share, more products in the market, we really are focused on developing technologies, core technologies and new technologies that can span all of these market sectors and the second thing is we architect systems, using those technologies, that are very competitive to each one of these unique market spaces.

One of the ways we do that, and that we're preparing for the future, is what we call the eCore. Now, this is getting a little technical, but the -- think of the core of an aircraft engine as being the muscles for the engine.

We generate the power in this core, which is a compressor, a combuster and a turbine. We generate the power that turns that big fan in the front of the engine, that generates most of the thrust, and that's the fan you see when you're boarding an aircraft and you see that nice span that looks like a GE composite fan looking at you and you know you're going to be on a safe flight.

So the core is the central part or the muscle of the aircraft engine. And usually about half of the fuel burn advantage we get out of the next generation engines comes out of this core.

It runs in a very harsh environment, temperatures, like Rick said, that are higher than the melting point of the material, velocities of the gas that are extremely high, pressures that are like equivalent to 700 feet under water.

And so, it's a very harsh environment, it requires a lot of engineering. We start at usually ten years before we think we're going to enter it into service.

But again, back to the architecting. We architect a system here, a core system, that's highly efficient, great on fuel burn, low emissions, great turbines to turn the big fan up front, but we architect a system that's scalable.

So we're under development today of a core that's perfect for a narrow body replacement. But we can scale that down, we can scale that system down, all that technology that goes with it, and we've got a core that's perfect for regional jets and business aircraft as well. And that's what we're up to.

Here's the core, a little bit more about the core and some of the technologies that are in it. I talked about the compressor. You've got a great compression ratio in as few as stages as possible. Low emissions combustion to help the environment, meet our regulatory anticipated requirements. Great turbine arrow, so you can extract the work out of that expansion of the hot gases. And a lot of what we focus on in this core is very light weight materials. Because unlike Rick's turbines, who have the -- who get to sit on the ground, we have to get our turbines up into the air, and so weight is of primary importance in aircraft engines.

And so we work a lot on material systems that are very lightweight and then, of course, we have to execute great coatings for the different environments that these engines do fly in.

A little bit more about that compressor, because it takes so long to develop these compression systems, we look at our competitiveness and we think we have the world class compressors out there. The most efficient and they have a reputation for being stall free.

What does that mean? When you're flying through hailstorms or water or you're landing in ice, these compressors keep working.

They can handle all the environmental issues that aircraft fly through and these compressors keep working.

You can see that the polytropic efficiency really is the efficiency of the compressor, but that doesn't tell you how many stages you get that compression ratio in.

If you look at stage pressure ratio, that tells you how much compression you get per stage and it'll tell you how short the compressor can be and how many stages.

Why is that so important? Yes. Nobody can probably think of that right off the top of their head, but I'll tell you. It's because you want a great compression ratio, highly efficient, but you don't want it in 20 stages or 15 stages. You want to keep it short, keep the acquisitions costs down, keep the maintenance costs down.

So the technology trend on this chart is from the bottom left corner to the top right. And you can see our GEnx is our most efficient, high tech compressor out there today.

So the core isn't the only technology we have to develop to get great engines, although it is at the heart of our engines. We have a suite of technologies. I'm showing you one of those suites of technologies because I told you how important it is to get the weight out of an aircraft engine.

The weight will give you range or give you fuel burn. So we're working on driving the weight. Every couple of hundred pounds we get out of an aircraft engine, if there is four engines on that airplane, we can put four more passengers on that aircraft and the customers, our customers, love that, because it's revenue for them.

So we've been working composites, lightweight composites and lightweight metallic structures that we can put in the engine and remove hundreds and hundreds of pounds of weight out of each aircraft engine.

We've got the composite fan blades that really started back in the 1980s with our open rotor. We have the only commercial composite fan blade out there, flying on our GE90 and our GEnx engines.

We've now moved on the GEnx engine to a composite containment case around those blades, removing several hundred pounds out of the engine. And we're working on, today, lightweight metallic structures for the hot section of the engine. You're going to see, on the lab tour, a very innovative metallic blade. And you'll be able to pick up the old metallic blades with the new one and see the difference that we -- that is made and we use hundreds of these airfoils within a gas turbine engine.

And so ceramics for the high-temperature turbine, a third of the density; doesn't need the cooling air, so we return the cooling air to the cycle to create better efficiency and fuel burn. So lots of work; we're working on extending the use of these composites throughout the engine.

Also with our aviation systems acquisition, we're garnering new ways to reduce noise and to reduce fuel burn to increase our fuel savings for our customers. And this is in a flight management system that our aviation systems and avionics package is working on.

And really what you could see in the bottom left corner, the trajectory, the step descent trajectory that most aircraft, around most busy airports, come in at. This new flight management system is a very precise, control of the descent into an airport. It can come in on idle, which reduces the noise to the ground and save, it comes in on a straight path, because of the precision of the system, and it can save fuel burn.

You can see that red line versus the green line, the two different trajectories. In addition to that, when this is put in place at airports, we, because of the precise control, you can open up new gateways, so new gateways.

And what we've been able to demonstrate is we can go from like 4 to 6 different gateways for getting more aircraft in and out of an airport within a given day.

So our pipeline is filled with technologies. I've talked about a few of these today. You're going to be able to see a few more of them as you walk around the lab, between composites, combustion, flight management systems. And remember, I said the key is architecting those great and new technologies into systems that win in the market segment, that provide a differentiated product that win in the market segments that we play in.

So we're looking at integrated propulsion. Integrated, highly integrated, systems are where we're headed. We have the expertise to do that and we see ways, and we're working with the air framers, to show them the ideas that we have when we integrate the engine into the airframe, we can save a lot more weight and we can get better fuel burn and better systems for the aircraft. Including electric power, the engine is the power generator on an aircraft, so how do we take advantage of that and get better power, transformed and distributed across the aircraft in a more efficient way than its being done today.

We talked about the core and we talked about some new and unique architectures that we're also looking at out in a further time frame.

So all of these technologies have a time line associated with them and we try to accelerate with the great collaboration with GRC, those technologies, so they're ready on the shelf.

If you look at how we can, just in the current narrow body game, with the replacement for the CFM56, we look across those technologies and the architect of those technologies and by 2015 we can get about a 20% fuel burn advantage. If you look out a couple of more years, to 2016, 2017, that's up to 16%. That's as these technologies mature and we can integrate them into the architected system.

And if you look out even further, 2020 and beyond, we're looking at some very new and innovative step changes in fuel burn and we're working with Boeing and Airbus on both of these applications.

And you can see that the long time line it takes to really make these evolutionary steps in fuel burn.

But we are working on that generation out there in 2020. What is this? 2009. So we're working out there pretty far in advance already. We've flown this open rotor in the '80s. We've gotten a lot of experience on open rotors. We know that it offers a big step change in fuel burn, but we also know what the problems were with it when we flew it in the '80s. We garnered a lot of experience and expertise on this highly integrated system.

So we're working on the things that really prevented it from being -- going into the market back in the '80s, the mechanical complexity, as every one of those blades articulate. So there's a lot of mechanical complexity. We have new ways to do that today. We're working on rig tests to demonstrate the simplicity of some of the new ideas we have to architect the system again. And we're also working on noise, because noise was a factor. These large 14-foot diameter blades, having two of them counter-rotating creates some noise.

We have noise technology up here at GCR. We're working to design new blades for the open rotor. That's the focus of the net. We're partnering with NASA. And we're testing those new acoustic technologies with NASA in the rig test that we have going.

So it's my turn to introduce Mike Harsh. Yes, I guess we've got a couple of questions.

QUESTION AND ANSWER

Unidentified Audience Member

Yes, I mean, in a lot of your new big engines, you've got joint venture partners, obviously, in the EA, 7,200. But even in the GE90 and the other engines you've got strategic partners and I was wondering how easy has it been to bring them along and to share the R&D that they would be required to contribute? And are they in fact sharing as they were anticipated in program inception? And how do you ultimately decide who benefits from the technology that's developed? I mean, is there an overlap? Is it shared?

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Right. We do have very strategic partners and relationships around the globe. And we think that works to our advantage.

We're able to identify and mature and wrap some of these new thoughts and technologies into our products. We do have a sharing. We keep -- we have an approach, like on the GE Snackman, we're 50/50. So we have a joint technology agreement. We keep track of our R&D spend. We make sure we leverage that R&D spend. We don't want to be, necessarily, focusing on the same things, doing it twice, two different ways.

So we have a very tight integration with our Snackman friends. We developed new and unique technologies. When it's prudent for us to share that technology, to make a better product, we make the arrangements to go do that.

Unidentified Audience Member

Yes. Snackman has obviously worked, but I mean how about on the EA 7000 and on the GE90? It doesn't reflect of all the -- you've had strategic partners on those programs --.

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

So -- right. No, I had a very personal experience --.

Unidentified Audience Member

And on the GEnx as well.

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Right. And I had a very personal experience on the GE 7200, because I was the manager at the time and Rick was my boss at the time. But -- and the way we work that relationship is we did the core. You saw the core up here. It's -- it runs on a single spool and Pratt and Whitney did the LP system, which is the LP turbine that turns the big fan up front.

By separating our involvement into two different sub -- major subsystems of that aircraft, we are able to work somewhat independently with our own IP to develop the best products. And where we had to come together and really share was where those systems touch functionally or physically.

And so we are able to partition off some of our own IP and respect each other's IP, but we're also able to come together and work together very efficiently to make that system work together. And actually it actually worked to our advantage because I think as you looked at the performance and the integration of those two systems, each team scrutinized it and then had to come together to reach a consensus and it worked to our advantage because I think that was one of the -- a very successful entry into service, the first year of service.

Yes?

Unidentified Audience Member

Up at the mic.

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Oh. Oh, sorry.

Unidentified Audience Member

What are your customers telling you on the next generation narrow body engines? I mean, do you think there's going to be a next generation turbo fan or do you think that you'd better wait for open rotor technology in 15 years time?

And do you sense that Boeing and Airbus might go in a different direction than this?

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Yes. I think that the world won't want to wait until 2020 for the next improvement in commercial aviation, particularly on the narrow body. And I know that both air framers are studying what they want, looking at our pipeline and the technologies and looking at their own pipeline and technologies and their capacity. They're both studying very intently how the -- how to position themselves.

But I think -- I don't think they'll wait until 2020 to -- for the open rotor. I think they're both very interested in the open rotor and other unique concepts. It's not the only unique concept we're looking at. But we know that we have to look beyond 2015 at the next generation, start working on that today.

Unidentified Audience Member

I'm not quite sure how to word this question, but I suspect you're going to know how to answer it.

When you look at incremental improvements to engines, how driven are you in either your strategic focus to go in that direction, so that you can retrofit, upgrade, modify the existing fleet to your advantage and your customers' advantage? And do you have any idea what's a relevant way to measure that percentage of engine turnover, something along those lines.

So I'm trying to get a sense of how you direct improvements to existing platforms.

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Yes.

Unidentified Audience Member

To your benefit and your customers.

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

So, I showed you the one chart that showed you these component technologies. Because we use a similar two-spool architecture --.

Unidentified Audience Member

(inaudible question - microphone inaccessible)

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Well, we -- a similar architecture, engine architecture, in all these platforms. These component technologies, a lot of them were able to drop in. And we're developing those component technologies, we always have an eye to the services to make the current installed fleet better -- perform better. We want to extend the life cycle of the current installed fleet. And we want to give our customers a reason for continuing to fly our engines, because we want to keep them differentiated.

So the component technologies, we have a keen eye to aiming the direction of those as upgrades and refreshments to the fleet, but we also know that they're very applicable to the new engines.

Now the new engines will re-architect the system somewhat, bring those technologies together in a new and efficient way to drive even more advantage.

So when you put a new technology into an existing aircraft, you're going to get 70, 80, 90% of the benefit of that technology, but you're somewhat constrained, right?

When you architect it as a new system, you can really get the full advantage. And that's why I said we're really looking at highly integrated systems, including the propulsion system around the engine, really from the pylon down. And now with aviation systems, we can take that integration a step further into some of the aircraft systems as well.

Unidentified Company Representative

Why don't we take one more, then we'll keep going with the presentation.

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Do we have one more?

Unidentified Audience Member

I have two questions.

On the previous chart, with fuel consumption, how do your next generation advanced turbo fans compare to Pratt and Whitney's GTF?

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Yes. We --.

Unidentified Audience Member

And the second question is, how big is the technological overlap between the power turbines and the aerospace turbines and how do you lever up on that overlap?

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

Okay. Do I get to answer both of them?

Well, I'll answer the first one. Because we have a keen eye to the geared turbo fan. We actually designed and built and tested geared turbo fans in the '70s. Okay? So gear box technology in itself isn't a new technology, although it has to be very reliable, because any metal-on-metal contact in an engine is kind of an Achilles' heel of a gas turbine, right?

So we've studied gas turbine -- geared turbo fans. We've run them in the '70s. We've designed our version of the gas -- of a geared turbo fan. We understand what efficiencies are to be gained and what set backs there are because you have to bigger heat exchangers, more systems to operate a big gear box like that.

We studied. So we studied our advanced turbo fan. We've studied a geared turbo fan that we would design. And we've made our decision with the advanced turbo fan because we think we can reach the same efficiencies, the same fuel burn advantages without the mechanical complexity.

So we don't think that step is a step we need to take and add a lot of mechanical complexity, which can add to unreliability of an engine. Now, as we look out to the open rotor, that's where the mechanical complexity will come in. And that's why we're working it today, even though it's out in 2020. So that's the answer to your geared turbo fan question. We get that question a lot.

How Rick and I leverage? We are tight. I used to work for Rick and the technologies are the same. We share a lot of the tools, the technologies, the material technologies, the aerodynamic technologies. We have our teams meeting through GRC. They really pull us together and into the oil and gas industry. So there's a lot of sharing, that really leverages that technology spend. Tools and repair are two big examples.

Rick Stanley *- General Electric Co. - VP, Engineering - GE Energy*

Jeanne and I have one team that owns the (inaudible - microphone inaccessible) the analytical tools, there's one team. And, of course, there's both of us, repairs and technologies. It's one team that reports to both of us. The physics of how a land-based turbine works when it comes to the aerodynamics and the just the spool itself is the same.

Weight's a big difference. The combustion system, if you look at the combustion system on a gas turbine, very big, very heavy. There's a benefit to that, because you get very low emission levels. Much lower than we get on an aircraft engine. But aircraft engines, because it has to be lightweight, uses a straight-through system, the emissions aren't quite as low as a land-based turbine, but that's a big difference. And so you see pockets of differences like that, where we optimize, but there is a lot of overlap. A lot of overlap.

Jeanne Rosario *- GE Aviation - VP, General Manager - Engineering*

All right. Thank you.

PRESENTATION

Mike Harsh *- GE Healthcare - VP, Chief Technology Officer*

Thanks. Okay. Thanks, everyone. I'm Mike Harsh, the CTO for GE Healthcare. I had just a -- I'm just thrilled. It's really a privilege to be up here today. As Jeannie was talking, I'm looking at this chart. And I read this line, 30 years at GE. I want to let everyone know, I feel like I just started here last year. I just -- when I have a chance to reflect upon how much has changed, I've spent most of those 30 years in GE Healthcare, whether it be imaging, instrumentation, IT systems. The fundamental changes that have taken place in healthcare, when I think back at these 30 years, and we talked last night to some folks, the whole concept of exploratory surgery was common practice when I got out of college and came to GE.

We wiped that out. I mean, you don't cut people open anymore to figure out what's going on. We've got enough medical scanners and technology. The fundamental breakthroughs that happened at this research center that really became the foundation of GE Healthcare that have changed how medicine is practiced. And so just having a change to reflect on those 30 years, I realized just how much has really changed.

When I look at the outlook at Healthcare, there's a lot of different ways you can look at it. One thing I like to think about is the population is increasing every year in the world. People are going to get sick. They're going to get older. The demographics are in our favor to some extent there. We do have to move the system from a sick care system to more of a healthcare system, when you look at how the costs are distributed.

But there's billions of procedures performed every year in this world. And if there's anything we can do to get in on those billions of procedures and help the system in terms of reducing costs, providing better outcomes through quality, giving better access, you know that we're going to be able to grow this business and make more money at it.

If you look at just how healthcare is distributed around the globe, I think the stunning numbers are in the bottom, those are in pounds. So you can normalize it. But when you look at per capita spending in developed countries versus developing countries, there's a huge disparity. So there is at least a 10x increase that we can get by just bringing healthcare and increasing the access and -- of healthcare around the world.

So if you look at basically the dynamics of this market, there's much more that we can do going forward.

For me, this is an interesting chart. We had a chance to put this together and kind of reflect upon it as we went through our growth playbooks. When I first came to healthcare, back in the late '70s, I remember CT scanners had just come out of the research center and those images looked pretty cool, but in retrospect, they're not so good today.

But that was 30-something years ago.

We basically founded this company as an X-ray company and sort of grew it from there into the five fundamental ways of imaging.

But for the longest time, it was basically anatomical imaging is really what started everything.

If you really take a step back and say what's happened? We've moved from anatomical imaging to a physiological imaging to bring that in.

And then you look at the breadth of this company and what we've been able to bring onto it. When I take a look at the -- what we've done around the medical diagnostics, the contrast agents, the IT systems, the radio pharmaceuticals that we can bring into it along with life sciences, we're starting to move more and more from anatomy and physiology to metabolic imaging and now connect those dots. When I look at how pharmacology plays into it and in vivo and in vitro diagnostics and we bring that together with our IT systems and solutions, that's what brings the power of this company together.

I don't know any other company that has this type of capability, the way of connecting the dots or a global research center like this that we can actually bring this together and bring these products to the marketplace.

So that's -- when I get up in the morning, that's what really jazzes me up about the portfolio we've got and the technology that we can bring to the healthcare industry.

A couple of things I want to talk about. I've spent five-plus years of my career designing MR systems. This product we just launched last month and I just wanted to spend a few minutes on it. There's been this thing about wide bore and open systems for quite awhile. And you want to make sure when you do these things you do them absolutely right.

What we've managed to release here last -- just a couple of weeks ago is truly a revolution in wide bore.

So we've got a system now that's shorter. So instead of 1.7 meters, about 1.4, we've brought that down 30 centimeters. We've opened the bore up another 10 centimeters to a good 70 centimeters of bore. But what we did is we did it in a way that does not compromise any of the imaging capability of that system. Because it's short, because we have what's called high homogeneity, we can load somebody in with their feet first. So you're not claustrophobic if your head's not in there and you're not trying to image their head. We've been able to control the field out to that edge.

We've been able to control the field with such high homogeneity, I'd tell you that shoulder image that you see up on top or that hip image, those are exquisite images. I mean, I just -- to me, coming from MR all those years, those things are just gorgeous images when you look at the fat saturation we've been able to pull out of there.

Now if you've done anything with MR, you realize that the frequency at that is 1.5T of 64 megahertz. That fat signal you're trying to get out of there is less than 60 hertz. So if you do the math, you're talking about some very, very fine instrumentation you have to have to be able to pull that type of an image out.

These are great images. We launched it. We started taking orders. We've been -- this thing's just been a rocket since we released it in the last couple of weeks.

CT has been a very interesting thing for me and I want to spend a couple of minutes on this. We've got a Discovery CT 750 high def scanner that we released. This -- we continue to be in the CT business thanks to our research center and some of the fundamental breakthroughs that we have.

If I go back and think about CT, when we had the first head scanner, I won't get into all the math, but it was really quite simple. We were just taking a bunch of shadows essentially and then reconstructing an image through just brute force math and some array processors.

We knew the mathematics of how, basically, to do a better back-projected or solve that inverse problem to come up with image years before CT scanners came out. But the computational horsepower became available in the '70s that we could pull it off.

Right after that, techniques came out called filter-backed projection. That's what FBP stands for, which has been the workhorse for how you do image reconstruction for the last 30 years.

Now, that assumes you know nothing except for you have a data set and from that data set, you can make an image. We've known for 30 years that there are other ways of reconstructing images that are much more clever, that have a lot more advantages. Because it's a problem that you understand. You know the statistics of the image. You know that you're dealing with a person that has anatomy. You know a lot about the photons and the optics and everything else about a CT system, but to pull that into an algorithm, to a computational power that frankly we didn't possess. Well, we did, we did it at a research center, and some of the reconstruction times were measured in days or sometimes weeks.

But we knew that we could do much better over time. We just released a technology called adaptive statistical image iterative reconstruction, where we start the model of the system at a very low level and we've been able to do things like get, in this case, absolute equivalent -- if you look at that [A-serum] image on the right, the equivalent image is a filtered back-projection with essentially 40, 60% less dose, 80% less dose when I'm looking at a heart scan.

So with a lot less photons and a lot less ghosts, through thinking about reconstruction processes different, I can deliver similar image quality.

Now we've just scratched the surface. When I take a look at the algorithms that we have at the center, when I've been out here working, things that I know that they still have in their labs, there's much farther we can go here. We just have to get added. And as the computational systems become more and more powerful, we'll ride that curve, we'll surf that technology and we'll get that in our CT scanners going forward.

Now, there's other dimensions that we haven't played around with a lot, well we have, that we can start to leverage. And the fact is we've done a lot of fundamental material characterization and material science at our research center. We have a CT business today because those fundamental breakthroughs in material science and detectors have come from our research center. We have a new simulator detector called Gemstone that came from our research center, for many years. That gives us the ability to really, finally take a look at the energy spectrum. Up until this point, we're just looking at shadows. But the truth is, there's color there. We can start to separate those shadows into different spectrums and from that, drive much more information about the material decomposition of what it is we're imaging.

That's where we're headed with CT. It's an area where there's been active research here. In particular, it led at the center for many, many years. You know, we're going to get this in the product going forward, and I think this will be our next big break through.

And we know how to do this. We've leveraged this technology between the inspection technology side, between the security side, and it's a matter of being able to do it now at a dose level that we can get into medical imaging.

Ultrasound, for me, is a special point. I got to be quite honest. I spent 11 years of my career designing ultrasound scanners for GE. It was kind of funny when I thought about it the other night. I think that first year if we sold $8 million that was a big year. I think it's right now our biggest, most profitable business when I take a look at healthcare. The fact that we've had a chance to really grow that thing, first organically we tacked some things on inter-organically and to be able to nurture those business and get them to grow and really have that entrepreneur spirit.

The first time we built an office sound scanner, I didn't think we could make it small enough to roll in that door and run at 120 Volts. We pulled it off, and we pulled it off because we did the first digital beam former at the research center. Up until that point, ultrasound machines were built like 1940s TV sets.

And the fact that we actually had the technology and the chips and be able to shrink that down and do it digitally was a big deal in the 80s. We've been riding that curve ever since. If I look at medical instrumentation, and in particular ultrasound, we're on curves now when you look at the electronics industry and where we're headed it's possible to make sure that we can drive cost down, performance up through innovation by really making sure we're on top of where the electronics industry is going, and the computational systems are headed.

If you look at that ultrasound today, it's unbelievable the amount of computational horse power that's in that machine. It's a tablet PC essentially, that I can pick up and move around. You don't see all those knobs that you normally see on an ultrasound machine. This thing is simple, can't miss, easy to use, we can start to take out into rural health, we can use it at bedside for biopsy placement. This thing is a very, very versatile instrument, much more than you've ever seen. It has very low power, and I tell you, what used to be a simple ultrasound probe, most of the beam for wind up is in the probe today. So in the end, you can imagine how we want to get these probes to be more and more like the system in a chip or system in a probe with almost like the USB connector that plug into a computer.

Now we're not there, but this is the kind of concepts that we have and where we can take this technology. The idea at some point is we have an ultrasound small enough to fit in your shirt pockets. I know Mark had seen it when I was first out here, and you know frankly, we want to have ultrasound to be the electronic stethoscope for physicians in the 21st century. This is where we're headed with this technology.

Now, we need to pull this all together, and when you look at clinical information systems, I think the quote at the bottom says quite a bit, from Dartmouth Atlas Project, there's over $120 billion dollars spent on a study they did, and just by looking at how [male practice] medicine, you know, there could have been about a $20 billion savings.

When we look at the Intermountain Health standards in terms of how they practice medicine we could have squeezed out $40 billion, thirty-some percent. That's a big number. So you get at that, you got to think about what your clinical information system is. So what we did, and what we had done previously is we had partnered with Intermountain Health, to really come at and to really design a revolutionary, new enterprise clinical information system, ECIS is what we call it.

Now look it. This thing is an interesting architecture for me because at the time we were really pushing the technology. I think it's really starting to come into play right now, but you know people now talk about it like its old hat.

You know this is a service orientated architecture so if I take a look at how we go forward with this thing, how plug-ins happen, this isn't --. Something new happens, my gosh what do we have to do? We have to rip it out and re-write it. No, we plug-in a new service. So if you look at how we try to normalize the operation, and when you look at the foundation layers that it's built on and how they interoperate between patient access, patient records. When we take a look at how we normalize the clinical information or the vocabulary that's used. There's foundational layers in here that really understand that hey, high blood pressure, hypertension, same thing, bring that together and that way we can really take a look at how medicine is practiced.

You know, this is how we're going to aggregate the data, of how we're going to have visualization analytics. It ought to be a massive space saving for the system. I got 2010 launch if you just understand the goal is December this year we're going to get the first one out. And it's in -- and we've got this thing running at Intermountain Health right now, so it's a matter of getting this thing buttoned up and out.

Alzheimer's is another one, and to me you know when I take a look at the convergence of our instrumentation and our medical diagnostics and our agents, there's quite a bit that we can do. Alzheimer is kind of -- if you look at just neuro diseases in the US, strokes number one. What's interesting in Alzheimer disease is a pretty close number two, and if you look at the diagnosis for Alzheimer disease, the only definitive diagnosis is sort of a post-mortem, take a look at your brain sliced and diced under a microscope. I guess at that point I really don't care, but not something that we want to do. A lot of folks come in and are presented with mild cognitive impairment. They seem kind of disoriented, you know not quite there.

Question is, is there a definitive diagnostic that you can tell whether that's Alzheimer or not? You know we think that we've got a shot at it when you look at the --, it's a GEO67 agent that we've got [feliptomethanol] we call in it now, but it's really a fluorinated PET agent that basically binds to the emboloid plaque and from that through PET imaging that we can actually see that emboloild plaque being developed, which is a precursor to Alzheimer.

Now, there's two sets of images down below. The one on top is basically our O67 agent, which is the emboloid plaque agent, right below it is a C11 agent, which is really the gold standard for PET. You know PETs an interesting modality. For me it's the most fascinating thing I've ever worked on. It's the closest thing to Star Trek, I guess we have when you take a look at it. It's truly -- what you're doing is your basically looking at the neutral inhilation of a positron and an electron.

So it's antimatter and matter, they come together, pure energy is given off at 511 kev, just based on taking that matter in a 100% conversion to energy equals MC squared and from that we're able to make an image. C11 has been the gold standard. The problem with C11 is that the half-life is very short, I think about 20 minutes. You have to have a cyclotron next to it. If we really want to get this out to the masses and standardize this care, we have to move to more of a fluorinated F18 agent where we can get this out. So this is where we're headed with Alzheimer and emboloid plaque imaging.

Your cell therapy, won't say a lot because we're going to put this on a stop today, but you know, we've got a lot of fundamental science going on out here where if we can harvest adult stem cells and isolate these, make sure that -- it's through isolation that we can expand or grow these cells, concentrate these cells and then administer them. That ought to put us in the cell therapy game. Now, the idea here is we want to be agnostic, we don't want to be into the specific cell therapies because that will limit us, but if we're in the process of growing stem cells that puts us in a completely different position. And when you look at that market, that is everything -- we can see it's going to take off. If we have that fundamental technology that we'll show you today at a research center, that were going to pull that into our business.

And one last one I'll take a look at again, how do we think about our instrumentation in our medical diagnostics and unique technology from a material standpoint? You know the research center again is a beautiful place for that. SPIOS stands for superparamagnetic iron-oxide nanoparticles. Now we played with these things for quite a while, and they had plusses and minuses. What we've done in the last couple of years now is really put unique coatings on these magnetic nanoparticles. What this allows us to do is one, they're iron and so they light up when I image these things in MR, so they pick up some very interesting contrast agents. I can put some interesting coatings on it so they become blood pool agents. So if I have tumors that like blood, because they have a high metabolic uptake, they need energy, I can get these things to pool there. And when they pool there, now I can image these things, and I can get a definitive reading. As in, hey there's a tumor here and it's taking -- there's blood pooling going on, and it's using energy.

The other thing we've been able to do, which I found very fascinating, is you can basically coat these things so that they get sucked up by the macrophage. So you're basically trying to get these out of your body, and so they're being attacked to be taken away. When that happens, it's because there's inflammation and through that inflammation and these things attacking these nanoparticles with the coating, I can now image that inflammation within the body. So these are the kind of things that were headed.

When you look at again some of the neurodisorders, if we can look at inflammation in the brain, when I start to look at how plaque is formed, there may be very, very sensitive tests that we can think about going forward as one example.

So that's sort of a quick overview of healthcare. I know we've got some healthcare stuff today that we'll get into some of this in detail. Then I want to just say thank you very much.

I just wanted to introduce a good friend of mine throughout the years is Michael Idelchik. Michael

---

Michael Idelchik *- GE Global Research - VP - Advanced Technologies*

Okay, I've got a lot of useful, what we call advanced technology programs and as we look at that portfolio of what we call advanced technology programs, I want to just reinstate how well connected we are with the businesses. I know those three characters for a long time, and we kind of grew up together in the Company. We know each other, we trust each other. Our staff are connected and what you learn in the company, when leadership works together, teams play together very well, and that's the model we continually reinforce.

So if I look at a portfolio of a project, Jim is involved in them, Rick is involved in them, Mike is involved in them. We're trying to understand what are technology is which will be breakthroughs for our core businesses, and how create unique differentiation in adjacencies. So just browse through that very quickly.

You see the propulsion model, what were playing with, very exciting. Energy conversion, this is a new device we call Silicone Carbyte to be able to process electrical conversion, at high temperature at high frequency. This is going to go right to GE Aviation business. It will change the way power is distributed on an aircraft. Same technology will go to Mike from our business to make large, gradient drivers much smaller.

On our molecular imaging and diagnostics, my colleague showed you two examples of complex media, one of them was [nana complex media nanoparticles]. This is one of the sweet spots nana. It's really about surface in interspace engineering. That's what it's all about. So for GE we're developing new generation of high temperature, nanon enabled coating materials, which will reduce growth and allows us to run our components at high temperature. Same technology is going to go right to Rick. We're developing new coating technology to reduce friction in our bearing systems, in our gigabytes systems. Same technology we're developing for next-generation super alloy.

So as you see, nano is not "what", it's really "how". How do we use nano technology to enable new products and services in our businesses. I'll show you a couple of examples in nano leadership that will go forward, in over 20 material systems this includes (inaudible). You know that GE, first of all company, which created [Olet] through role-to-role process. You don't have to stop on this, afternoon to see that it's a really, really neat process in a same box developing next generations solar cells. How do we use what were learned in Olet, to develop a next-generation solar cell technology. Again, differentiating us in the market place.

In sustainable energy it's a very broad area for us. We cover CO2 separation membranes, high temperature CO2 separation membranes and I will show you why we're so interested in the CO2 separation. We developed next-generation composite system for Rick's relay, under this program.

How do we reduce composite costs to the point where I can deal 55 meter spar which will take -- twist those couplings in a very high wind, with a very low cost. That's what were doing on this program.

So quickly, this is supersonic combustion heater in these engines. This is basically controlling detonations in real time. And what's the first application of this technology? The first application of this technology was actually connecting the dots with our Service business. Today, we shake up residues in the boilers, of M-plants, they're using a (inaudible). Almost four years ago we lifted our detonation tube, we said this is going to work much better, and it does. So we have our destination tube, with fewer patch to it, flies up every time. It resulted in a whole new offering for our Services business.

So this technology actually has a lot of progress. If you look at fundamentals, it's 30% improvement in fuel efficiency, if we get it right. Assuming we're not going to get it quite right, we see our way to around 10% efficiency improvement, which is incredible for combustion technology overall. So we have now fully operational, continued detonation shield running at high-pressure. We are the only ones in the world who have it.

Locomotive business, we been in the locomotive business for a long time. If you look at innovations, we are introducing today in the Locomotive business to make sure that after this cycle, when we come out, we'll have the best machine on the market place. Starts with traction motors, we actually know how to do AC drives today and the traction motor is a system which senses how wheel interacts with the rail, and provides just efficient torque to make sure it thrusts. And as you all know, traction is a key. You know, what do customers pay for? Because he wants to haul the load up the hill, down the hill, on a wet surface, and that's what we control. So controlling that traction very precisely is the key differentiation for our product. On the engine side, we have a whole new way of delivering fuel, and a whole way of managing fuel in particular for this machine.

Energy storage, many of you heard, we developed at the center, a whole new chemistry which enables us to store large amounts of energy in a small volume than (inaudible), and at a much lower cost entitlements than [richyomyon].

Now you say, "Why would GE get into the business?" We got into the business because we want to make sure we can continue to lead in Locomotive business. Now what are the opportunities of technology. We can use the same technology for UPS, we can use the same technology for heavy trucks, we can use the same technology for boats, or tugboats if you want to limit pollutions in the harbor. You just use power when you need to. We can use the same technology in our own house, as a power. So this technology fundamentally is 60% to 70% better in energy storage. Now it's not going to give you a rocket start. You want to drive fast, you go with [richyomyon], if you want to drive long, you go with sodium batteries.

Finally, our air handling system, this is all about how do you minimize emissions while delivering improved fuel economy to our customers. We're doing great, we have the best emission-fuel economy combination of today's engine in our evolution locomotive. And we're convinced that we're going to have the best solution going forward.

Cleaner coal, we have a couple of discussions and questions about coal gasification. Why are we in this domain, and it's a hard place to be, that's not simple technology. This is not for weak at heart, you have a regasification, gasifying the coal, 1,500 [bc] to gasify costs. Then we have to take this gas, we have to clean it, get it to the gas turbine, burn it efficiently, generate energy. What are the benefits? Look at our numbers. From lolanox, lolafox, lolar particulates, much easier mobile method. If you forget about C02 for just a second, this is a much cleaner technology than pulverized coal today.

And if you look at the right hand side, the best in the world, pulverized coal don't come even close to what IGCC can do. Cannot even come close. When you add to it CO2 separation. Where we can now separate C02 on the fuel side, so remember we gasify coal, which means we generate H2 and CO. We can go through the water gas reactor and generate more H2 and CO2. So all we need to separate is CO2 from hydrogen. And then we put hydrogen in an explosion and separation done now at high pressure on a volume which is 100ths of separation which you have to do at the doors. So if you go to [exhaust] and try to separate CO2 your problem is gigantic, gigantic problem.

You have a huge disadvantage because of pressure, pressure is low and you're trying to find something which is now maybe one-twelfth of the total value, rather than being more than half in a high pressure. So that's why we love this technology, that's why we believe this technology is going to win, long term. It's not going to be without growing pains. We're fighting through the growing pain now, but we're delivering it. And the only way to reduce cost of this technology, is through really understand fundamentals of dysification. So we can design the system knowing much better, analytically, theoretically, how to minimize total CapEx and OpEx. So that's why we're in this business.

One of the technology, which is very exciting because I'm an engineer, is molecular pathology. This is outgrowth of our molecular imaging and diagnostics in the technology program. In theory, it's really and adjacency for GE. So we have taken ability to image, very precisely, and we've found a way to make the image a 100 (inaudible) expression on the same (inaudible). We know how to automate it, and we have very good analytics to be able to understand how to present and calculate a relative expression of different proteins on a slide. So what does it mean for healthcare, for doctors?

First time in history we can look at multiple protein expressions at the same time. We recaptured, and analytically calculate what it means, is it for drug delivery, drug effectiveness, or for stages of the disease.

And it's a quote from one of our collaborator from Lilly, Eli Lilly he is the Head of Research in the cancer, this is -- when he saw it first time that was came out of his mouth. He says it's "The Holy Grail in oncology." We have the ability to see something earlier, to see something more precise. Don't have it like 1,2,3 stages. You can actually stage a disease just about on continued basis.

Unidentified Company Representative

What you are seeing here is a beautiful combination of our engineering skills and our biological strength, which came from our acquisition of Energen. So two things are happening here. Michael didn't talk about it but we are building a digital pathology business today with the University of Pittsburgh Medical Center that comes out of exactly that combination of skills. That's off and running, you are going to see some great products coming out. We're going to revolutionize pathology.

This is the next step beyond that, and this has tremendous potential to really change the way cancer is diagnosed, to get much more specific treatments in place. We're going to create another fabulous business out of this one. It's very exciting.

Michael Idelchik *- GE Global Research - VP - Advanced Technologies*

Another job it really addresses is optical imaging. We have just the right variety of skills and discipline in the Center, to look at something which has never been done before. You saw micropathology, you saw power detonation. This one is another example, not described, biologist, physicist, optical scientists, electrical engineers, material experts, all working together to solve one of the toughest problems today. How do you apply a tumor margin, and how's the surgeon to successfully perform the operation?

So we developed technology in two ways. One, we developed a contrast media, which we're testing right now with our copartners in the hospital environment to be able to show in multi-color imaging, so it's a superimposing visible light, in flourescent light, to the surgeons where the tumor margins and where the lymph nodes. And we have developed optical instruments which allows this modulation, multi-plexing of different light color in the real time without disturbing surgeons environment to show him exactly what and where he needs to cut. This is very exciting, this is very new. I don't think anybody but you guys have seen it so far, just like a preview shot. But this is what makes us come to work. This is why I think my job is the best job in the world, because it really gets you excited. You can affect people's lives in many more ways than one. So, with that in mind I'm going to pass it to Mark.

Mark Little *- GE Global Research - SVP, Director*

Well, I hope you got some sense of the excitement that we all share of the incredible things that we can do for the world and for our company. You see the passion, the intensity and the depth of knowledge of my colleagues. You can see the premier positions in the industries they're in, that the scale really matters here. You can see the breadth and depth of the GE portfolio.

You know our intimacy with our customers comes to our chronicictivity to our technology, friends, and our business partners like Steve. We have a long history of doing great things, and people like to come here to work with us because of that. We have, as Steve was showing, and Rick, a tremendous patent portfolio is strengthened. Even beyond that a depth of knowledge that really drives us forward. And we ought to make things happen.

And as I said earlier, our whole reason for being here is to drive our technology out to the businesses and make the world a better place and grow GE. It's a fabulous place to be, it's a fun place to be, I hope you're getting some sense of that today. With that I would like to take a little time here to invite my colleagues to come back up, come up and moderate some questions.

QUESTION AND ANSWER

Unidentified Company Representative

As our speakers come up on the stage, before turning to Q and A, I would like to thank our speakers today for their time and effort.

Hopefully, you seen the passion that our leaders have for technology here. The passion they have for the product portfolio, and I think you can see a little bit of a competitive streak in each one of them too, when you look at the -- kind of stay ahead in the technology. But with that we have plenty of time for Q and A and I just ask that you hold your hand up high and we'll bring you a mic as soon as possible so the webcast can hear everything in full. Thank you.

Unidentified Audience Member

Thanks everybody for your time and presentations. Mark, I want to focus my first question on you and this kind of a -- and it's a tough one. How do you really truly measure success? I mean when you're sitting in your year-end-review if you will, is it patents, are there more specifics examples of how your Group is taking technology out to the businesses, could you just talk openly about that.

Mark Little *- GE Global Research - SVP, Director*

Yes, yes, it's sort of interesting. You know we watch patents and we watch publications. In fact, just yesterday we're honoring some of the people who have reached incredible milestones in numbers in patents in publications. We watch that, we care about it, but that is not how we measure ourselves at all. We measure ourselves in one simple way, and that's through the success of our business, and are we bringing great stuff to our partners in the businesses, and are we growing the Company. There's no other measure.

You know, I came from a business -- and Steve showed you a score card today that they have on how they measure things. I wanted to start tracking our progress at the Research Center to have some kind of measure like that. But it really doesn't work because we're so deeply connected with the businesses. The only way to look at is are we together being successful in the market place. I think the evidence is pretty stronger than we are.

Unidentified Audience Member

And as a follow-on, can you talk a little bit about rate of change as far as -- and what I'm getting at, is that when Jeff came on board at the end of 2001, I think between now and then R&D spend's probably doubled, something like that, I'm guessing your patents are probably something like tripled but was there a time period where -- it feels like a lot of your technology development over the last five years has been a little bit slow. But is there a rate of change that you would describe to kind of your current presentation that's different from maybe presentation you would have given two, four and six years ago as far as how long it took to do critical mass on these projects and really start to lever that spend.

Mark Little *- GE Global Research - SVP, Director*

Yes, you know the pace of change has never felt slow to me. Not at all. We've been racing like heck, and even through this most difficult of times we never stopped to look at our shoes and say, "Where are we? Where are we going?" We've been running like heck to try to drive forward to a great future. So you know we're fortunate to have a Chairman who really understands technology, you hear him talk about it, and every time he talks to you about, we have tremendous support from him. The physical plant here is much better because he invested in it, but more importantly invested in the programs here. He has tremendous support for my partners in the business and he'd do everything he can to help them succeed.

I feel good about the investment that was made. The pace has been good all along, and it just keeps getting better and better all the time. I think you saw today some good examples of the great stuff we got going on. I feel very good about that.

Unidentified Audience Member

One of the slides, I noted that you are seeking more government funding for the technology.

Mark Little *- GE Global Research - SVP, Director*

We're having a hard time hearing the question Mark.

Unidentified Audience Member

One of the slides mentioned government funding and that GE is looking at more government funding, there is also a number of national government laboratories, could you describe what you're trying to do to increase the partnerships that you're having, that to enable to access government technology, there are a few pitfalls you have to be aware of and how in general are you trying to blend GE proprietary technology versus the not-invented-here syndrome that could inhibit advances?

Mark Little *- GE Global Research - SVP, Director*

Okay, so let me talk about our connection with the government, and we talk mechanics first of all. We're organized here at the Research Center to have a team of folks who are dedicated to make sure that we understand the government connections as effectively as we can, and then who work with our broad team here to provide the full growth and support for the government to get what they want done.

Theresa Peterson is our person in Washington who leads that. She has a team of folks that we have enhanced substantially here in the recent past. In order to enable us to really connect very well in the halls of these key departments. So we're walking the halls of the DOD and DOE all the time. These people know the government laboratories intimately. I visit them. Researchers visit them and they come here. In fact it was about a year ago or so that we had the entire team of the Renewable Group of the Department of Energy here for effectively a staff meeting with our team. And we had a tremendously rich interaction in this very room about what they thought the future looked like and what we thought the future would look like, and what technologies ought to go.

This place is a very significant focal for the Company to bring ideas from all around the world so that any given day you would see lots of folks coming in here, trading ideas. In fact, we have admissions symposium going on here. So we listen to lots of folk, including the government about where they want to go, and we shape our thinking around that, and if have --. If we see a better idea somewhere, else we grab on to it. We didn't talk about it today, but we actually have a venture capital activist. It's a little different thing Martin, but it related to the NIH thing.

We have a venture capital activity, where the book of the VC investments is held in GE Capital and helps our core CFS businesses. But we are very active partners in looking at new technologies for them. So every time they out to look at a little startup company, they will bring a relevant team of GE researchers with them to sort out the technology. And through that process we get visibility to lots of great technologies that we weren't thinking about at all. And in some cases we can bring our technology strength along with the GE Capital Finance strength to really make the small company better and get something out of it ourselves. So, it may not be obvious to all but we are in the top 5 energy VCs in the world through that activity.

Unidentified Audience Member

Steve, I wonder if you could give us your view on the gas turban cycle? How much down further do we have to go. There was a revision down this year of expectations on deliveries. Do we get a bounce back in 2011 or is it all just goldmacro contingent? Give us your thoughts there.

Unidentified Company Representative

Yes, if you look at our question around the gas turbine profile. At this point we have -- our gas turbine shipments are down this year versus last year, as we've discussed in previous calls.

We've pretty good visibility to next year right now, and at this point I would say it's kind of general comment you've heard on the market place as things are getting less worse. It starting to stabilize. And again, we have good visibility to next year's volume profile. Because those orders, being a longer cycle business, we have a back log, we have a healthy value gap on those. And as you saw too, we're starting to book orders now that will start to fill our pipelines for 2011 and 12. The Kuwait order you saw on Monday is for shipment, and parts of those equipment will go in 2010 while some will go in 2011. So, at this point we see activity in the Middle East continuing. We also see activity starting to build in Asia, and then in the Western Europe. But I think the other thing going on is with natural gas prices they way they are, that's making gas turbans a relatively attractive option even in this environment. So, that's kind of where it is right now.

Unidentified Audience Member

(inaudible question - microphone inaccessible)

Unidentified Company Representative

Maybe you could restate the question. I'm sure if it came out properly.

Unidentified Company Representative

The question had to do with the equipment down. I think what we talked about in the Q2 call was for the first half. Our equipment order rates are down versus last year. But our sales profiles are actually up based on the backlog. But I think you have to put the orders rate in perspective. Over the last three or four years we've built huge orders momentum. As you saw in the Power and Water business, our organic revenue growth was up over $10 billion since '05, so it's still in the first half, a big dollar amount of orders being booked. But I'd say we're still back to where we were a couple years ago. But we're starting to see it stabilize and again I think we're starting to see also the breadth of GE being global, in that the opportunity to be them in Kuwait or another spot in the world, we're just going to have to be balanced. But at this point, we are -- as I look at last time, at this time last year looking at this year, and looking at this year at this time to next year, we're actually in a pretty good position on backlog as we go into next year.

Unidentified Company Representative

Just to clarify for Terry's reference to the comment for the room in the webcast on our earnings call we said, "Equipment would be down 10% to 15% revenues next year, based the order of profile." That was the entire company, that wasn't any specific to energy necessarily.

Unidentified Audience Member

Yes, how does the company decide how to right size this RD effort globally, both domestically and around the world and in that right sizing, how do you decide where the allocations of dollars is? And maybe to Martin's question maybe the external funding outside a bit, so that's part one, how do you right size that does this? And the second thing is we heard some comments about the obvious big picture programs, but we didn't hear anything about enterprise solutions, we didn't hear anything about Consumer Industrial, LED, Lighting potentially. I mean, sort right size and then what about some of these other businesses that are either being nurtured or are a legacy?

Unidentified Company Representative

So let me try this one. So, let me speak first about the Global Research Center, that our funding process is, and then one of my colleagues talk about the business.

We have a funding model in GE where the businesses fund 50% to 60% of what we do. So they're working in a very close connection with us. I understand, where our advanced can do, where there markets want to go, and together we shape a portfolio program.

Unidentified Audience Member

(inaudible question - microphone inaccessible)

Unidentified Company Representative

Yes, most definitely, most definitely. Then there's a float of external funding that we got, and we showed you how we're chasing after that, and increasing that, it's a rich opportunity time for us as well. Then there's a pool of corporate support, that comes from Jeff effectively, and that's been strong and steady for us and we've been able to count on that. So, it's through that sort of things we size the organization. It's really a whole set of activities to make sure we have the muscle here to make sure we support the businesses in where they want to go.

And as I showed you, that whole set of things has resulted in a 7% average annual growth rate over the past 10 years or so, which is a very nice growth rate, well ahead of inflation. So maybe Rick, maybe talk about new business process.

Rick Stanley *- General Electric Co. - VP, Engineering - GE Energy*

On the business side, big forcing function is just around the project management linkage with the engineering linkage. Product management being that's our function under Steve, that actually looks at our competitive position on all the product lines. And we do that on a continuous basis. We could talk wind-turbon, low-plot, where are our wind-turbons, how they stack up against the other guy? And not just at one point in time but we play it almost like a chest game. I was talking about it at dinner last night. It's called a Z-chart, but it's like we roll play a chest game against our competition to see how many more steps can they take with a product line versus how many we can take.

That's tremendously valuable because what comes out of that process is a big push by the product management team to actually invest more. To zero in -- on those areas where we know we got an advantage we can exploit with a quick program, or an area where we got a gap we want to fill and plug before the other guys get there. So that process, that Z-chart process is incredibly powerful as a forcing function. What comes out of that is manufacturing engineering. How can we get it done faster and back to the research department around --. What do we have ready to go into a product line to fill this gap?

We call that Session T for technology but it's a process where when we get together and we link these things together in a forcing function starts with that product management function. We got more ideas than we've got funding, but it's just the funding keeps going because we advocate. We're good at advocating that we can do this, give us the resources and we get it.

Unidentified Audience Member

Follow-up question. You got part of the answer but, you know, like we didn't hear about, I say, we didn't anything specific about enterprise solutions, and (inaudible), didn't hear about some of the intelligent grid initiatives the company has. We could be here for three days, I understand that but maybe the breadth of the session versus the breadth of the company.

Unidentified Audience Member

Okay, so we focused our communications today so we could get through today. We have three big businesses represented here, but we have lots of big stuff going on in the other places as well, and we could fill up the rest of the day talking about them but just let me give some examples. Smart Grid you just asked about. You're going to see a laboratory tour of Smart where they will tell you all about that from start to finish. I think they'll give you a conceptual framework you probably haven't seen anywhere else. I think that will be very richly interesting for you.

But we have great stuff going on in all of these business segments, and I'll just highlight a couple of things. Consumer Industrial, we have a technology called THEMS for micro, electrical, mechanical systems. We're going to make some revolutionary changes to add to the industrial business with this kind of technology. It's the idea of taking big old things like circuit breakers and switch gear and making them really, very, very small on a micro scale. Those switches will have speed, power, reliability that you couldn't get any other way. That's going to be a revolutionary change for the industrial side of business. I'd love to show you that in another day.

Enterprise solutions we have some fabulous technology. Mike used to give the technology for that group and he knows it very well. We have, for example, a spin over from healthcare, where we take a healthcare CT and industrialize it for inspection technologies and I'm talking we're going to create a billion dollar kind of a business out of that. We're going to go and instead of inspecting human bodies, we will industrialize this technology to inspect things like engine blocks. This thing is moving very fast, we have a great technology with it.

So we could have taken a lot more time to go through a lot of that great stuff, and it's not because we don't have it, it's just because of the time constrain.

Unidentified Audience Member

The one thing that comes to clearly is that there are lots of things going on in your market. Lot of your oxometry technology upgraded cycles, do you think that R&D intensity at the sales goes up in the next five to ten years, as you eventually see products to meet these needs?

Unidentified Company Representative

The R&D intensity in terms of percentage of our sales coming from new products?

Unidentified Audience Member

(inaudible question - microphone inaccessible)

Unidentified Company Representative

So you're asking basically, as a percentage of sales will our R&D go up because we have a lot of projects in the pipeline. I think, you know, we showed you an example on energy sort of a page where it, the percentage is going by 2012 so for that segment absolutely.

Unidentified Audience Member

(inaudible question - microphone inaccessible)

Unidentified Company Representative

We're looking at the same thing even though we're in a downturn right now. We have an unprecedented level of proposal activity, and request for information activity. So we know we have to keep investing in technologies and get those products ready for the up cycle. And so it's almost a race today, even in this downturn to use as much of our R&D capabilities possible to get those products ready.

Unidentified Audience Member

One follows one. You mentioned with Amason you brought in some great biological expertise, are there any other areas that you think will cause GEs future that you might need to buy in, I'm referring mainly to ecosystems, you talked about the engine systems immigration. Do you need to buy more systems technology?

Unidentified Company Representative

It was quite difficult for us to hear the question.

Unidentified Audience Member

So you mentioned --, basically buying in technology versus developed technology, and you mentioned that [Jamison] that you brought in some great expertise there. Are there any other areas that you think might need to buy technology in?

Unidentified Audience Member

(inaudible question - microphone inaccessible)

Unidentified Company Representative

We're obviously always looking at acquisitions either in this constrained environment. We're still very much in the offense mode where we're looking for things to go after. And I, we enter it this way, the Angie space still looks very rich to us, oil and gas looks terrific, the systems things around Smart Grid as you seen today, aviation systems we think we can do a lot more in there. So, we think we're in great spots in big areas that have a lot of room to grow.

Unidentified Audience Member

One of the messages that kind of come through unclear today is that obviously the business and the technology are very closely linked. The business drives lot of the technologies decisions. Just once --, kind of maybe link this to last night's discussion on leadership's development. One of the things that I think is kind of a generic problem, a general problem is taking a technologist and turning him into a business person is not always the easiest transition. And I know that we don't have the HR representative from last here. One of the business perspectives on that leadership development, in taking some of these great technologists and how you kind of grow that leadership and transition them over to that business side so you have those liaisons going forward.

Unidentified Company Representative

I fully addressed this. It's a very interesting question you're raising. It's one that I just spoke at, at our corporate executive council meeting about a week ago. Because this is of course -- we need great people like Steve who can transcend the commercial and the technical things, so we're very much conscious of building a pipeline of people who can do that. It's not by accident by the way that Susan is here at the research center talking about our leadership development at the same time we're talking about our technology.

These are two core strengths of the company that enables us to pull these diverse business units together and really get some power out of them. And back to your question about developing great people. We have very conscious through the session C routines that Susan talked about. When we think about technical people who can leave and go do commercial roles, commercial people who can come do technical things and vice-versa.

I'm a pretty good example of that. My background is technology. I came up through the energy business. I ran technology and energy a while back, and an earlier version of energy. I ran business development strategy, I ran a number of product segments, and I had Steve's job before I came over here.

So I've been back and forth, and we want to set in place practices and routines that get our people like that. We realize that that combination of skills is really important and powerful for us in building a company that we want.

Unidentified Company Representative

So to bring it home a little bit, I have 5,000 engineers and I have a process whereby we T-up potential commercial people at such and see. And we enter them into a commercial leadership program. So we'll take technical people, who also have a skill set required to go into the commercial business side of our business, and we tee them up, and we enter them into a program and a lot of them become product line managers as well as some of them staying in engineering.

Our CEO and our two top products line managers both all three of them came out of engineering.

Unidentified Company Representative

And [Chip Blankaship] who is the commercial engines operations leader in Aviation, came from the Research Center.

Unidentified Company Representative

He used to run our Arrow derivative. And just another couple comments is the (inaudible) who runs our business segment used to be one of the top engineering leaders for all of energy, before this. And [John Ryker] who runs the gas service product line for equipment and services, used to be the services engineering leader, as well as running this big part of this team covering engineering product line. And then Rick and I in our activity with the gasification business, the previous technology for gasification, when we actually got the contract, we moved him into be the business leader.

So I think the key is you got to build domain expertise first. That takes a while. That could be in engineering that could be in product management that could be in global supply chain. But then, as they get more senior there is some transitioning.

Unidentified Company Representative

I'll just add to that. We also want as part of the mix, engineers that just want to be engineers.

Unidentified Company Representative

Absolutely, they want to come in every day, beginning of the day, and all they want to do is kill the competition. That's how they get there joys. We want that too, and part of the engineering leadership job that's developed those people too, and not force everybody to the same model that you will, but build both skill sets so. A big part of my job is finding those people to, career wise through the organization because we want leaders who do that very, very well too.

Unidentified Company Representative

We have across the businesses and certainly here at the research center something we call the technical career path. And so we make it possible for people to have rich, fulfilling careers in there that give them the emotional rewards that they are looking for in terms of prestige and recognition, and the financial rewards are equivalent to what you could get if you become and easy plus-type leader in the company.

Unidentified Audience Member

With any of the three funding sources catch-fall with the divisions that provide (inaudible). One of the kinds of things that have to be funded by corporate that are not getting the support, is it a function of size or is it a function of duration in time or what it is. Could you give a couple of examples.

Unidentified Company Representative

When I think about it, we fund things in that pool of corporate funding that are head of the risk [apporty] or time arising of the business. So I think firstly all the things you talked about Michael were in that pool. So for example we developed capability to do this powerful detonation of this supersonic heat release machine, this is too far for business.

There's a high risk long-term development. If you look at the way we started the x-ray. Digital x-ray business been developed here as well as the research for ten years before it was conditioned to business. Example I show you on molecular pathology. This been developed on Jeff's money to basically become a business, we hope in the 2011 time frame.

Unidentified Company Representative

The battery funding came from Jeff originally and that's going to lead to a spin off business which we announced. We're going to create right here in the capital district region here in New York. The whole purpose of that is to be ahead of where the businesses are, but our success is measured when we get this stuff out into the business and make a difference to the world.

Unidentified Audience Member

Maybe, just expand a little bit on the previous questions on right-sizing allocation and the corporate funds. You know, having thousands of engineers is a huge resource, and I'm wondering how's the process of idealization from the point that one of the engineers has an idea, to the point that it competes for corporate funds for the big idea projects.

Unidentified Company Representative

We have a very-well defined process for engaging our people and bringing up ideas. Time is money so we fund a pool of money to our organization, and we ask them to be sure they have their own processors by each organization, but to the character of the organization, but it has certain requirements, that everybody has to participate, that we listen to every idea, that we say yes or no to each and every idea to the feedback loop, and through that process bubble up each year a set of ideas that we then go through a process at the end of the year just as each GE business does to say yes or no.

So coming in another month or so in the early part of November, Michael and I will sit down and listen to the teams bring forward all their ideas for funding next year. Sort funny, when I first came here, the first week I started was that process, so I got to sit down and listen to probably the best sales people in the company, selling their ideas for research for the coming year.

Unidentified Company Representative

Yes, I guess two things. One Mark mentioned around Session T, which we all do. But I think the thing when we take a look at healthcare, we got about 7,500 engineers there. You can't look at it like you're a big company of 7,500 engineers, if you do you're going to loose. So you look at how do you manage a portfolio, and the portfolio you got to look at around three axis.

What parts of the world do I need to be in from a global standpoint and how is healthcare practice and what's different, what price points do I have to cover from the very high end, from the premium end, down to the value end, down to the rural health. And then what customers do I have to touch, whether it be a cardiologist, a radiologist, a pathologist? Who do we want to deal with? And look at that portfolio and how to balance it.

And once you have that, you want dedicated smaller teams, and you want those folks to know that they can't hide within the big company or hide within the matrix. But they're dedicated, and they have to wake up every morning and know they have to win in that space they're in. And to a point where they get a little big and they grow the business and that's what you want.

Think about how to segment that again so that you can drive some more ownership, and the best thing I've seen is that when you get engineers and scientist out with their customers, really understanding the clinical problems that they face, the clinical problems that have to be solved rather than sure is a marketing spectacle executed. But work with the product management folks to understand what's required. That's how we drive innovation and growth, and we do it at a very imminent level.

Unidentified Company Representative

I would just add one thing too that our chairman Jeff started a few years called imagination breakthroughs. This was a process to try to filter up some of the ideas that were at all levels of innovation. So instead of having John Kernicky or even Steve Bolts come and present to Jeff, I want to invest in this project.

He had the lead engineer come into Fairfield, and sit for an hour and say "walk me through what this means." Okay the payback isn't two years, it's not three years, but I like it. I like the longer term, and that will get funded through the corporate programs. So that's a big part of getting ideas up.

Unidentified Company Representative

I just want to ask about ideas. We live in a huge world. Ideas come from everywhere. We have four global sides, but we have people in Russia, in Israel, in Japan and Mark talked about access to venture capital. We look at ideas everywhere, and we encourage our researchers, and Mark talked about it too, our relationship is really grasp full to relationship.

We are not going to have all the ideas, our researchers come with ideas and options. We don't want to just hear their ideas. What we need to be that best in is picking the right ideas and then figuring out how to connect to the businesses and drive them to our products and services. So that's our game. We're not adventure capital. We're not going spend too much money in doing discovery work. Our goal is to pick the right ideas.

Unidentified Company Representative

Let's pick a couple more. Any others?

Unidentified Audience Member

One thing we really haven't talked about today and I know it's separate from R&D technologies. Just how credit markets play into your businesses, and obviously that's been the biggest concern in the market place in the last two years. What are, I don't want to make this a 20 minute thing and take away from lunch, but if a couple of you could talk a little bit about what you're seeing in your specific credit markets, obviously power gen is huge, aero-space is huge and how that is changing over the past several months.

Unidentified Company Representative

So to characterize the response, you're talking to the core technologist now except for Steve, so we'll give you --. So Steve you're probably best.

Unidentified Company Representative

Maybe I'll start with this one, which is I think I --. It's still a concern Scott. But things are steadily improving. I'd say that if we take the example of the wind markets in the US, there was an article three weeks ago in the Wall Street journal about some of the banks now, more financing is becoming available. It wasn't to the level it was a year ago when there was 15 to 20 banks having construction-like Financing versus today.

But there are more in the space now offering those loans than were six months ago, and therefore I think things are starting to move forward. Obviously in the wind, let's say US market, you're starting to see the impact also of the federal programs now being definitive and out there. It's just going to take a while for that money to flow out. So I think we've start to feel the impact of it there. I think China clearly is starting to see the impact of some of this stimulus area there.

I think in the other it's a large capital equipment project, gas, turbans, and others. I think again, it's getting better. Our capital purchases are large investments. So you get into people, what do they feel? Are they really ready to make that commitment? And I think overall we're starting to see some people step forward. Like the example of Kuwait I used a couple times. We're starting to see some projects move forward. Just to give you a sense, in the last six weeks our cut of inquiry activity for proposal activity has jumped up significantly.

Unidentified Company Representative

I think Steve's the only commercial leader here.

Unidentified Company Representative

Great, this concludes our webcast for today. The replay will be held later today, and we'll have a transcript out tomorrow or so. But I wanted to turn it over to Patrick for some logistics for the book through.

Unidentified Company Representative

Thank you very much to the speakers.

DISCLAIMER