



# **Imperial 2018 Investor Day**

Wednesday, November 7<sup>th</sup>, 2018

## **Introduction**

Dave Hughes

*Investor Relations Manager, Imperial Oil*

Good morning everybody. Welcome to Imperial's 2018 Investor Day. I would also like to welcome the folks that are signed in via the webcast. My name is Dave Hughes. I am Imperial's Investor Relations Manager. This morning we have Imperial's senior management team here, who are going to take you through a presentation, going over all aspects of our business. To my left is Rich Kruger, Chairman, President and CEO. Then we have John Whelan, Senior Vice President, Upstream; Theresa Redburn, Senior Vice President, Commercial and Corporate Development; and Dan Lyons, Senior Vice President, Finance and Administration.

In terms of a high-level agenda, we are going to take a break, probably a little bit after 10.00, so folks can go and get some refreshments, etc., and then we will reconvene and expect to wrap up around 11.00, at which point we will have about an hour for Q&A. We will be passing around microphones for that, just so that folks who are connected via the webcast can hear the questions as well.

I would like to point your attention to the cautionary statement; it is at the very end of the books that you are looking at, or the very end of the presentation. It does contain some pretty important information on forward-looking statements, reserves and resources, as well as risks and uncertainty. I would encourage you to review that when you have a moment.

With that, it is now my pleasure to introduce Rich Kruger, Chairman, President and CEO.

## **Company overview**

Rich Kruger

*Chairman, President and CEO, Imperial Oil*

### **Opening remarks**

Good morning, welcome. You can see, I brought my heavy hitters with me today for any of the tough questions that will come and they look forward to them, so when the time comes make them tough, and we will see what they are made of.

Today, what we are going to talk about, really three broad areas: we are going to talk about performance, we are going to talk about priorities, and we are going to talk about our plans. We will get into some detail in each of those areas. We have a pretty healthy deck here in front of you. We are going to go through it reasonably quick, and really look forward to any questions you may have.

### **Q3 recap**

Let me get started. Quickly, third quarter recap. I will not go through this. I am sure many of you have seen our third-quarter results; many of you have had a chance to dial in to our earnings call last Friday; they are recapped here. What I would say is, we feel we had a strong third quarter, and that was what we expected, based on a lot of work we did early in the year and in prior years. We feel we are positioned for a continued strong performance. For the first five weeks or so of the fourth quarter, we are seeing more of the same, so we plan to end the year strong, and continue into the New Year in much the same way. I will just be brief with that.

**Global energy outlook** Now, I would like to really start back, and just offer you a few thoughts, and I will not be too long on this, on how do we see the world. It is important because it informs and helps us shape our fundamental strategies.

Just broadly, on energy outlook: if you are familiar, we participate with and benefit from ExxonMobil's outlook for energy each year. We also look at a wide range of others' outlooks so that so that, as we consider our business, look at the ranges, the sensitivities on various component parts of it, we are the most informed we can be.

I will not take you through all this, other than to say that our outlook with population growth, economic growth, improved standards of living is that our world will continue to consume more and more energy. Our belief is that oil and gas will remain key in that energy equation in the years ahead for many reasons, all the way from energy density and convenience to, particularly in the natural gas, an improved environmental performance that goes with it, and that there is no single energy that will meet all of the world's needs; there is no silver bullet in this. Similarly, in the oil and gas world, there is no single region that will meet all of that need. I will have more on that later.

Clearly, we recognize that society has a dual challenge on meeting ever-increasing energy supply requirements, as well as addressing issues associated with greenhouse gas emissions and climate change, and that is where technology comes in. This morning, you will hear a fair bit from us about technology and how it applies to our business.

### **Global liquids outlook**

Getting a little closer to home for us, on the liquids outlook – as you know, we are primarily a liquids producer – the world today produces and consumes roughly 100 million barrels each and every day. Demand is continuing to grow 1.6–1.7% per year. We expect that growth to continue. It is going to be driven by transportation, particularly commercial transportation.

Our view is the world has sufficient resources to meet this demand. By many estimates, there is 100–150 years supply of liquids resource out there, and that seems to keep growing. No one area is going to meet the need, i.e. the Permian Basin is not going to be the only area where a significant capital investment and development occurs. There will need to be major investments. I have shown what the natural 4–5% decline per year would lead, as you go out in time. As we fast-forward some 20–25 years out, the new production required will be roughly the same as the existing production today, so there will be a lot of money spent on the oil and gas, this is on the oil side, just to meet existing demand, much less the growth on it. Our view is that – and you will hear this theme throughout the day – to attract capital and to invest it, you are going to need to be globally competitive.

### **Canada's opportunity**

That takes me to Canada and where does Canada fit in. Our view is with a large resource base, with the history of innovation and responsible development, that the highest quality oil sands can and will be competitive on a global basis. Not all oil sands we see in situ as having fundamental advantages today over new green field mining developments. Canada overall, generally or historically: a conducive investment climate; the right level of reward for the risk. However, we have some specific challenges that we need to address so that we can play a material role in global energy in the years ahead, and I will talk more about those shortly. Market access: first and foremost, our regulatory process is the time lines, the certainty, predictability and, last but not least, ensuring that we provide a fiscal package that is competitive when you take all forms of taxes and

royalties and the like for 'bang for the buck'. New technologies, again, on the oil sands in particular, we think will be fundamental to the competitiveness.

### **Imperial's operations**

With that as a quick overview, let me take you to Imperial, and what you came here to hear about today. We are large, and we have a set of integrated, balanced, high-quality assets: coast to coast, upstream, downstream and chemical. You have seen pictures like this before; I will talk more specifically here in a moment. In the upstream, we are largely an oil sands producer; three big core assets – Kearl, Syncrude, Cold Lake – all at various stages of development. John will go into each of those in some level of detail. We are the country's largest refiner: two refineries in Ontario with about half of our capacity, some 200,000 barrels a day; the third refinery, Strathcona, out west in Alberta, also roughly 200,000 barrels a day. We are kind of like a barbell there on the refining side, East and West.

We market petroleum products coast to coast: all ranges, from our retail, motor gasoline to diesel to marine to aviation, asphalt, lubes etc. You can buy the Esso brand at roughly 2,200 sites across the country, and that is a growing count.

On the chemical side, we have a chemical facility at Sarnia, very integrated with our Sarnia refinery. Then, increasingly, and you will hear more about this today, the importance to us of the logistical aspect, whether that is terminals, distribution facilities. Rail terminals, for example storage, are key in this market place, where the margins move and can vary quite rapidly.

Last but not least, and I will talk more on this in a moment, is the research side of it. We have two research facilities downstream in Sarnia, and an upstream in Calgary. This theme of research and technology will just carry on through our presentation. It is perhaps the most important area, we consider, to maintain competitiveness globally, and to ensure that we continue innovations, to make our business both more economically attractive and more environmentally acceptable.

### **Business model**

Our business model, I have shared this page before. It is unchanged, but it is quite important to understand it because it really gets into who we are and how we go about things. The long-life competitively-advantaged assets links in with our commitment to technology and innovation. We have 90 some bright men and women with PhDs, another 100-plus technologists and 1,000 engineers or so that are continually looking at different ways, new ways, better ways of doing things. When you have large long-life assets, you can create ideas today, you can test them, prove them and apply them five and ten years out and still make money. With a short-lived asset, you cannot spend that time and money up front, because by the time you come up with an idea it is too late to apply it.

The disciplined investment and cost management: we are very much a measure twice, cut once kind of company. We recognize we are spending other people's money, we need to be very, very thoughtful on that. We need to look at market conditions, business conditions that cover the full gamut of possibilities, because the one thing we have seen in 138 years in this business is about the time everybody starts seeing things one way is about the time you can expect a dramatic change. We are very, very thoughtful on how we spend our money – more on that also.

We very much believe in the integration and synergies. We are roughly a 400,000 barrel-a-day equity producer. We are roughly a 400,000 barrel a day petroleum refiner, and our petroleum product sales are about 500,000 barrels a day; so that integration across the value chain, and the opportunities it provides, is fundamental to our business model.

Lastly, I will comment on the relationship with ExxonMobil. We have a majority shareholder; they have been in existence in that capacity with us since 1898. Their ownership share has largely unchanged over the last 80–85 years; that gives us an incredible wealth of knowledge, best practices, access to people, to technology that our competitors cannot replicate. Internally, we look at it as ‘shame on us’ if we do not tap into every ounce of knowledge, information, experience that ExxonMobil can provide, and take it and apply it into our business. We also are our source of best practices and technologies for ExxonMobil’s use, so it is a relationship that works very, very well from both perspectives.

### **Portfolio enhancement**

With that business model, over time we have been actively shaping or reshaping our portfolio. Across the top of this chart are generally some of the things we have done that have added or enhanced our asset base over time. Below the time line are generally those things that we have either divested of or modified in some way to take a lesser presence. You can see there is more on the top than there is on the bottom. Over this period, from 2013 to the present, we have invested about \$20 billion in capital into the business, and we have divested about \$4 billion of assets. There has been less of late; and I would say we are increasingly comfortable with the asset base we have, and the balance across the various business lines. We are always looking to make it better, and we will talk about some of the ideas and investments that we have in mind to do that, throughout the rest of the morning.

### **Upstream assets**

A little bit of a snapshot at the upstream. Looking at it over a 20-year perspective here, you can see the increasing concentration in oil sales. I have mentioned the big three; they are all unique in one way or another. Kearl has a mining operation without an on-site upgrader. Syncrude, of course, was a pioneer in the mining business and has an on-site upgrader, produces synthetic crude. Then Cold Lake is an in situ operation that has been largely known as cyclic steam but, as John will detail later, the evolution and progression of Cold Lake, other technologies are entering into the Cold Lake recovery mix more and more. We are quite concentrated, large, long-life, proved reserve life of some 30 years or more, and this gets back to that business model that I described a moment ago.

### **Downstream assets**

On the downstream, a little bit shorter perspective here; I have a ten-year perspective. I have mentioned the three refineries and the fuels marketing. There was a notable event for us that occurred in 2013: we shut down our Dartmouth Refinery on the East Coast. Its feed stocks were imported Brent-based crudes. It was less and less competitive with the situation in North America. At that same time, we saw what we believed was going to be a structural cost advantage for a period of time, and so we doubled down on petroleum product sales. Now, we sell well more than roughly a 100,000 barrels a day, more than we manufacture in the refining, and you can see that sharp demarcation that occurred at roughly the 2013 time frame. That was very much a strategic shift on our part, recognizing that product pricing are largely based on imports – New York Harbor, Chicago – and there were some structural advantages that we thought we could capture by operating our existing facilities to the fullest extent of their capacities; extending our brand presence, developing long-term strategic partnerships with key players in the market. That is largely what you have seen happen in the last five

or six years, and we will talk about the results and the financial performance along with that, as we go on this morning.

For completeness, I want to hit on a couple of other topics quickly.

### **Risk management**

This is a topic that I would say that in my experience of the investment community is not talked about as much as I would think it should, because I think it is fundamental to being able to sleep well at night. Understanding you have an organization that takes a very comprehensive approach to risk management in all aspects, whether that is strategic or whether that is more blocking and tackling. On safety and operational integrity, regulatory compliance, how we analyse financial investment opportunities and deal with the market, and all the way round to the reputation we have in the market place, we approach this in a very systematic manner. We have fundamental line management responsibilities in each of these areas. We have compliance processes that I would describe as very robust, both internally and externally –validated. We think overall risk management is integral or fundamental to maximizing shareholder value over the long term.

### **Corporate responsibility**

In a similar vein, corporate responsibility – I mentioned we have been around 138 years; we plan to be around another 138, and recognizing societal changes and expectations and evolution, corporate responsibility is top of the list, whether that is environmental, social or governance principles. We are looking more and more at our disclosures and our public reporting. We engage with many of you on the phone, or here in the room, about what your expectations of us are in this world that we live in. We are adapting and modifying. We are not quite there yet; there is a lot of work to do yet, to align with the guidelines on the task force and climate-related financial disclosures.

We have publicly announced our commitment to reducing the greenhouse gas intensity of our existing and our future operations; we have quantified what we expect to achieve there. In terms of indigenous relationships, we have strong relationships. We invest in communities, in business and work force development with our indigenous neighbours. In our commitment to local communities, we have provided some \$100 million over the last five years or so, in cash contributions to the communities within which our employees live and work.

Lastly, although I mentioned we have a majority shareholder in ExxonMobil, we have a very strong, a very diverse and a very independent board of directors. ExxonMobil has one position on our eight-individual board, and the others have been with us in varying degrees all the way from, most recently, two new additions in the last year to some who have been with us much longer than that. I am really proud and pleased to work with this set of folks; they are top notch.

### **Safety and operational integrity**

To illustrate a little bit on the risk management, the corporate responsibility, I have just picked two indicators to use as a reference: safety, and environmental performance as you would represent it by spills. We have an organization-wide priority to protect our people, our assets and the environment. I have shown safety here; I have used the total recordable incident rate as an indicator. The bars on the left for both our peers and Imperial are five-year averages and then the most recent bar, the bars on the right, are the last year of full-year data for industry and us 2017. We have been, and continue to be, an industry leader in safety. We look at it in a fundamental way: we have a moral obligation to our work force, whether you are an employee or a contractor. It is good for business when you conduct a safe operation, and it affects your reputation and people's willingness to work with you. We have no conflict at all in our commitment in our objective of achieving a work

place where nobody gets hurt: that is the goal. We are not there yet, but we continue to show improvement. It is the quest, it is the mission from myself on down. I would say that we are pleased with continued progress but, as the chart shows, until it gets to zero, we have more work to do.

We have used spills on the other side as a proxy for operational integrity. We are supposed to keep oil and gas in tanks and pipes. You can see over these periods of time how we have continued to reduce spills. We count spills of nearly any volume, a barrel or so, and we have brought it down. When you consider we produce 400,000 barrels a day, we refine 400,000 barrels a day, we are selling 500,000 barrels a day, there are a lot of transitions that occur between wells, pipelines, facilities, tanks, nozzles, on and on. We are driving that spill countdown to – you can see where we are year-to-date 2018: the last two and a half years have been our best years ever in terms of reducing spill. This is one indication of an environmental impact. I have many, many others I could share with you but this is an illustration of the commitment. We think in both of these areas – safety and operational integrity – it is the right thing to do for people and the environment, and we have no conflict with continuing to drive and improve our performance in these areas.

### **Integration**

I commented on that briefly. You are going to hear a lot about this, this morning – the areas highlighted here, how we look to deliver value, competitive advantage and, in particular, resiliency across the business cycle because of the integration from our upstream and downstream and chemical assets. We are going to talk to you about how we put equity crude in the highest net-back markets. We are going to talk about cost-advantaged feedstocks and what that does for us in the downstream; the sales channels to get the highest value, how we invest in an optimized transportation network; then, last but not least, the application of industry-leading technology and know-how – this is a big part of our story.

### **Technology and innovation**

I will hit on that very briefly. I would describe it as an unparalleled commitment. We spend roughly \$150–200 million each and every year. It is largely independent of oil price. It is not immune to business conditions, but we recognize that this is not a switch you can turn on and off, or a dial you can turn up or down. It takes time to come up with ideas. Our history goes back to the very beginning. We put in place Canada's first petroleum research department some hundreds years ago. The very first time anyone ever used a gas pump at a service station, it was an Imperial pump at that point in time. You can go on and on with the technologies; whether it is drilling and upstream-related technologies, or downstream product-related technologies, this is a strong, strong commitment to us.

I commented on the two facilities, one in the downstream at our Sarnia Refinery, one in the upstream. We built a new upstream research centre; some of you have come visited us there. It is where we invest a great deal of time and money in how we can continue to improve oil sands' both economic and environmental performance. Over the last 20 years, we have spent more than \$2 billion, and in more recent years it is on the order of \$150–200 million a year. The relationship with ExxonMobil is really important here. We have unfettered access to their research and technology, Exxon's investment in which is approaching around 1 billion a year. It allows our investments to very much focus on what is most applicable for Imperial – heavy oil, oil sales recovery technologies, etc., and not have to worry about other technologies that are important: strength of steel, drilling-related technologies that we can tap into and access from ExxonMobil. Our lever effect here in technology is quite large and meaningful.

### **Imperial's winning formula**

My last slide before I turn it over to John to continue with the upstream. We have shared this with you last November. It is the essence of what we think our winning formula, our winning strategy, is in terms of increasing cash flow, delivering industry-leading returns across the cycle. It starts with the performance and reliability safety and operational integrity – I have hit on that briefly – leveraging technology, the integration with ExxonMobil. We do not talk as much about this publicly, but the focus we have on organizational efficiency and effectiveness, ensuring that we have an extremely capable work force and it is cost-effective; in today's world, the most valued partner with key stakeholders – and that is a wide range of stakeholders, whether that is local, indigenous communities, or whether that is federal and provincial governments.

Last but not least, in all times but particularly in times like this, capturing new opportunities that can maximize the overall value of the existing portfolio, and then as we add new component parts to it.

That serves as a bit of an introduction. I am going to turn it over to John, and he will continue the conversation by talking about our upstream business.

## **Upstream Business**

John Whelan

*Senior Vice President, Upstream, Imperial Oil*

### **Upstream at a glance**

Thank you, Rich, and good morning everyone. I thought I would start with a bit of a high-level overview of our upstream. As you know, we have large long-life, predominantly oil sands portfolio. We have Cold Lake, our large in situ asset: a cornerstone asset for us at Imperial for many years, and will be for many to come as well. We have Kearl, our next-generation oil sands mining asset; it is the first of its kind, able to go direct to market with the product, due to our proprietary PFT technology. We have Syncrude with an upgrader, an oil sands mining pioneer, and one which we are proud to say we have been part of right from the beginning. Then, in what I have called here our remaining portfolio, we have our conventional later-life assets, generally speaking, the largest of which is Normal Wells, which you see on the picture here. Then, we also have our liquids-rich unconventional positions in the Duvernay and the Montney. Now, of course, we also have a large portfolio of in-site opportunities like Aspen, and Theresa will cover those in more detail.

Collectively, we hold 6.5 billion oil-equivalent barrels of proved and probable reserves. In terms of production, we see ourselves as a 400 KOEBD organization when you think about, and certainly as we look to 2019. That said, we do have plans to grow that production in the near term, and I will talk about that in more detail.

### **Upstream overview**

If we go now and take a look at our upstream current performance, and a little bit of our history. I mentioned our 2P reserves on the last page. If you look at our proved reserves alone, at current rates we have over 30 years of proved reserve life remaining. Also, if we think about it from a cash-generation perspective, the upstream business has generated nearly \$17 billion of cash over the last decade, and of course that only includes to the third quarter of 2018.

Looking at the chart to the left, we see our production over the last eight years. Now if you go back and you look at the significance, you can see the significant growth we have had here. If you look at the 2011–2014 timeframe we were about a 300 KBD organization, moving to where we are today producing about 380 KOEBD. That growth, largely driven by Kearl and, to be honest, partially offset by Syncrude volumes over that time frame with Normal Wells also being offline, and then some decline to our conventional assets.

If we look at our 2018 outlook, it is a little below what we shared with you in our November business update last year. At that time, we had it closer to about 400, and that is largely driven by Syncrude and the performance and the recent power outage there. I will talk more about how we see things going beyond 2018, as we go forward.

On the cash side, that chart on the right, looking at the same time periods, you can see the \$2.5 billion of annual average cash generation from our operations in 2011 and 2014. Of course, that was a period of time when WTI was trading at about \$95 a barrel; that cash generation at that time would have largely been driven by Cold Lake and Syncrude. If we move to 2015 and 2017, we had the drop in WIT – it was then around \$48 a barrel – and you can see that cash generation went down, and went down to about \$.6 billion per year.

Now, I am really happy to say when you look at our Q3 2018 year to date, we are at a cash generation of \$1.2 billion, so nearly double the average we have seen in the 2015-2017 time frame. Now, we did get some help from price – you can see about a \$20 increase in WTI, but as you know, we only benefited from about half of that when you think about Western Canada Select, so happy to see the cash generation from our business over the first part of this year.

### **Syncrude**

A true pioneer in terms of oil sands mining; first production in 1978 so 40 years ago this year. Still has 0.7 billion barrels of 2P reserves remaining, so a lot of life left in this. Despite its challenges, and I will talk about those, I have to say that we are very proud that we have been part of Syncrude from the beginning, and we believe Syncrude has a bright future, and I will talk to why that is.

Couple of highlights on Syncrude; high value synthetics crude, historically trades around a few dollars of WTI. Improved reliability however is key, and I can tell you that is getting the full attention of Syncrude, Syncrude management and the Syncrude owners, and I will outline some of the plans in terms of what we are trying to do in that regard. Finally, I would highlight this, and you have heard Rich talk about it in the past; we are extremely focused on leveraging all of the owner strength as well as ExxonMobil to make this asset the best it can be.

### **Syncrude reliability**

So, we kind of view Syncrude as a high potential asset, and let me tell you what I mean by that; it is really because of its ability to generate significant cash, and despite the reliability challenges has generated cash even in that low price environment to 2015 to 2017, when we were in a \$48 WTI world. This asset continued to generate cash. But, it is an asset that is been challenged in terms of reliability and particularly in terms of significant one-time events, and upgrader performance.

The chart to the left; I will highlight a couple of things, first you see the target production bar, that is 75 to 80 KBD; we remain committed to that annual target for Syncrude. Second, if you look at the last four years, you will see the impact of what I call these large one-time events. Now I should highlight the 2016 onetime event was the Fort McMurray wild fire, so that was not an operational issue. What you do not see in this data, because it is masked by these one-time events, when we look below that and we look at the underlying performance, when we look at 2016 and 2017 for Syncrude, we see that 50% of the months over that time period, this asset has produced 80,000 barrels a day. When we go back, prior to that, we only see one or two months a year when it was able to do that. So, we see some underlying performance improvement but it has been taken away by these one-time events. Now, that is our reality; those one-time events are our reality and we need to deal with those and we need to learn from those.

We have a multi-pronged reliability improvement approach; it starts with mechanical integrity and focuses on mechanical integrity piping upgrades and compressor upgrades in particular. We move to turnaround planning

and execution; we see opportunities in that space in terms of our planning resources in terms of how we time our turnarounds in terms of maximizing tankage and optimization. Then leadership and workforce; we do have some work to do in that space; we look at it in terms of we have some leadership development work that we are doing, and we look at collective competency and core anchor positions as the organization and demographics and things, and attrition that we have to build up some of that strength. Those are the things we believe are going to help us get Syncrude to this target performance.

We have taken a very collaborative approach with owners, in terms of sharing best practices, sharing resources and learning from each other, and looking forward, we do expect to get this asset back to a 90% utilization and achieving best in class performance.

### **Syncrude collaboration**

Let me talk a little bit more about this collaboration and leveraging the owner strength to accelerate performance improvement. 85% of the ownership of Syncrude today have experienced significant experience in oil sands mining business, and all of the owners are in the oil and gas business, and that is very different than where Syncrude started. Syncrude started – was developed really to establish that oil sands mining experience. Now we have a suite of owners that all have significant experience, and we think that really affords Syncrude an opportunity to draw upon the expertise, the services and the personnel from those owners. Examples of that around business services, things like accounting, tax, IT, procurement, and Imperial is providing those services to Syncrude today. The economies of scale that the owners have in this, we believe really enables us to provide an efficient way, these services to Syncrude. That will allow Syncrude to move a little bit away from being a corporate entity to being a laser-like focused operations entity, and we think that is a real key focus going forward.

The other thing, if we think about this, is recognizing that we can learn from each other and learn more than we have been doing. We have set up these collaborative production forums; what that is, we bring in experts from Syncrude, Suncor, Imperial, all of the owners come together on particular topic and figure out and share best practices and processes around optimization and maintenance and so on, to speed up the learning processes. Those are in place and starting and we have not been doing those, if you go back a few years. The other thing is proximity to the operators and you see in this picture in the background, the foreground is Syncrude and the background you can see Suncor's base plant, so these are quite close together; 10km to 15km apart, and that really affords us the opportunity for regional sharing around warehousing, busing and camps and that work is underway.

In terms of commercial opportunities, we are getting very close to an agreement on two bidirectional pipelines between Syncrude and Suncor, working through the final agreements now, and I think that is just the start of the things we believe we can do in terms of the commercial space, for Syncrude to improve Syncrude. So, we think this collaborative approach is really going to help and going to bring us back into that target production range.

### **Kearl**

I am really excited to come here today and talk to you about Kearl, and I have been working Kearl in a very significant way for almost six years now, and I have always been confident in our ability to meet expectations on Kearl, but I cannot say I have always been excited about talking about it over the last few years, and the challenges we have; I am today. You have heard us talk about Kearl as our next generation oil sands operation, the proprietary paraffinic froth treatment; being able to put our product directly to the market without going through a refinery. That reduced our capital intensity significantly on the project and it reduced our wheels to

wells greenhouse gas intensity of well. This largely strips out the heaviest lower value parts of the barrel, and without processing it, we put those barrels right back in the ground, and that has been a real advantage for Kearl.

Mother Nature is on our side as well; we have a high quality resource at Kearl; we are lucky to have that, and we have been very, very much focused on near term production growth opportunities and I will share those with you. Organization wide, as we step back and look at Kearl, we see this as our single biggest challenge; our corporate defining opportunity and the entire organization seizing that opportunity to make Kearl better. And I think what you saw in the third quarter with our 244 KBD quarter is the start of that demonstrating what we can do with Kearl and its capability.

### **Kearl performance**

When it comes to Kearl we are focused on every element that drives performance; reliability, cost structure and the realizations we get for our products. I mentioned, we see this as a corporate defining opportunity and in our drive to seize that opportunity, we have leveraged the entire capability and capacity of our organization; we are leveraging everything Imperial and everything ExxonMobil can bring to bear; upstream, downstream, research and so on. And in that effort of improving Kearl performance, and all that really focused on improving Kearl performance and the cash generation capacity of this asset, and we have identified a broad range of opportunities to do that, which I will share with you.

Now, in a large mining operation like Kearl, it does take some care and feeding, and in that regard, as we look forward and we see our sustaining capital averaging \$5 a barrel Canadian, and in terms of our unit cash target, that remains unchanged. We have stated this before, and our all-in cash unit target for Kearl is \$20 a barrel US.

Unit cash can be represented in different ways and when I say all-in, I mean it is fully burdened with our overhead, our corporate costs, controllers, research, parts of my salary and parts of salaries of my colleagues here. This is a full in, fully loaded unit cash cost for this asset. If you look at the chart that is here on the left; the plot that is here on the left, you can kind of see what we are trying to do with Kearl; we are at 200 KBD right now in 2018, the goal is to get it to 240KBD in 2020 and higher rates beyond that as we look out past 2022. Over this period, we have been improving our cost structure and you can see that in the declining unit cost that we have had from 2017 to 2018; it has been declining even further if you go back, and we have plans to get it into that \$20 range. I will draw your eye to the black triangle on the chart here; that is our Q3, 2018 unit cost; it is at \$22 a barrel, US. We had a lot of spend in that quarter in terms of turnaround; when we back out that turnaround cost, that unit cost in the third quarter would have been \$20 a barrel US that is what gives us confidence in our \$20 a barrel target.

### **Kearl performance indicators**

Now, Kearl, to achieve best in class, we are looking at achieving best in class performance in all areas of our operation. I have chosen a number of indicators here to give you a sense of how we are doing that, and I try to get a representative sample, looking at our mine, our plant and our logistics. Starting at the top left, this is all about haul truck utilization. Haul trucks are a big investment and we need to ensure we get every single thing we can from that investment, and what you see here is the organization has been constantly improving the utilization of our trucks; we were around 70% in the 2013/2014 timeframe and now we are at 86%. You can see it is not quite best in class but I can rest assured, we will not rest until it is. Top right, this is around solvent loss, now we use solvent as a key part of our PFT technology but it is expensive; we recycle it and we reuse it. This chart is indexed, looking at from 2013 to 2018, we have reduced our solvent losses by over 75% over that period. To give you a sense, this is real dollars, just the difference between the best in class, which right now

we are better than best in class; we have reset the best in class benchmark, but the difference between that orange triangle and top of the blue bar, that saves us \$15 million a year. So there is real money in this.

Bitumen recovery, on the bottom right, you can see how that has been improving over time; this is about how we wring every single bit of bitumen out of the oil sands that go through our plant and you can see we are at best in class performance of 90% recovery. Bottom right, logistics cost per person; we are a fly in, fly out operation; we have a lot of people. Logistics are expensive and it is really important that we look at this. But, our workforce work hard and they spend half of their lives with us on our sites, so it is really important that we provide a good offering and so it is important that we maintain that good offering while also looking for efficiencies and economies of scale to provide that offering at the right cost, and I have been really impressed with what our logistics team and service providers have been able to do in that regard. These are just a sense of some of the performance indicators we use, but our goal is best in class in all areas of operation.

### **Delivering on 200 kbd**

This chart is identical to the chart we shared in November of 2017 and our business update; I purposely left it unchanged because our plans and commitments that we shared with you then are unchanged. This talked about our commitment to get to 200,000 barrels a day. We talked about a series of opportunities in terms of ore preparation, series of opportunities around piping durability; those have been completed and those are performing as expected, and that coupled with the organizations overall mining operational experience, and how our folks are able to optimize and improve performance every day, is driving the results that you are seeing today. We talked about our quarterly call year to date production, 202 year to date, in fact as of this morning it was 203, and we recently achieved our best day of 340 KBD, so we are positioned to meet this commitment and potentially exceed it this year.

### **Increasing to 240 kbd**

Next step is investing to increase from 200 to 240 KBD in 2020, again this chart is a direct lift from the November 2017 business update. We are going to add supplemental crushers; you see those in red at the diagram at the top, so we are going to double up the crushers at K1 and at K2, and we are going to double up the serge and feed conveyer, that gives us full redundancy at the front end of our plant. We are also going to put hydro transport interconnects in place that allows us to for example feed or from K1 crusher to the K2 plant and so on, it gives us a lot of optionality. The picture at the bottom is a picture of the crusher wall at Kearl today; this is a beehive of activity at Kearl and at the fabrication sites that are making these crushers right now. In terms of cost, it is a \$550 million gross investment and very capital intensive perspective, very attractive in terms of \$14,000 per flowing barrel. It is on schedule, it is on budget and it is ready to start up in 2020.

### **Opportunities for ~ 280 kbd**

Now, this page is something new; we have not shared this before. Of course we are looking beyond 240, where do we go from here? Through a series of targeted debottlenecking redundancy improvements, we see an opportunity to increase production up to around 280,000 barrels a day. Timing a little bit to be determined, nominally thinking a few years past the crusher start up in 2020. One thing I would highlight; this is kind of a list of all the things we are working on. I would highlight that they cover the entire span of this operation, from the oil sands, mining, ore preparation, extraction, froth treatment to market; we have opportunities across that whole span of the operation that we believe will help get us to this 280.

Resource optimization is a really important one; this is really around enhanced selectivity of the ore and blending of the ore, to improve feed stability to the plant. An example of that is moving to hydraulic shovels

versus electric shovels, having a balance of those; hydraulic shovels are more nimble and they can pull out the small layers of waste and not put it into the plant and that improves your overall recoverability. That is just an example. Primary separation cell upgrades, really key; right now we take down each plant every year for a major turnaround. What we are doing here is going to enable us to take down each plant every second year; that is a significant savings in terms of our turnaround schedule downtime.

Froth treatment interconnects; as we have gone through the froth plant and learned about it, we have found ways where we can connect it up and put in small projects that really unlock capacity and improve the reliability. An example is we have an 80 megawatt co-gen unit on site, we have been able to put in a small project, \$5 million type project with hot water connects; we now have an 86 megawatt co-gen facility at site. Now we are going to link up to some steam interconnects; that is going to get us to 100 megawatts. Very small investment, significantly improving the asset that we have on the ground. Diluent and solvent utilization really key, I have talked about solvent, diluent is all about trying to improve our realizations, minimizing or looking at the right amount of diluent that we put in the product to improve our realization. There is a broad range of opportunities here; they are at various stages of maturity, but when I look at this slate of opportunities, I feel really good about it and we are on track to achieve around 280,000 barrels a day at Kearl. Racked up, the capital intensity of these is similar to the crusher, in the kind of \$14,000 per flowing barrel range.

### **Productivity and digital initiatives**

I thought we would spend a little time talking about this; this is all about leveraging technology to drive improvements and enhance performance, and I put it in the Kearl section; I will use some Kearl examples, but this is really an upstream wide focus area for us. The first step in doing this is really kind of the digital foundation, connecting all your equipment, all your assets, all your people; we have a lot of that in place today but we are doing more, putting in LTE networks at our sites, fiber optic connectivity from our assets, back to Calgary and so on. And this has really enabled some of the things I have on the list, like the asset improvement teams; this is bringing together experts from around the world, outside of the asset, outside of Calgary, leveraging ExxonMobil and others, and linking them all together to find ways to improve our assets. That digital foundation is critical to that. We have also started to leverage what we call ExxonMobil's Bangalore technology center, so ExxonMobil has established a technology center in Bangalore in India and this digital foundation is enabling us to leverage that. We have 60 FTEs in India today, providing support to our assets, around surveillance, document control, reporting and so on, and that is real dollars. The arbitrage on salary there is the salaries are about a third or less than a third of what it would cost us here in Canada. That enables us to put our folks on the highest priority or to reduce the amount of workforce that we need.

The other three remote operating center, end to end recovery optimization workforce visualization are all specific digital projects that we have underway to improve our business. Looking at establishing next year, remote operating center for Kearl in Calgary, so that we can collaborate with the site. Over time, we expect that you could actually operate from Calgary, our sites. End to end recovery optimization really important; there is a barrel of variables here in terms of how you get your bitumen recovery, getting all those variables using machine learning and algorithms to optimize it. We believe the prize there is not small; about 10,000 barrels a day uplift, we think we can get from that.

Overall when we look at digital, we think there is a greater than \$500 million per year value opportunity here. We have established the team, we are leveraging ExxonMobil, we are bringing in some third party consultants to help us move this forward as fast as possible; it is a huge opportunity.

**Autonomous haul trucks**

I think the single biggest digital project we have underway right now is our autonomous haul trucks; we are partnering with Caterpillar and Finning, and running an autonomous haul truck pilot; that is ongoing and it is really around improving mine safety and productivity. We have been at this for a few years; we have seven autonomous trucks in productive service today and when I mean productive service, they are not just ring-fenced and moving around empty, they are actually moving overburden for us today, so we have seven autonomous haul trucks in productive service. Our focus with this is really looking at the unique oil sands conditions; soft underground, our cold temperatures, our freeze and thaws in the springs and breakups, it is trying to figure out, can we get this to work in the oil sands. We visited mining sites around the world. We are well into our pilot, and I would tell you, we are very encouraged by what we see, and as we look into 2019 and 2020, as we get through 2020, we expect to have 20 autonomous trucks in service, we are going to upgrade our mining system next year so that we can run an autonomous fleet, and post 2020 will be positioned to make a call and if this is the path we want to go down.

In terms of savings, greater than 50 cents a barrel is the way we have described it. 50 cents a barrel is just really simply to improve truck utilization, you do not need breaks, it is in terms of the less people you need to run the trucks; that gets you the 50 cents. What we have not quantified fully yet is the productivity improvements, the reliability and the maintenance reductions that you get, and folks that are running autonomous today tell us that is significant, so we think it is greater than 50 cents a barrel.

Active workforce engagement is really critical; we are training our folks on autonomous technology today; they are helping us prove out the technology and I think it is really just about new and different career paths; we still need heavy equipment operators, they are not going to be driving the trucks themselves into the future, but there is a reduction in terms of the overall drivers that you would need.

**Maximizing Kearn value**

Maximizing Kearn value, this is really just to conclude, currently delivering 200,000 barrels a day, supplemental crusher project on schedule, on budget to deliver 240,000 barrels a day. Opportunities to get to 280,000 barrels a day; we are leveraging absolutely everything we have in our organization as well as ExxonMobil to bring this to reality, and all of that is really focused on maximizing long term cash generation.

**Cold Lake**

Cold Lake, our large scale in situ operation has been the cornerstone for many years, and if you look at the 2P reserves here, one and a half billion barrels will be for a many years to come. We expect our 2018 production to be around 150 KBD, and a few highlights on Cold Lake; we resumed our drilling program this year after a two year break and the first steam into those wells will occur in the first quarter of next year, continued application of new technology is crucial and has always been and will always be in terms of Cold Lake. The use of solvent recovery techniques to maximize recovery and improve environmental performance, that is kind of where we are headed next in terms of Cold Lake, so it has evolved and continued to evolve over time and will going forward.

**Cold Lake performance**

Looking a little closer, our focus is really around lifecycle optimization, cash generation and this is an asset that has performed extremely well for us and continues to do that today. Three key focus areas, it is around optimizing the steam distribution, you need to have the steam available and you need to deploy it to the right places to maximize recovery, utilizing the existing wells; we have over 5,000 wells; we need to take care of

those wells and we do that and ensure the integrity and reliability of those wells through a well work program, usually the most profitable work you can do.

Adding wells to sustain growth; important at times as well, and I mentioned we have restarted our drilling program, and that drilling program is going to deliver about 5,000 barrels a day in 2019, and 10,000 barrels a day in 2020. So, if you look at the kind of history here, you look over the 2014–2017 timeframe, we have produced about 155 KBD. This year we expect 150, and as we look at maximizing the overall lifecycle value of the asset, you are going to get some variability in the production and that is all we are really seeing here. The thing I draw your eye to is the unit cost; the unit cost – our focus has always been around \$12 a barrel, US, and if you can look over this full five-year period, that is where we have been, and that is where we plan to remain. Bottom line with this asset, with the \$12 barrel US cash OpEx, we have about \$5 a barrel, Canadian sustaining, so \$4 a barrel. This asset is positioned for strong cash generation in just about any price environment.

### **Cold Lake performance indicators**

As with Kearl, we look at performance indicators and move to maintain our best in class performance here. We have had 40 years of continuous improvement and we are not done yet. We need to keep going. Across the top is a series of indicators; they are all indexed of some of the things our team has continued to improve upon. The drilling one is interesting; what we did here is we took our unconventional drilling team that we had, we took our conventional Cold Lake drilling teams, we merged them together. We got them together, we asked them to share best practices, we looked at what ExxonMobil is doing in the US in the unconventional space, put all that together and found out what we could learn. We applied those at Cold Lake when we restarted the drilling program in 2018, and we reduced the cost by 30% versus our 2015 program. Freshwater use, we have always been a leader in this space, we want to continue to be a leader in this space, and despite that, always being in that position over the last decade, we reduced freshwater use by 50%.

Power related volume loss, that comes to the energy cost that we have, it comes to steam distribution and you can see here, that from 2014 to 2017 a 60% decrease in our volume loss related to power supply. This is not a big volume loss driver, it is like 0.3 kbd, it is very small. But it just goes to show the level of detail and things we are driving to try to improve the overall performance. Bottom line for all of this is bitumen recovery and you look at the bottom of this; and we start in this game with thermal pilots in the 1970s, our bitumen recovery was in the teens, where now with steam flood introduction and all of the other technologies we have applied here, it is in the 60% range.

### **Cold Lake recovery**

When I say that, we are not done yet, this chart kind of really talks to that; this is about ongoing enhancement through technology and innovations. Cold Lake has evolved over time, you saw that with the enhanced bitumen recovery over time and it will continue to do that as we go forward. Rich talked about one of the great things about long life assets is it gives you this time to test, to prove and to optimize new technology and that is what we have been doing at Cold Lake. Cold Lake has really been a playground or an outdoor laboratory for new technology for over 40 years.

If you look at how this asset has evolved and will evolve, in 2000, this was largely a cyclic steam operation, it was entirely a cyclic steam operation. We came into 2010; 20% of our production came from steam flood, now steam flood is like a continuous low pressure steaming versus the high pressure cyclic steaming. So, in that, we went to 20% from steam flood. Now, in 2018, we are about 50/50. Cyclic steam and steam flood, and you can

see a small sliver of solvent production coming into play here as well. If you go out another 10 years, another decade or so, 2030, not far off, a third, a third, a third in terms of steam flood, cyclic steam and solvent, constantly changing assets to ensure we sustain and improve its performance. Digital solutions are going to play a key role. We have already a steam flood optimization algorithm machine learning project underway that we are using. You can imagine as you get out here and you have got cyclic steam, steam flood, three or four different solvent technologies, the importance of trying to optimize that, and digital is going to be the key to that. Overall, all of this really towards driving economic and environmental benefits and getting the most we can from Cold Lake.

### **Maximizing Cold Lake value**

To wrap up on Cold Lake, it is all about maximizing Cold Lake value and strengthening performance and offsetting natural decline. We talk about it as a long life plateau asset, but it does have a decline. The difference with Cold Lake versus many oil and gas plays, is you can offset the decline, and many you cannot. In Cold Lake you can. It is first through drilling and well work, that is kind of the bread and butter of maintaining your volumes through drilling and well work; that is the green wedge on the chart here, and then the next part that really ensures we maintain the volume and enables us to grow is through new technology and particularly in terms of solvent technology. What you see from the plot here is we are in the 150 to 155 KBD range at Cold Lake, kind of for the next few years and then we get back up, you see it start to tick up as the solvents come into play, and particular get back up into the 160 KBD range after that.

Now, we do have regulatory approval on our Cold Lake expansion project; that is a 50 KBD SA-SAGD project that taps into the Grand Rapids formation; those volumes are not in this profile; that is upside on here. The timing around this is still under review; Theresa will cover a little bit more about that as we go forward, but that is not in this volumes profile as we determine the right time to move forward with that project.

### **Norman Wells**

Norman Wells, as you may have heard, restarted its operation in mid-October after being shut in for two years, in December 2016 Enbridge proactively suspended shipments on the export pipeline as a precautionary measure when they were seeing some slope stability concerns around the Mackenzie River, after what was quite a lengthy regulatory process, replacement of a two kilometer section of line, 870 km pipeline started in May of this year, was completed in September and then we were able to restart operations. We are running about 5 KBD at Norman Wells right now in terms of the restart as we move back towards the 10 KBD in the first quarter of next year.

Our focus is really around optimizing remaining asset life, you may recall we were marketing the asset before the shutdown, we really had to put that on hold through the outage. We will resume that in the first quarter, but you know, either way, we remain committed to the north, and to this asset, and prepare to operate through end of field life with the same commitment to safety and environment that we always have, we will just have to see how the marketing effort goes.

### **Unconventional optionality**

When we think about this portfolio, we really think about the optionality it provides; it provides us with a liquids rich opportunity; it could be a natural hedge in terms of the natural gas that we use in the liquids diluent that we use, but we are taking a very paced development approach here. We are 50/50 owners with ExxonMobil and together we hold liquids rich acreage in Montney and Duvernay, and you can see those on the map here, and we like the holdings that we have when we look at them, compared to US unconventional, much of it looks quite competitive, but we still want to learn more about it, and see how this opportunity fits into our overall

portfolio and how it competes in our portfolio. I would say it is fair to say we pulled back a bit in terms of the pace from what we shared in our November 2017 business update. At that time, we said maybe this would be 30 to 50 KOEBD in 2020, we kind of think now 30 KOEBD in 2023, maybe 20 KOEBD in 2020. So, as we have learnt a bit more, and as we have compared it to the other opportunities that we have, we have pulled back a little bit.

I would highlight, we are fully leveraging ExxonMobil and their XTO affiliate, their unconventional affiliate in this regard, their unconventional knowledge, their practices and their approach, we are not reinventing the wheel here; we are able to tap into a world class unconventional skillset and knowledge base in this regard. So, what are we doing? Well we have an initial development underway in Duvernay, and that means we are running two rigs in Duvernay. What we are really trying to do is fill the processing capacity we have there through our existing owned plant. We are developing the very highest quality portion of the resource, that is about 100 MOEBs or so, about half the acreage position we have there, and it is going to be an investment of about \$500 million over three years. That will develop about 22 KOEBD split pretty equally between liquids and gas, attract a double digit rate of return at \$40 a barrel Brent.

In terms of the Montney, we are not as far along as that; we can see there is a larger acreage position there; we are just really scratching the surface, we are focused on a very targeted portion of that; we have one rig running in Montney right now. So, as we look out five years, as I have said, very paced approach, 30 to 35 KOEBD, five years out, split equally between liquids and gas. Folks, that concludes the kind of asset portion of the upstream overview, and what I want to move to now is really talk about how we maximize Imperial's general interest value.

### **Pricing fundamentals**

On this slide I am going to look at bitumen realizations and I am going to talk a little bit about how we place our product in the market, and I will talk a little bit about our rail terminal. So, on this chart, the pricing fundamentals, and what we are seeing in terms of bitumen realization. What you see here is basically a bridge between WTI, WCS and bitumen, for 2017, and for 2018, year to date, all in US dollars per barrel. Starting with 2017, you can see WTI traded at \$51 a barrel. We experienced a \$12 a barrel differential between WTI and WCS accounting for the quality differential and the transportation to the Gulf Coast. Then we saw a \$9 a barrel differential between WCS and bitumen associated with the backing out of the diluent, and the transportation from our operations to Edmonton, so left us with about \$30 a barrel bitumen realization, overall differential of \$21 a barrel.

Moving to 2018, of course we have seen this increase in WTI, it is up \$16 a barrel, but the market access constraints, we have also seen a significant increase in the cost to get product to the Gulf Coast, so you can see an increase of \$10 a barrel bringing that from \$12 to \$22 a barrel differential between WTI and WCS. The slight increase in the cost of diluent, so overall what we have seen is about \$5 of that \$16 a barrel increase in WTI actually translated to the bitumen realization. So, \$16 increase in WTI, \$5 increase in bitumen. I think this is something you are all quite well aware of but I thought you might want to see exactly how it kind of applies to us, and our realizations.

### **Equity crude value**

When it comes to placing crude, our focus, not surprisingly is on maximizing Imperial's general interest value and minimizing those differential impacts that I showed on the previous page. As somebody leading the upstream, as the head of the upstream organization, I do not worry at all on where, within Imperial this value is realized, in the upstream or the downstream. Our focus is squarely on maximizing value for Imperial

shareholders and taking full advantage of our integration. So, what we try to describe on this chart is how do we do that? How do we place our crude in markets to maximize the general interest value? Starting at the top, we produce about 400 KOEBD, about 25 KOEBD of that comes from our conventional and our unconventional business, mix of natural gas and light liquids and it has a variety of disposal points. Then we go to Syncrude, and the target 75 KBD from Syncrude, vast majority of that is refined at our Strathcona refinery, so we capture really the full integrated value of the Syncrude production. And then we are left with about 300,000 barrels a day of bitumen from Cold Lake and Kearn, and that equates to 400 KBD of dilbit. We utilize four different clearing mechanisms to get that dilbit to market. They may vary overtime, but interestingly they are roughly equally weighted. We get 100,000 barrels a day to Imperial refineries, 100,000 barrels a day via contracted pipe to the US Gulf Coast, 100,000 via our rail terminal to the Gulf Coast and then there is 100,000 that is left that we sell at head of pipe in Edmonton. These are kind of shown from left to right starting with the highest value options and progressively, kind of lower relative value as you move to the right on this chart.

The highest value barrels are the ones that we run in our own refineries where the light heavy differential is fully captured by the downstream; that is the highest value ones we have. From an upstream perspective, we sell it at Western Canada Select Edmonton adjusted for quality, but the offset, the downstream gets that gain. Our refineries have done just an outstanding job here; if you go back over the last three or four years, we run 60,000 to 65,000 barrels a day through our refineries with next to no investment we have been able to get that up to 100,000 barrels a day. So they saw the opportunity, seized it, and this has been a great win for us. Next on the priority here we have got transportation by contracted pipe and via our rail terminal to the US Gulf Coast and then what we capture for that is really just a quality differential and the respective transportation costs for the contracted pipe and the rail terminal. I am going to come back and talk a little more about the rail terminal.

Finally, the remainder is sold at head of pipe in Edmonton and captures the Western Canada Select Edmonton price adjusted for quality. In the current environment of course, we look to minimize that and we look to continue to do that. As we look at our optionality and kind of how we place these products, I would say we are very happy with our integrated position and the choices that we have made in terms of contracted pipe to the Gulf Coast, of course our rail terminal, our insurance policy, as you have heard us call it; these were choices that we made, when we looked several years ago, looked out at business growth plans, we looked at market conditions, we looked at transportation risk, those are choices and investments we made and we are pretty happy about where we are in that regard.

### **Market access**

Let us take a closer look at the Edmonton Rail Terminal and the unique competitive advantage it provides for us. We mentioned in the Q3 earnings call, over the six months from April to September, we averaged about 80,000 barrels a day through that terminal. In October we averaged 110,000 barrels a day, so we are clearly starting to ramp things up at this rail terminal, and I will describe how we will continue to do that and the advantage it gives us. The competitive advantage of course, and key to that competitive advantage is the terminal itself, and we have a modern, state of the art terminal specifically designed for efficient loading of dilbit, and we are very happy with how that terminal is performing, but the reality is, that just gets you in the game, but we are in the game with that terminal and we are very happy with that terminal. You also need reliable rail service, and we are very happy to have two rail service providers with firm service agreements in place with CN and CP, and with that we believe we are positioned and expect to increase our rail usage in Q4 to between 125,000 and 135,000 barrels a day; that is roughly two unit trains per day.

There are a few other really important aspects to fully utilizing the rail terminal and capturing all the value and advantage it can provide. First, you need unmatched access to a large flexible rail car fleet and this is an area

where relationship with ExxonMobil is really adding value. Our relationship here gives us access to one of the largest railcar fleets for hydrocarbon service in North America, and that is a fleet that numbers in the thousands. And that gives us flexibility as we move rail cars to different – as we move our product to profitable routes. And over 2018 we have increased that rail cars by about 20%. That is a great advantage that we have there and gives us a lot of flexibility in terms of the rail cars.

The other thing that is really important is the destination of your product; and as we look downstream of our terminal, we believe we have unmatched logistics, and offloading facilities and optionality, so it is not just a rail terminal, you have to get it to market and you have to efficiently offload it and return. We are all about optimizing the cycle times with these trains and it is 15 to 18 days to load a train, get it down to the Gulf, get it back, that type of thing. So, it is all about optimizing that, but you need the terminal, you need the service agreements, you need the access to the cars and you need offloading to be able to do that, and as an example, with one of our service providers, we can load in Edmonton in a very efficient way; we have a direct route of transportation to our largest offtake in the Gulf Coast, and we can offload that full product. No transferring of trains, full loading, full offloading and back and forth. That is really important. Not all trains go that route; many transfer and have different loading and so on, so that is a real advantage for us.

When we look at 2019, we are looking to utilize every bit of the rail terminal capacity we have, because that allows us to get to the highest value markets and get their efficiently. In Q1 of 2019, we are looking at 170,000 barrels a day of utilization at this terminal, so overall we really believe our downstream logistics position us kind of uniquely and advantaged.

### **Near-term production outlook**

To wrap things up, on the upstream, let us take a look at near term production and outlook for this year, 2019, 2020, as I mentioned before the growth is really underpinned by capially efficient projects and reliability improvements and we expect to see volumes increase by about 15% from where we are, where we expect 2018 year-end outlook into 380,000 barrels a day range to a 2020 forecast of around 435,000 barrels a day. I would describe Cold Lake in that period as being largely sustained in that period of time, Norman Wells with its restart will contribute 10 KBD, improved Syncrude reliability is essential, and over this timeframe we see getting probably to the kind of lower band of that production target that we have, so an increase of 15,000 barrels a day, and then Kearl, of course is key, with the supplemental crusher getting to 240 KBD on a gross basis, 170 KBD IOL share, that contributes about 28 KBD versus 2018.

I have come to the end of the upstream material, we are really excited about the upstream business, the opportunities we are progressing, the value and the cash that we believe this business will generate. I hope this provides you with some helpful insights to our business, our strategy and our approach, and the growth that we see going forward, and with that, I am now going to turn it over to Theresa, who will take you through our business development opportunities. Thank you.

## **Business development opportunities**

Theresa Redburn

*Senior Vice President, Commercial and Corporate Development, Imperial Oil*

Good morning, well you heard Rich mention at the start, the importance of technology to future development in the energy industry. This section will focus on Imperial's technologies and how we are applying them to new business development opportunity, and we will start with research and development.

## **Research and development**

As Rich noted earlier, Imperial has a strong foundation with about 138 years of commitment to R&D. We have got two research facilities, one in Calgary, a new, about 40,000 square foot upstream research facility in Calgary, and this focuses on the next frontier in oil sands technology as well as environmental solutions to meet the ever-changing expectations of our stakeholders. As well, we have a research center in Sarnia focused on petroleum products research, really looking at ways to develop products to meet evolving customer needs.

Also through our relationship with ExxonMobil we have access to world leading technologies in a variety of areas, including leading edge lower carbon technology. So, combined efforts here are about a billion dollars a year and this investment is fairly consistent through the ups and downs of the business cycles. The benefit of this model, and Rich noted it earlier, is that this allows us to focus our efforts in Canada while still benefiting from these worldwide technologies, and we believe this, combined with our own proprietary in-house research, really sets us apart from others in industry and provides a unique advantage.

## **Imperials research priorities**

Let us now move to Imperial's research in Canada. At about \$150 million to \$200 million a year, this is one of Corporate Canada's largest annual R&D investments. We hold about 1,000 patents, we have 100 researchers and scientists on staff and 90 PhDs and these are the folks that are focused on that proprietary in-house research, which really delivers a variety of benefits, lower costs and improved performance at our assets, new technologies for the future, reducing environmental impact and unlocking resource potential. If you look at the priorities there on the left, in the next few slides we are going to really focus on that one at the top, the advanced recovery technologies, specifically in situ technology.

## **In situ technology**

When we talk about in situ technologies, it is not really one technology, we have a full suite of technologies that we can apply to our extensive resource space to unlock value, and I apologize for the many acronyms on the chart; we will decode them on the next page, but if you look at the chart, whether we are working in the upper right section, which is the deeper, higher pressure reservoirs such as those we find in our Cold Lake asset, or in the lower left part of the chart, which are the lower pressure continuous applications that you would use in the Athabasca region. We have a variety of recovery options and they go all the way from traditional 100% steam to evolving into higher degrees of solvent use in the lighter blue. Technology choice really depends on the asset characteristics such as depth and quality resource, stage of development, all with the view to improving economic performance and environmental impact.

## **Advanced in situ recovery**

Let us discuss some of the newer solvent technologies in the in situ space. Before I get into our advanced technologies, maybe I will just take a moment to talk about the center part of that chart; the two traditional types of in situ recovery that are employed today. The first is cyclic and cyclic is a three stage process where you drill a well, inject steam into the reservoir, soak the reservoir which heats the oil, and then the production phase where the bitumen is recovered through that same well bore. This is the type of process that we use in part of our cold lake asset. Then there is continuous recovery technology that is steam assisted gravity drainage that is where two horizontal wells are drilled, the upper well injects the steam that heats the reservoir and the bitumen drains to the lower well which produces the bitumen continuously.

Then we will talk about our evolutions to these technologies and in the upper left, liquid addition to steam to enhance recovery, which is laser, and we are using that in part of our Cold Lake asset today. This is where we

co-inject solvent and steam with solvent up to about 10%, and this enables faster recovery and improved economics and it also reduces greenhouse gas and water use intensity by about 25% versus traditional CSS. Then moving to the right, we increase the amount of solvent and this is our cyclic solvent process, or CSP, that is 100% solvent in the form of liquid propane, and the advantage of this is that there is really no steam generation infrastructure required which is significant cost savings. We also see reduced greenhouse gas and water use intensity by up to 90%, and this technology, we believe, will unlock lower quality areas of the reservoir.

We have been successfully running a pilot at our cold lake operation for four years, then down in the lower left, we have our solvent assisted steam assisted gravity drainage or SA-SAGD; this is a 20% solvent mixture and we have successfully piloted this technology for seven years at our Cold Lake operation and this is the technology that we would apply to the Aspen project. Then again increasing solvent and moving to the right is the enhanced bitumen recovery technology, or EBRT, that is 90% solvent mixture and that has the potential to unlock additional resource, not economically recoverable with current SAGD technologies. We expect 60% reduction in greenhouse gas intensity and 90% reduction water use intensity versus SAGD for this technology. Early days for this technology, but the results in the lab are very positive and we have received a \$10 million government grant to pursue a pilot.

Standing back, and looking at these technologies, they have the capability to deliver a reduction in capital intensity and lower greenhouse gas and water use intensity, so really a full suite of technologies.

### **In situ growth portfolio**

Now, let us discuss our in situ opportunities. So, Imperial is among the leading holders of top tier, high quality in situ growth opportunities in Canada, and you can see from the map on the left, our existing assets are shown in red, and the new opportunity areas in white. We talked about our full suite of technologies that will provide us access to these resources. We see these opportunities developing in multiple phases; 50,000 to 75,000 barrels a day, using a design one build many approach, and this model gives us flexibility really in pace and sequencing and enables us to respond to varying market conditions. The benefit we have is that we have extensive in situ experience from our cold lake operation and we will apply these learnings and best practices as we advance these opportunities.

### **Resource inventory**

This next chart really gets into a little more detail of this resource inventory and the first line on the chart, Aspen Phase I, if you were reading press releases last night, you will know that we announced a decision to fully fund the Phase I project, and we have great investor relations team but they were not quite able to turn around your packages fast enough, so the little green check mark under full funding, as of last night, becomes a big green checkmark. We also have regulatory approval for Aspen Phase II and the Cold Lake expansion and we are still working the development plans for those and we will look to capture learnings from the Phase I project to apply to these later phases. The Corner, Chard and Clyden opportunities are in earlier stages of development but we continue to progress these.

### **Aspen phase I**

Let us talk a little bit more about the Aspen Phase I project; this will be the first full scale application of solvent technologies in the in situ space, and really it is the next generation of development in this area. The Aspen project is located about 22km south of our Kearl mining facility, is 100% owned by Imperial, it will have 75,000 barrels a day production developing about 1.2 billion barrels over the 30-year life. The initial development is

\$2.6 billion and that includes a central processing facility, you can see an artist rendering in the top photo there, and this central processing facility will recover and recycle the solvent and the water. As well, we will have a cogeneration facility which generates steam and electricity; it will be a 40 megawatt facility which will provide sufficient power to meet the needs of the entire site. As well, we will have dual operation centers, one at the Aspen site and one at our head office in Calgary. You can see an artist rendering of our well pad down below.

An advantage of our proximity to Kearn is we can capture synergies such as logistics and infrastructure. One example of that is we will be sharing the Woodlands pipeline that runs from the assets down to Edmonton. As well, we have developed indigenous agreements with seven key communities in the area, and we are employing new business models that really support long-term sustainable economic growth in these communities. Right now, we are progressing the engineering and procurement activities and planning our winter construction work with targeted start up in 2022.

### **Aspen**

We mentioned that we will be applying the SA-SAGD technology to this asset and you can see some of the benefits on this chart. I mentioned we have been running a pilot of this technology at Cold Lake for seven years and this gives us the confidence to be able to capture the benefits that are noted here. We expect about a 25% reduction in capital intensity, and that is versus traditional SAGD, if we had applied that at Aspen. 25% lower steam oil ratio and that results in about a 25% reduction in greenhouse gas intensity; you can see in the chart on the right, versus again versus applying just traditional SAGD at Aspen. In fact, we anticipate Aspen's greenhouse gas intensity to be one of, if not the lowest, intensities in situ operation and industry. Then, as you can see in that chart on the right, our future technology such as CSP and EBRT, will deliver even greater reductions versus traditional applications.

Aspen is really charting a new direction in the future of in situ oil sands development.

### **Why Aspen, why now**

So, why are we doing Aspen now? The SA-SAGD technology as I mentioned, we have great confidence and it can deliver significant environmental and economic benefits. We can leverage our extensive experience from our cold lake asset, and this will be an essentially countercyclical investment and with that we expect that will translate into less competition for labor and materials thereby delivering cost efficiency and execution advantages. As you can see from the chart on the right, Aspen delivers substantial annual free cash flow at various crude oil prices; half a billion dollars a year at about a \$60 Brent level, also providing pretty significant resilience at those lower price levels.

We see Aspen as a catalyst for the future development of our in situ portfolio.

### **Growth opportunities**

Rich mentioned that competitiveness is very important as we go forward and this chart just gives a little bit of an outline of that in terms of capital intensity per flowing barrel, so you can see we have just over 100,000 barrels a day of near term project development, you heard John mention the low cost growth value that comes from the supplemental crusher and other future improvement opportunities at Kearn. We talked about Aspen and Aspen shows here below the \$40,000 a flowing barrel in terms of capital intensity, and then we have another 150,000 barrels a day currently under evaluation with the next step in Kearn improvement, Aspen Phase II in the Cold Lake expansion. Standing back about 250,000 barrels a day of cost competitive growth, with improving environmental performance over the near term, and that number excludes the other earlier stage development opportunities I noted in the resource inventory chart.

In summary, we have a suite of technologies that we can apply to our suite of attractive growth opportunities and we anticipate with this we can deliver industry leading performance for Imperial for years to come. That concludes my section, we are going to provide you now with 10-minute break and when we come back, my colleague, Dan Lyons will walk through our downstream and chemicals business. Thank you.

## **Downstream and Chemicals Business**

Dan Lyons

*Senior Vice President, Finance and Administration, Imperial Oil*

I am going to talk about the downstream over the next 25 minutes or so. I guess I have control here too. The green one, the big green one? Okay, got it. Okay, so I will jump right into it. As you know, our downstream is highly integrated from refining to the mid-stream through to marketing.

### **Downstream at a glance**

As was discussed earlier, we run about 400,000 barrels a day of crude through our three strategically located refineries, Strathcona in Alberta and Sarnia and Nanticoke in Ontario, and we sell through commercial and retail channels, including our almost 2,200 service stations, about 500,000 barrels a day.

### **Downstream overview**

So taking a little closer look at our downstream, you can see the through-put bars there in the dark blue on the left, and Rich alluded to why they came down. In 2014, we converted our Dartmouth refinery out on the East Coast to a terminal, and that took out about 80,000 barrels a day, leaving us with three, as I said earlier, highly competitive, strategically located refineries. And despite our lower crude runs, you can see over the period we have grown sales consistently. If you look from 2013 to 2018, we have grown petroleum product sales about 50,000 barrels a day.

And you can see the result of that on the right of the chart, strong cash flow from operations, really over the whole period, especially the last five-year period since 2014, so just under five years, we have generated nearly \$8 billion of cash. And you can see in the final bar year-to-date cash from operations for the downstream is quite strong, already exceeding through three quarters the average of the last four years. And you know, a lot of folks tend to take this cash flow for granted and say that just kind of comes from the market and clearly strong margins and discounted feedstocks are a big part of the story, but we would not have the cash flow we have were it not for our focused efforts to enhance and optimize our refining performance and our focused efforts to grow high-value and ratable sales on the marketing side. And I will talk a little bit more about that. A lot of this comes from the market, but it is to result considerable focus and effort we have put in or continued to put in to grow this attractive business over the coming years.

### **Refining performance**

So let us go to refining performance. You know, a great benefit as we have talked in the past for our refineries is that we are part of the broader global ExxonMobil network of some 20 odd refineries. And so we get the benefit of all the know-how, all the technology, all the best practices that come across that global network, and there is a lot of networks we have, but across our refineries, globally, working with ExxonMobil, there is equipment networks for each type of thing, whether it is a certain sort of pipe still, a coker, a cat cracker, what have you. We share practices on how to get the most out of that asset, how to run a most efficient facility, get the best utilization. And we certainly take full advantage of that network here in Imperial. And you can see the results in the chart. Over the last five years, compared to the prior period our utilization has gone up

substantially from about 86% to 91%, and we measure a lot of things in our refineries. One of them is this regretted loss. You know, at times we have planned maintenance or maybe we do not want to run quite as high because of the margin environment. Those are not regretted, but when we want to run and we cannot because of operational issues, we call that regretted loss. You can see that is declined by about two thirds between the two periods and really contributed greatly obviously to our higher utilization.

As we have discussed in the past, we participate, maybe I should say, in the Solomon benchmarking exercise, and our refineries in Canada are generally in the top quartile in performance. The one area where we are only in the second quartile is in energy efficiency, and when our Strathcona cogeneration project is up and running in 2020, we will move into the first quartile in that area. So we will have top quartile across our refining network in Canada across all of the key metrics. And obviously the Strathcona co-gen project is going to significantly reduce cash OpEx at that site in terms of purchase energy, in terms of the cost of steam generation. So I think a very strong story on refining and we continue to improve and optimize further.

### **Industry product and feedstock pricing**

Now moving onto the industry and talking about differential and feed stock pricing, I think this is a very topical. Many of you have written about this, so will not be news to you. Well, we thought given its importance it's worth talking about a little bit, and I think folks all know that product prices in Canada are largely determined by the world market, largely Brent-based, and Canadian refineries generate from access to discounted crudes. And you could see here, we chart Brent. We chart MSW, WCS, and you can see over the course of the entire year there has been a substantial discount between Brent and WCS, the heavy discount that folks have working to optimize around.

But more recently, in the last month or two, you have seen really quite a spread opening up between Brent and MSW, the kind of emerging light disconnect and I think as folks know, this is really driven by changes to the Enbridge pipeline system, so it has kind of preferentially moved lights through most of the year where they have been sort of lightly apportioned, not to use a pun, where the heavies have been more heavily apportioned. But, sorry about that, but recently Enbridge has allowed shippers to move more heavies through the system. So it has become more balanced. The lights have got back out a bit, and apportionment is about the same with both and that is what really driven the widening of that light spread.

### **Refining feedstocks**

So what does it mean for Imperial? I will start with the heavies. At top of the chart. We show the amount of heavies we ran over the last four years and what we have run through our refineries this year to date. And as John mentioned, we typically ran about 65 KBD of heavies and we have upped that this year to close to 100 KBD. Really taking advantage of that large discount for heavies and taking advantage of the integration benefit it provides us. And year to date, that has generated about \$200 million of benefit for us.

Moving onto the lights, lights have not really been reflected in our results yet. A little bit in the third quarter, but it is really more of a recent phenomenon of the light spread widening out. And for Imperial, as you can see in the chart, our light refining crude runs well exceed our light production in the upstream. We run about 300,000 barrels a day of lights in our refineries. You will get 400, 100 heavy, the remaining 300 is basically light. We produce in the upstream about 75,000 barrels a day of lights through our Syncrude asset. So that puts us 225 to the good. We get a net discount on 225. And you can do the math, multiply that by a \$10 increase in the discount, a little over \$2 million a day, a couple hundred million US a quarter, about \$250 million Canadian a quarter benefit to us for each incremental increase of \$10 in that light disconnect. So a big factor for us going forward. To the extent that this sustains, it will be very accretive to Imperial.

**Sales and market position**

Moving to the next chart, just talking a little bit more about petroleum product sales. And you can see, as I mentioned, we have grown this significantly over the last five years by about 50,000 barrels a day. And you can see our sales by major product category. You can see our scale is unmatched. We use that scale in our integration and our brands to compete and grow the business. And clearly as we grow sales, it supports the integrated value chain, it supports the utilization in the refineries I talked about, it supports utilization of our logistics midstream infrastructure, and recently we have been investing more in the midstream and downstream logistics. Two key examples of that is we are upgrading the Alberta products pipeline which runs from Edmonton, it's a clean product pipeline, down to Calgary. That is well underway, should start up in about a year and allow us to push more barrels through that pipe. It is a very economic way to move the barrels to market.

We're also upgrading the Sarnia products pipeline that runs from Sarnia refinery to the Toronto market, that's a little earlier, in earlier stages. We expect to sanction that next year and have it up and running, you know, late 2020, maybe early 2021. Those are just two examples of ways we're upgrading our infrastructure to help continue to grow sales. We've spent about \$150, \$200 million of CapEx in the downstream the last several years. We expect that to go up by about \$100 million, \$250, \$300 million range as we put some of these upgrades in place and that'll be reflected in Rich's CapEx outlook that comes at the end of the presentation. So that's sort of the quantum of sales.

**Sales strategy**

And if we go to the next chart, I wanted to talk about what we're trying to do, the kind of sales we're trying to grow. We're not just growing a sales sort of a sort of willy-nilly. It's a very focused approach. We're looking to build strategic relationships with our customers and what we really want to do is grow ratable term sales. And the ultimate ratable term sale is actually through our branded service stations. These sales are not only more stable, you know, ratable, they are easy to run our system, but they also are more profitable. So, by growing the strategic ratable term sales, we're optimizing the integrated profit across the enterprise. And the graphic on the left shows the relative margins of spot sales, term sales, more branded sales at our service stations and put some context on this. If you go back to 2013 until today, we've grown a sales through our branded service stations by about 40,000 barrels a day over that period. We've grown the next bar, the term sales, by about 30,000 barrels a day over this period. And we've actually shrunk the lowest margin, least ratable spot sales, supply sales, exports sales by about 20,000 barrels a day. So that nets obviously to the 50,000 barrels a day growth I've talked about. So, we've not only grown our sales, but we've grown the quality in terms of profitability, in terms of ratability.

**Aviation**

And a few examples of high value ratable sales I'll talk through, one is our sales of jet. The jet market, obviously, we have to production capability to make jet and our refiners, we have logistics to deliver it, we have the relationships to sell it and we've increased our sales into Canada's major airports. We have over 50% market share in Ontario, including at the Pearson airport here in Toronto. We've recently started moving barrels from our Strathcona refinery to the Vancouver airport, which is the second largest airport. And this is really an attractive source of integrated earnings for us. You can see the significant growth shown in the chart and this is a growing market, we expect to continue to grow.

**Asphalt**

Another good example is asphalt. The demand in North America for asphalt is growing just under 2% a year as governments from provincial to state to federal are looking to upgrade and replace infrastructure. You can see the significant growth in the chart. For us, one of the things we're doing is we're leveraging our logistics and storage to produce asphalt year-round. It used to be very seasonal for us, now we're doing it year-round, which increases our ability to produce higher levels, increase our utilization, ultimately lowers our costs. We're integrated in the sense that we use Cold Lake crude at both a Strathcona and Nanticoke to make asphalt. And we see this as a growing market and an attractive one for us and we're looking at growth projects at both Strathcona and Nanticoke to further increase our sales. And you can see significant contribution. Just year-to-date about \$185 million from the asphalt business.

**Retail**

Moving to retail. You can see in the bars there, graphically, I have talked about the 40,000 barrels per day growth in our branded retail sales. I'm very happy to report today that as of the third quarter, we've captured the number one market position in retail in Canada. So we're very proud of that and we hope to keep building on this. This business, it's really important. The core of it is you have to have an offer at the service station that attracts end consumers. And our offer is sort of lined out there on the page. First, you have to have superior products. We have our synergy gasoline, recently, more recently introduced diesel efficient which provides better gas mileage, which is important to the trucking industry. And these high-quality technology driven products, it's another great example of the benefit of being part of the ExxonMobil network. These were developed globally and we get to take full advantage of them here in Canada.

You have to provide convenience as well. We do that through our almost 2,200 sites and our Speedpass+ app. I know all of you have Speedpass+ on your phones. There's a sign out there. Can someone bring me their phone and show me how to use the app? In any case, if you don't have it, I really suggest you download it. It's a great app. You get to pay with your phone, don't have to fumble with credit cards or anything else like that.

Loyalty is also very important in this space. We've recently joined the PC Optimum program. It's a premier loyalty program in Canada, over 13 million members. We are the sole fuels participant and we partner with the leading grocery and pharmacy chains. And it's early days, but we've already seen a 15% increase in loyalty purchases at our service stations. So, you have the products, you have the convenience, you have the loyalty, you had the strong brands. This allows you to track the ultimate consumer, which then allows you to attract strategic partners. We need strategic partners. Our brands at wholesale is who actually own and operate our sites. As you know, we shifted, as of 2016, we shifted completely to a branded wholesaler model. And we need, if you have the brand offer, you can attract the strategic partners who provide platforms for growth, they're willing to invest in this business, they have the retail excellence to make it successful. And together with them, we're going to continue to grow this very attractive business.

**Marine fuels**

Say a few words about marine fuels. I think everyone's aware, of many of you have written about the IMO 2020 sulfur spec. Clearly, IMO in this context is not our ticker symbol, but the International Maritime Organization. And you know, I guess you all of your estimates of what will happen to different prices and we're not going to get into those, but I will just acknowledge some of the key points here. First, I think we all expect heavy crude differentials to widen out a bit on a pure quality of point of view as the demand for heavy bunker reduces and refineries have an incentive to lighten up their slates a little bit. But at the same time, as the demand for heavy bunker goes down, the demand for distillate will go up. We should see prices of diesel and jet strengthening

considerably. And of course, how long these differences in the quantum of these differences in differentials go really depends on adaptation, right? And shippers and refiners are already adapting. Shippers are adding scrubbers. We expect a number, you know, a fair amount already have scrubbers and put them on recently. We expect over the next few years for over a third of the shipping fleet to have scrubbers. We've seen cokers, folks investing in cokers. ExxonMobil just started up a coker in Antwerp. There's other resid destruction getting invested in from resid hydrocrackers or resid cat crackers. Every refinery is looking to debottleneck and tweak. You know, a refiner would - a real hardcore refiner, anyway, would kill their mother for a \$0.50 cheaper barrel. And if you're talking five bucks, you know, God alone knows what they'll do. So, we see, I mean, in a good way when I say that.

But the bottom line, everyone has their own views, but we see this as a relatively short-lived phenomenon. Adaptation on the refining and shipping side should be significant and relatively quick. But in any case, for an integrated entity like Imperial, the impacts are reduced. We may lose on the discounted heavies, but we'll win on the refining side. So, we are well positioned, in fact, we're going to offer three grades of fuel oil going forward: fuel oil, marine, marine bunker going forward. It's not a huge business for us, but we'll sell the stuff that people use today because people with scrubbers will want to buy that. We'll sell the point five, which is the spec on the high seas and we'll sell the point one which has been the spec for a number of years, you know, intercoastal within a couple of hundred miles. So, we will take advantage of the opportunities here and we think we're well positioned.

### **Downstream summary**

Kind of summarizing the downstream, we're quite excited. We have high performing refineries as a result of a lot of focus efforts as a result of leveraging the benefits of the ExxonMobil network. We certainly have access to advantaged feedstocks, which are helpful. But we also are using our scale, our integration our logistics and our brands to grow ratable high-quality sales which will build our profitability further going forward. And we really, we will take what the market gives us, but we're going to get more than that through our improvement efforts. And we see sustained strong cash flow in this business and we believe we're well-positioned for industry-leading performance.

### **Chemicals at a glance**

Let me talk a bit about chemicals. Chemicals, smaller, but a key contributor for us. We're - as Rich mentioned earlier, our chemical plant at Sarnia is highly integrated with our refinery. It also is located in a place where there's access to advantaged feedstocks and using - leveraging ExxonMobil technology, produces high value products and you can see their sales, about 800 KT a year. And over the last five or just under five years, it's generated over \$1.3 billion of operating cash for us.

### **Chemical overview**

Taking a slightly closer look, we've been at 800 KTA, as you can see, for the last ten years or so. On the right though, you can see our cash flow has picked up significantly over the last five years prior to the previous five years. And I'll talk a little bit more about that. And you see, this year is particularly strong. Through three quarters we're already ahead of the average, the full year average, of the last four years.

**Integrated petrochemical site**

So looking a little bit at the site, I mentioned, we're fully integrated with the Sarnia refineries. That provides a lot of operational benefits to both sites. And like on the refining side, I talked about the global networks, the access to know-how and technology of ExxonMobil, clearly are the same thing on the chemical side. And you can see there's a real change in 2015 and significantly lower feedstock, which helps support the cash flow, obviously, in that we have pipeline access since that time to the Marcellus Shale, which is cost advantage, significantly cost advantage refinery off gas, the Marcellus gives us quite a strong cost of goods position. The other good thing about where Sarnia certainly is located, it's within - about 60% of our customers are within a day's drive of the plant, which gives us a bit of a transportation advantage over some of the larger facilities down in the U.S. Gulf Coast.

**Premium products**

If you look at the products we make, we make a number of things but really, we make our money in polyethylene, both rotational molding and injection molding and you can see some of the end products that are made by our customers who purchase our pellets. Injection molding makes things like pails, containers and crates, including that lovely recycling bin there, rotational moldings, toys and tanks on the lower part of that chart. And one of the things that helps us, obviously, we're always subject to the world polyethylene market. But in addition to our location being near our customers, having advantaged feed, we also - you know, it's really through ExxonMobil network and technology produce very high-quality resin. These are specialized products. Different pellets go to different companies for different purposes. We work closely, our technical support works closely with our customers on specialty applications and that gives us some insulation from the broader world markets. So, it's an attractive business with strong and relatively stable cash flows.

**Value chain**

Now just maybe to sum up a little bit of what we've talked about. Starting with John and Theresa through me is, you know, we're integrated across the value chain at Imperial and this gives us a number of advantages. We believe it's a true competitive advantage. Clearly, we can leverage opportunities from crude to customer at each point along that chain. There're opportunities. We're not limited by only participating in one part of the chain. And as we look at that chain, we can leverage ExxonMobil's global expertise and technology to help us if there's strong opportunities in any part of that chain. And clearly being integrated provides us with financial resilience. Rich mentioned that and you can see it certainly with the IMO spec change, you can see it with the crude disconnects, heavies and lights and what goes on in the refining versus the upstream. So it clearly makes us more resilient and that leads to balance sheet strength and really gives us a lot of optionality to invest because we have the balance sheet strength to do that and because we have the optionality of where to invest across that full value chain.

And with that, let me turn it back to Rich.

## Wrap Up

Rich Kruger

*Chairman, President and CEO, Imperial Oil*

Okay. I'm going to take us home over the last few minutes, but I want the record to show, Dan, I love my mother and she's deceased so I have no conflict with anything that enhances refining margins. But on a lighter note though, I wanted to make some - Dan commented that we have, we provide greater than 50% of the aviation fuel into the Toronto market. Do you know how you know if you get on a plane here if Esso is on board? You depart on time and you arrive early. Okay. What are we laughing about? That was serious. Okay. Let me wrap it up.

### Cash flow

I want to start with a little quick look at cash flow history, delivering value, resiliency through integration. We've talked about the upstream and downstream, each of the components on it. I want you to look at the chart on the left and the first three bars are kind of under what we would probably agree were a higher price period of time. WTI and the mid to upper \$90s, WCS in the mid \$70s, the next three bars were under a lower price period on average, a bit under \$50 a barrel and a WCS hit the \$30s. Looking at where we are through the first nine months and if you would allow me to just suggests that the fourth quarter would be ratable with the first nine months, what you can see is our cash generated from operating activities this year will be somewhere in the vicinity of what they were not too many years ago under a much higher price environment. And I think a lot of the drivers behind that have been discussed today of those things that are within our control and or decisions we've made to maximize realizations, to improve fundamental performance, cost structure, reliability, that has taken our enterprise to a different level and it's cash - than it's historically been in cash generating capabilities.

The two pie's on the right illustrate a little bit differently, illustrate this resilience. If you look at a more recent five year period where we've had lower crude prices and the upstream contribution has swung to a bit less than half if you go back and look at a longer period of time, more of a 10-year average, you see the upstream is greater than half. This is a bit of that resiliency and somewhat of a hedge that's in the nature of the asset base and operations we conduct.

### Financial strength

From a financial strength, we, our capital allocation strategies, as paraphrased there on the right, maintain a strong balance sheet. Payer reliable and growing dividend, invest in high value products and return surplus cash as and when available to shareholders. You can see our balance sheet remains strong. We've got about \$5.2 billion in debt on that and an 18% debt to capital ratio.

### Dividends

Reliable and growing dividends, here's a bit of a history. If you go back longer-term, we've paid a dividend for more than 100 years consecutively. We've had 24 years of consecutive growth. The last five-year growth rate is nearly 9% on a compounded basis. Earlier this year we had the largest quarterly increase in our history and we're currently at \$0.19 a share payable in the third quarter. Our total dividend amount is about \$600 million a year at current rates. I'll get back to that as we look at kind of overall cash flow going forward.

**Share buybacks**

I commented on share buybacks. We have a history of returning surplus cash to shareholders. Over the last 23 years or so, we bought back more than 50% of our shares. As you're likely aware, we reinstated a program after going through major investments earlier in the decade, reinstated that about a year and a half. We've purchased \$2.2 billion since that reinstatement, or about \$1.6 billion through the first nine months of this year. You understand our non-dilutive equity philosophy and this gets right back to our priority on shareholder value.

**Shareholder distributions**

Looked at a different way, shareholder distributions over time, over the last 10 plus years or so. On the left, our total distributions, dividends and share repurchases. And then on the right you get kind of an annual average as you go each and every year. What fraction of that do we pay out to shareholders? And you can see where we stack up here and I hope that continues to reinforce and illustrate our commitment to shareholders.

**Capital expenditures**

I'm going to show you a chart we haven't typically shown before. We're going to get into a little bit more detail looking ahead on capital expenditures. In the past, we've showed you this kind of five-year outlook on an average basis. Here, we've put it in kind of a year-by-year, put a little bit of fuzz on the top of each of those bars because there is a bit of uncertainty as you go, but I think the story I'm sharing today is our five year capital expenditure plan right now is consistent with what we've talked to you about in the past. On balance over these five years, including '18, we see averaging of a bit over \$2, \$2.1, \$2.2 billion a year. You can see the profile. 80% of that would be upstream oriented, 20% downstream and other. Sustaining capital, we've talked about it before. On average, it's a bit over \$1 billion a year. Most recent years, '17, '18, it's been a bit below that. A good way of looking at that is roughly 70% of that is upstream or \$5 a barrel. That's a bit lower than we've talked about in the past. As the organization has found better, stronger ways to operate assets like Kearnl to further optimize at places like Cold Lake, but \$5 a barrel across our asset base is a pretty good rule of thumb across the upstream.

Growth over the next five years, inclusive of '18, somewhere about a \$1 billion to \$1.1 billion. This is focused on Aspen and Kearnl and the point on Aspen, at \$2.6 billion in the press release we announced yesterday. It will be essentially half of the growth expenditure we envision over the next five years. It peaks in the '19, '20 and '21 periods at about \$700 million a year. And like any project, three and a half, four-year execution cycle. You've got the middle years, are kind of the peak. The initial years, there's a bit of a ramp up and the final year as a bit of a ramp down as you go through the commissioning and startup preparation. Kearnl over this period, John talked to you about a \$550 million gross investment for the supplemental crusher, \$400 million our share. And he talked about a number of other enhancements that would take Kearnl beyond its 240,000 barrel a day targeted rate. So, Kearnl over this period would be about \$200 million a year, a little bit less than that, in terms of potential growth capital, half of it, which has already been funded.

**Financial strength**

Putting it all together. My second to last chart is on the left. What you see are the potential uses of funds. The dividend at current rate is blended in there at about \$600 million a year. The sustaining and growth capital are straight off of the prior chart in total between \$2.1 and \$2.2 billion over this five-year period. And then anything above that would be surplus cash. As we model that cash flow from operations with using WTI as a reference point and we look at our business, our operating cost projections, our production volumes, refined

volumes, et cetera, et cetera and create this bar on the right. And to interpret a little bit, at a dividend \$600 million sustaining at \$1.1 billion. We can cover that in a \$40 a barrel world. You put growth on top of that, the full expenditures we've just shared, and it takes something a bit less than a \$50 a barrel WTI world for us to cover those highest priority needs. Anything above that would be available for other opportunities. So, in said even a bit differently. In a \$60-barrel world on that chart, we cover the dividend, sustaining CapEx, the growth as we've outlined today and have on order, just the math shown here of about \$1.2 billion a year or so for share repurchases in a \$60 a barrel world.

So, going back to some other things I've said before. We reinstated the share buyback about a year and a half ago. We would not have reinstated it had we not thought it had a level of sustainability to it. We've said that it can vary quarter-on-quarter, year-on-year, based on needs. But as we look at the business plan that we've shared with you today, we see the ability to continue that reliable and growing dividend, take care of our existing asset base through sustainment investments to provide the level of growth we have outlined here, which will largely in the upstream be Kearn and Aspen related and continue a level of share buyback that would be at approximately the level we've experienced on average over the last couple years as we've reinstated the program. Now, prices change, you know, all bets are off. That's Dave, Dave articulated that, that cautionary statement that I'm sure you've read in great detail, but this is how we see the plan and have assembled the company and expect to operate and manage it over the next several years.

On a little spot check on that, if you just take 2018 year-to-date, now this doesn't have – '18 doesn't have the growth in Kearn we've talked about, and some of the other things. We had cash generated from operating activities of \$3 billion through the first nine months. We spent about \$1 billion, a little bit under that on capital expenditures, dividend was about \$400-500 million. If you do the math with this year, it would have said we have the surplus cash on the order of about \$1.4 billion or so. So, this is a projection, but I think if you take it back and look at what we've actually done today, had our capital expenditure been another \$1 billion higher, we still would have had plenty of surplus cash to continue the share buyback program in the environment we're operating in right now. There will probably some more questions on that when we get to the Q&A.

### **Why Imperial**

Last slide, why Imperial? You've seen this before. I think we've tried to articulate this over the course of the morning. The asset base, the commitment to operational excellence, the level of integration and the value it provides, a wealth of growth opportunities that we have control on the scope and pace of, technology and how it's fundamental to our performance and leadership and last but not least, the demonstrated commitment, unwavering commitment, to delivering shareholder value in any and all business environments.

So, with that, I will pause, and I believe Dave will describe the Q&A process.

## **Q&A**

**Dave Hughes:** So, we've got a couple of microphones available. So, if you wouldn't mind just putting up your hand and someone will bring a mic to you. Again, that's for the benefit of the folks who've joined us via the webcast. The other thing I would ask is if you start by identifying yourself and your company that would be appreciated. Thanks.

**Rich Kruger:** And what I'll do, is if you can go ahead and direct the question to me and I'll either decide whether I take it or share it with my colleagues.

**Phil Gresh (JP Morgan Securities LLC):** Yeah, thanks. Phil Gresh from JP Morgan.

**Rich Kruger:** Hi, Phil.

**Phil Gresh:** I appreciate you going through all of this today, it was very helpful. I guess the first question, I will go towards the cashflow slides since I'm sure people will ask a couple of questions here. But giving us an annual average of 2018 through 2022 in the cashflows, maybe you could just elaborate a little bit for what you be factoring in for Kearl. You know, you're trying to get it up to 280 [KBD], but I think that's 2022 and beyond. Aspen is 2022. So just trying to kind of triangulate some of the data points on the chart you're getting at.

**Rich Kruger:** Yeah. On the chart you're looking at, we have Kearl at 200 this year, 200 next year, 240 in 2020, 240 in 2021. And John is it still - it's a little bit above 240 in 2022 but not the year 280-ish level.

**John Whelan:** No, that's right. It is above the 240 but not quite at the 280.

**Rich Kruger:** Yep. And our intent is to do better than that, but that's what we have built in here. And largely, Cold Lake across this period is largely plus or minus 150. And then you can see, John described it as the - on Syncrude is largely an improving trend over time that would get it into the 90% utilization.

**Phil Gresh:** And then the Aspen is essentially zero of the 500

**Rich Kruger:** Yeah, Aspen is a net consumer in this period of time and it - so we have a startup on that and it's, you know, we just got regulatory approval Halloween night. We spent the next several days digging into the conditions and we announced last night we're ready to go. So, we'll be cranking that machine up here. But notionally, if you think about a startup as somewhere kind of mid 2022, we'll refine that and talk about it and its subsequent sessions and stuff. But for this period of time, it's taken and not given.

**Phil Gresh:** Okay. And then on Aspen, the \$500 million of sustaining free cash flow that you gave, I assume the sustaining CapEx there might be on the order of \$5 a barrel CapEx?

**Rich Kruger:** Yeah, that's a good round place. Although, it's probably a little bit less than that at least initially. But I think for round number purposes, you know, if we benchmark it versus a Cold Lake and all, which is in the kind of the \$5 a barrel kind of range, it would be somewhere in that, maybe a little bit less early on.

**Phil Gresh:** And the OpEx?

**Rich Kruger:** It's going to be good, you'll like it, with a big - you know, John talked about Cold Lake at about \$12 a barrel US, about a third of that is energy-related costs. Well, because of the technology here, you get a bit of an uplift, you get lesser energy. I mean, well, I think we're thinking somewhere in the - I'm going to say a number, John's going to cringe - but \$7-8 a barrel US. And what we're looking at is really at the lower end of that range.

**Phil Gresh:** Okay. My last conceptual question is on Aspen.

**Rich Kruger:** We can give you a set of the full economic model if you want. That was a joke. We don't give those things out, but in our new transparency mode, we're sharing more than we ever have.

**Phil Gresh:** So, you've given a lot of good color on that. So, the last conceptual question on Aspen is just - the confidence level on solvenated SAGD, I mean, I know Cold Lake, you've done it on a pilot basis, but if you look at slide 37, the amount of actual production that's been done in a solvent base is actually pretty low. So, I just wanted to get your comfort level that this can work on a 75 KBD basis.

**Rich Kruger:** And the real key on an SA-SAGD is when you're adding solvent to that injection stream, you're pumping money into the ground. The big question is how much of that money is going come out with the rest of it? So that's where we really, the work has been done. We've done a lot of work in the lab. We piloted a long time. This was not a - it was a technology we had a lot of promise on, but you don't pursue something like

this lightly when you're going to inject it. And we're talking about recovering on the order of, Theresa, like 90% of the solvent is what the assumptions are? And we feel good about that. So, I would say that our confidence in this technology is quite high.

**Neil Mehta (Goldman Sachs & Co.):** Hey, thanks very much. Neil Mehta here from Goldman Sachs. First question is just around Aspen and the takeaway solutions. The project will set up a startup in 2022, which hopefully Keystone XL will be online then. But can you talk about a scenario if that pipeline gets delayed, how you would get the barrels to market?

**Rich Kruger:** Yeah. John had a good chart I thought today where he kind of described what was going into our own refineries, what goes into contracted pipe, the rail terminal and then head of pipe Edmonton. And so, if we fast forward, I hope I live in a world where there's new pipe capacity. We're all familiar with line three. Line three is not the only actions that Enbridge is taking to expand the capacity of their mainline system. So, we see incremental capacity there coming on in advance of that.

You mentioned Keystone XL, which, you know, there's still issues to be resolved there, but that would be a big increment. So, we're hopeful those things do develop, but we don't run our business off of hope. And so, in our mind we're looking at it, we described a rail terminal.. John talked about how the month of October we used about 110,000 barrels a day of that capacity. It has a 210,000 barrels full capacity to it. So, we look at it as still a bit of that, you know, that flywheel going forward. Aspen at 75,000 barrels a day bitumen would be 100,000 barrel a day diluent, 110 plus 100 is 210. You know, we see that as the safety net and for the rest of our production volumes we would be no better or worse off if that were to be the case because we've described where the 400 goes today. If this were another 100 and you looked at it.

So, how you can interpret that, is as we've looked at the economics on Aspen, we looked at it over a range of assumptions on the market access. Whether it's pipeline clearing, whether it's rail clearing, for some period of time rail to pipe. So, we've tested it every which way and have convinced ourselves that it is a good globally competitive project, recognizing the uncertainty of the world we live in.

**Neil Mehta:** There's a, I thought, a powerful statistic in your deck was that a \$10 change in light crude differentials, net a Syncrude equates to \$250 million dollars of cash flow.

**Rich Kruger:** You noticed that one.

**Neil Mehta:** Per quarter, right? Per quarter I think was the important point there. And so, can you just talk about how sustainable do you see this light discount being, recognizing we're coming out of PADD two turnaround season, Whiting is coming back online. But the curve for 2019, recognizing again, there's not a ton of liquidity would suggest that it's a sustainable dynamic next year. And how do you think about ensuring the refiner can get all the access – refiners gets all the access to light barrels you need to take advantage of that?

**Rich Kruger:** Yeah, Neil, not ducking your question, but I mean, I haven't met anybody yet who's very good at forecasting global crude prices or differentials or anything like that. And I've been in this business 37 and a half years. I'm still waiting to meet that person. But that said, the – I think the way Dan described it is kind of the lever of effect we have is there and good. We have been doing everything we can to pump more heavies into our refineries to get advantage on that. We may be in a period here going into the fourth quarter and beyond that there's even a better optimum which would be to pull back on heavies and put more lights because of these differentials. And that's the beauty about the facilities we have and a bit of their flexibility. We've got a coker at Sarnia. Nanticoke is fundamentally a gasoline generating machine. Strathcona is somewhere in between. And the ability for our operating teams to evaluate feedstocks, to tune them and get the absolute best that the market has to offer us, I think is a real competitive advantage.

We're largely known as a heavy oil producer, a light oil refiner. We've been shifting that balance a little bit, but you know, these are investments and decisions and strategies and looking at the world and how we think things have unfolded we've made over decades. And you know, sometimes they work in your favor, sometimes they don't. I think market conditions right now are going to be working in our favor in a big way. And we plan to, you know, make the most of that.

Hi, Mike.

**Mike Dunn (GMP FirstEnergy):** Thanks. It's Mike Dunn with GMP FirstEnergy. A couple of questions. Rich, the first one, you have 100,000 barrels a day of pipeline capacity to the US Gulf Coast. Are we to assume that that's being a portion similar to the Enbridge mainline apportionments? Or is the Exxon capacity pull to the Gulf Coast, sort of mitigating some of that?

**Rich Kruger:** Yeah, you know Mike, we don't get into bit by bit at each of the pipeline commitments for our commercial terms, but a big chunk of that is not under any apportionment. You can read that as base case, don't – you guys look at the maps, you know what that would mean. And then some of it would be in an Enbridge system that can have an element of apportionment at points in time.

**Mike Dunn:** Thanks. And my second question, it wasn't addressed in the slides today, but I'm just wondering with I guess –

**Rich Kruger:** There's something we didn't put in these slides? What Dave?

**Mike Dunn:** Further out there. But with the poor reliability at Syncrude over the last few years, I'm just wondering when the MLX expansion project needs to be on stream to extend the mine life at Mildred Lake and whether or not that's in the CapEx –

**Rich Kruger:** Last year when you gave me the zinger on Syncrude, you were sitting right here. I was looking for you today because it was wondering, you know, obviously the overall performance on Syncrude has been disappointing overtime. And John talked about all the things that we're doing and I do think all owners have their shoulder to the wheel on improving it. I would say fundamentally the focus on Syncrude, and really even broader than that on any assets, my mindset is you have to earn the right to invest. And the best way you earn the right to invest is you make the absolute best of what you have and show me that you can deliver. We've talked about that at Kearl at one point – I'll get back to your question – but at one point, in time we talked about Kearl of having three phases. We don't talk about three phases. We have two phases and now we're talking about increments that are far more capittally efficient than a third phase. So, I think on Syncrude it's the same thing. Job one right now in the short-term is getting that reliability up and getting the absolute most of it. And then we'll talk about further investment beyond that.

Now that said, John, do you have any, any comments you'd add on Syncrude MLX?

**John Whelan:** I'll try to find the date for you, I think I have it here somewhere. But it was, there were some delays from regulatory perspective getting through the regulatory process. But you know, it is the next up development option to kind of sustain volume. I'll find the date for you.

**Mike Dunn:** Okay. Is there – is that part of your CapEx forecast in the next, in that five year outlook?

**Rich Kruger:** There is not much at all in that five-year period on that. Very, very little.

**Mike Dunn:** Thank you.

**Rich Kruger:** We'll go Paul and then we'll go with Greg.

**Paul Cheng (Barclays):** Thank you, Rich. Paul Cheng, Barclays. Rich, in the event if the Michigan incoming governor is going to fulfill her threat to shutdown the Line five crossing the water. So as a result, that we may have less oil getting into Sarnia, do you have other options to ensure that your two refineries are going to get the inexpensive light oil?

**Rich Kruger:** Well, you know, right now, we are plumbed up the way we are. There is not, I wouldn't say there's a surplus of plumbing to get there. So, if – and you know the situation you're talking about, I'm not up to speed on exactly what you said. I find in today's world, there's a lot of politicians that make a lot of assertions and claims and some are threats or promises, but I don't have other pipe that would get crude there in a material way. Theresa, do you have anything you'd comment on that one on or...?

**Theresa Redburn:** No, I don't have much information on the new Michigan governor. But certainly, I know the pipelines are very engaged with all their stakeholders. You know, the local communities, the various governments working diligently to highlight the safety of pipeline technology today and the value that it brings the community. So, an awful lot of work going on there.

**Paul Cheng:** So just for your information that during her campaign, one of the major points is that she promised to shut down or immediately shutdown the Line five so that they won't cross the water. So, that's the threat.

**Rich Kruger:** Yeah, well, you know, and not to minimize statements of things, but I think the – we deal with a lot of challenges all the time from government side, every once in a while some of them actually do things to help us, but as with those refineries, Sarnia has been there for 100 and some years and they're in good locations to serve the market right here. And if there are changes that have to be on operational on the logistics, well, we had our partners would be looking at it. I, kind of talking innocuously about this one, Paul, because I don't, you know, I understand campaigns are campaigns.

**Paul Cheng:** Sure. As you gain in production, you become less integrated in the sense that your upstream has become bigger. So, do you think that it's important for you to increase, or that you maintain that balance on the integration or somehow to increase, whether it's heavy oil processing capability or that the other processing in order to do so?

**Rich Kruger:** And you know, five years ago it was kind of the inverse of that. We were, we had about 100-150,000 barrel a day more refining capacity than we did upstream production. And so our strategy or philosophy is not necessarily for that to be balanced across it. We look at opportunities and we invest on where we believe there's value. And John in the upstream, his team's mission will be to sell his barrels to whoever will offer them the highest value for it and Dan and the downstream team are to buy the lowest cost barrels if they happen to line up and if they're the same barrel, same molecules, so be it, but that philosophically is not what we're trying to do.

So, if – right now, it makes a lot of sense and adds a lot of value, the level of not only integration but balance within that integration. But I think going forward it'll really be, we will be looking at, where are there opportunities? If it's a debottlenecking at Kearn or a debottlenecking at Strathcona that we believe will add value in the market conditions, but it won't be as hardwired as to, say as we build upstream capacity we will be seeking to build downstream capacity commensurate. It's – we won't look at it in that way.

**Paul Cheng:** Two final questions. One on your CapEx that the profile that you give out, is there any particular market condition under that where we see a drastic change compared to what you put out here? Is the oil price stays much higher, or much lower that you will adjust that, or that it's pretty set in stone?

**Rich Kruger:** Yeah. You know, Paul we're one of those. We try not to get too excited when times are good and we try not to get too depressed when times are bad. It's the long-term nature of how we see the markets, how we participate, it's the assets. We, we strive to – you've heard me talk about delivering shareholder value in all business environments. Half of that CapEx is, which is what we've talked about before, is largely the care and feeding of the current asset base and the 70 plus percent of that is the upstream asset base. So, I think that's sustaining of the one to one point one. We're going to spend that, we're going to take care of things. It can vary on any given year and the last couple of years has been a bit below that. And so, well, what am I suggest over time? There'll be some years where it's all a bit above that, but we're talking about a \$100 or \$200, million up or down to get to that average.

I think the growth things, we launched Aspen last night. That's \$2.6 billion. That's half of the growth CapEx that we showed on that chart in the five-year period. You know, with a lot of project experience in my background, once you launch a project, if you've done all the work upfront and convince yourself that adds value, the best way is to efficiently execute it and you know, get it done as quickly as we can. So, I think, Aspen is on the way.

The other component parts, so that really leaves about \$500-600 million a year and some of that is Kearl-related. Some of that, John talked about a far more modest outlook on unconventional than we, a year ago, we thought was potentially there. I think the interpretation last year was I gave a little bit more of a tangible feeling it was there. Well, what I was really trying to talk about is, we see the potential on that. So, I mean I think there's, you know, several hundred million dollars a year on any given year that could be subject to examination on timing or scope and or market conditions and things. But I'm hesitant to say it's cast in stone, I don't know that I'd go that far. But I think the plans we've outlined will support that profile without any real major uncertainties. A year ago, the uncertainty – well, two days ago, the uncertainty was, is Aspen in, is it out? Most of the uncertainties in that outlook have been addressed. Aspen, Kearl supplemental crusher, John talked about some other Kearl monies that are still works in progress that might over that period average up to \$75-80 million dollars a year. But most of it is getting, you know, maybe not in stone, but a pretty firm Jell-O.

**Paul Chan:** My final one, on the rail, you're talking about by first quarter, you will ramp it up to 170,000 barrels a day. Just curious, is that already under existing contract that, or that you still need to line up the contract in order for you to get there? And also, just wanting to see whether you guys have any rough estimates. I think in August the industry is shipping about 230,000 barrels a day by rail. How much do you think that the gap, in order to clear the market today is? Is it another 100,000, 200,000 barrels a day? Thank you.

**Rich Kruger:** Yeah, I'll take that, the last part of your question first. It's – supply and demand, it's a kind of a fickle thing when a little bit of oversupply can drive it down. And I, you know, I read what some others have speculated. I won't add to that speculation too much, but you know, they are certainly long on production. How much it is, I don't know. Can rail, in the time period we're talking about, offset it and bring things back into a more normal manner? You know, we would hope it would. But again, I commented earlier, hope isn't a business strategy. So I don't really, I don't really know what industries rail capability would be. I thought John provided a good checklist on his Edmonton Rail Terminal utilization charter of what it takes because it's not just having a terminal. You've got to have the offloading, you have to have the tank cars. There are a number of prerequisites that have to be in place.

What we tried to convey, certainly for the fourth quarter, given we're halfway through it and then going into the new year, we're in good stead with having those prerequisites in place to continue to increase the utilization of that terminal and get to the highest valued markets, which is the Texas, Louisiana Gulf Coast. So, as you get to the first quarter and beyond, we still have more work to do, but we, and I understand ExxonMobil's earning call,

they talked about the rail utilization as well, in fact, the same number John quoted. You know, we wouldn't quote those things unless we had a level of confidence that we'd be able to deliver on them.

**John Whelan:** Rich, I might just come back to you, to Mike's question on Mildred Lake expansion. You know, Mike, the timing of that is mid 2020 for startup and as Rich said, there's some CapEx there, but it's kind of, you know, \$40-50 million a year. So, it's not big in terms of – it's real money – but it's not big in terms of the total number –

**Rich Kruger:** In this time period?

**John Whelan:** In this time period, yeah.

**Rich Kruger:** Greg?

**Greg Pardy RBC Dominion Securities Inc.:** Sure, Greg Pardy at RBC. Maybe just to come back to Aspen, just a couple of technical questions. And that is, what percentage of the solvent that you're using do you expect to recycle? How much leakage is there? And then, just what are you targeting from a, from an SOR perspective? Thanks.

**Rich Kruger:** The – I'll, I'll turn to the rest of it over to Theresa, but that 90% number I quoted is, that's what we expected, what we put in the ground, what we'll be able to recycle or recover. So, our economics are based on something on the order of about a 10% solvent loss. It's like John described on Kearl, whether it was solvent or anything else, our goal is going to be to do everything we can to minimize that because that's, you know, that's money in the bank, but based on our lab and pilot testing and then our economic modeling, we're assuming about a 10% loss.

Theresa, do you want to comment on the other part of Greg's question?

**Theresa Redburn:** Yeah. The SOR, I don't have an exact number here, I'll look for it. But we do expect about, as I mentioned, about a 25% reduction in SOR from applying traditional SAGD at Aspen. So, fairly significant improvement, which as I mentioned, results in the significant reduction in greenhouse gas intensity.

**Greg Pardy:** Great. And then Rich, just as a follow up, two, three years back, right, when you brought on Nabiye you had the steam breakthrough and as we talked about it, you said that there's this, essentially a self-healing process that can go on in the reservoir. Can you just provide an update then on Nabiye today and then how you're thinking about production at Cold Lake in general?

**Rich Kruger:** Yeah. And I'll first start out with that once when we – whether – on Cold Lake as we've added on facilities, they have unique names. We've talked about the plants, we have things, but at the end of the day, once something's up and running, they're all interconnected. So, whether that's water, steam utilization, we operate, John's team operates that as a single asset kit. So it gets to a point in time we're talking about Nabiye or something like that gets less and less material over time because it's, if there's a better steam used somewhere else, that's where the steam will go and we won't fuss it. But what we have said is, and you've heard about it, is that we didn't get the – we had steam leakage to a shallower formation, so that necessitated cutting back steam volumes, injection pressures, letting this healing process take place over time. So, Nabiye, if I – I'm breaking my own rules – but if I do break it out and look at it separately, it's been kind of in the mid-20s, about 25,000 barrels a day, roughly. John is using surplus steam in other areas now, but if I recall right, I'll turn it over to John to correct me on this one, is as we look out in the next several years, we see the Nabiye itself growing from the mid-20s to more like the mid-30s. Is that right, John?

**John Whelan:** Yeah, that's right. You know, we're in the mid-20s today, going to the mid-30s when we get into 2022 timeframe. And it's like, you know, we look at, as you said, on a district-wide basis where to put the

steam, what's the best opportunity for that steam. Could we put the steam to Nabiye and produce at higher rates? Yeah, we could, but it's not the best opportunity for that steam today.

**Rich Kruger:** You know, part of it, when we look in – I'll flip back over to Aspen and things and you compare it, you know, lessons learned. For us, Kearn was a major new undertaking. Yes, we had a glimpse of experience associated with Syncrude, but getting into the mining business was really new for us and we've talked at length about, obviously, performance and assessments we've made and things, but there was a pretty steep learning curve and we're still on that learning curve and I think we're getting better and better. And in the third quarter call, I commented on how the operational organization. I was up there not long ago. In fact, I took the Imperial Board up there in the last month or so and that team's ability to understand how to mine and not just the equipment, how a crusher works, how a conveyor works, but how to selectively surgically mine, get the highest quality ore, mix and blend and get a better result. I see that learning curve just increasing in leaps and bounds.

So when I go over to Aspen, the beauty – and Neil, you and I were to mention this on the break – Aspen, we have the benefit of essentially a 40-year learning curve at Cold Lake. John described, he showed you that little chart on drilling, just from Cold Lake drilling, normalized to 2015 to 2018 engaging with XTO that get after it drilling team that XTO has developed by operating, you know, 80 to 100 rigs in the US and how we've cut the drilling costs at Cold Lake dramatically. Well, that's where Aspen starts. It doesn't go back up that learning curve. It starts there. So, I look at Aspen as quite different from a technical and execution risk. The solvent is the new aspect of it, but drilling hundreds of wells, building central processing facilities, managing steam and things, this is in our wheelhouse. This is exactly what we've done at Cold Lake and we're quite good at it. So, I have a whole different, well, a different level of confidence and enthusiasm on Aspen. The new technology does all the things we've talked about. It lowers the operating costs, it lowers the environmental footprint. If there's a price on carbon in the province, it will be on the good side of that. So, you know, Aspen doesn't have the same kind of risk and uncertainties that Kearn did for us because we're well down a learning curve. It looks a lot like Cold Lake other than, you know, instead of the wells going up and down, they go side to side and you inject in one and produce out of another. Those are relatively small things in the grand scheme of things.

The question you've asked, the solvent recovery, that's what's new about this. The rest of it is – this would be a phrase Dan might use – our team can do some of that in its sleep.

**Theresa Redburn:** Rich, I can just answer the question –

**Rich Kruger:** But we won't be sleeping.

**Theresa Redburn:** Can answer the question on SOR? So, in the 1.9 to 2 range.

**Greg Pardy:** Okay, thanks.

**Rich Kruger:** Mike has another one. Mike?

**Mike Dunn:** Yes. This probably may be a question for Dan if you allow him to answer this one, Rich.

**Rich Kruger:** I gotta hear it first.

**Mike Dunn:** You know, your accounting for operating costs is different than a lot of your peers.

**Rich Kruger:** I can already tell, I'm going to let Dan answer it.

**Mike Dunn:** So you expense more of the turnaround costs and you load your – what others would call a corporate G&A into the OpEx line, it seems like. So, if you were to account for OpEx as similarly to your peers in Canada, what is the delta? Is it \$5 a barrel that your OPEX would look lower? Is it less, is more?

**Dan Lyon:** Yeah, I don't think we can say much about that, honestly. There are some accounting differences, as you note. Obviously, the bottom lines are all the same and when we talk OPEX, you know, we don't disclose our detailed OpEx. We just disclose SG&A and cost to goods and OpEx is sort of the mix of those things. So, when we talked the \$20 and such, you know, I think ours is a little more loaded than others. I wouldn't want to speculate about how much.

**Rich Kruger:** And we do, we've make that comment and we've made it before about all in. I mean, it literally is from a fraction of all of our salaries on down because you know, we see and read. Now, we don't have the benefit in a lot of assets to have common ownership, so we can see what folks say and what ours is. So, it's actually a little hard to quantify that. You know, Syncrude is the one place where it's a little different but Syncrude's kind of a hybrid case to begin with. We don't have the full Imperial Oil overhead structure that supports it, so that one's a bit awkward. But we do make that case of all in because what we do see sometimes is folks talk about things and our sense is that's at very much at an operating level and somebody's got to pay all the bills.

So, our philosophy has always been in all of our businesses that you pay for costs you incur and that takes every one of us and everything that goes along with it and we burden it on. So, we emphasize that all in. You know, as Dan says, the bottom line, it all comes out. So, it's in there. It's just a matter of how it gets in there. But we, as much as anything that's kind of a philosophy of ours, that nobody gets a free ride.

There's one and the one in the back and then we'll come back to Jason. Go ahead in the back first, then we'll go with Jason [inaudible].

**Dennis Fong (Canaccord Genuity Wealth Management):** Perfect. Sorry, Jason. Dennis Fong over at Canaccord. I was just curious, in terms of a \$20 to target for Kearl cost structure, all in, how much of, we'll say the 280,000 barrel a day potential ramp up or debottlenecking are you including in there, as well as AHS and other technologies that you're planning on implementing as well? Could that target get better just given kind of the high fixed cost nature of an oil sands mine?

**Rich Kruger:** I can assure you, as it gets close to \$20, the target will get lower. Right, John? Because we want it to be the best we can. We're literally not targeting a number. We want it to be absolutely as low as it can be to run a safe, reliable operation with high integrity. And if we get, you know, as we get closer to \$20, our sights will be set on a lower number. I think it's really important to understand on the mining in particular, we have an average cost, but the incremental barrel on any – the incremental barrel on a daily basis almost comes at almost no cost. The incremental barrel over, if you think about it over a three to six-month basis or midterm, is about a third of what the total cost is. So, if the total is 21, the incremental barrel over a six-month period comes at about seven and that's because you have to on a daily basis, you don't do anything different. On a longer-term basis, you're moving over burden, you actually physically have to do more things. But so, a big, big driver in something like Kearl to get lower costs is absolute higher utilization, higher reliability. They go hand in hand.

When we talked about things like autonomous trucks, John had another list of opportunities, certainly the digital opportunities. As we will need some of that to get at and below \$20 a barrel. But just the blocking and tackling we're doing right now with increasing reliability, looking at improving maintenance, John has a number of things he's doing at improving personnel utilization so that we know at any point in time if we need an electrician, we know where every electrician is and who can be deployed there the fastest. There's a lot of just fundamental efficiency things we're doing and that has all been kind of the vision of getting at or below \$20 a barrel. So, it's not relying on getting to 280 to get there, it's really something we've talked about with the 240-ish plan, how we can get there. But I think when we talk about 280 and we talk about digital and we talk about

autonomous trucks, it's the aggregate of that would say maybe \$20 is just a stop along the road to something even better.

John, do you have anything you'd add to that?

**John Whelan:** No, I think that's exactly right. And you know, the 280 KBD that's really, really important, but things like autonomous truck, we haven't made that choice yet, so we haven't built that into our numbers. You know, that's not some optionality we have going forward.

**Dennis Fong:** All right, perfect. Thanks.

**Jason Frew (Credit Suisse):** Hi, it's Jason Frew with Credit Suisse. Just maybe back to Syncrude and you discussed the regional logistics and the infrastructure synergies. Are you seeing those yet, or what's the timeframe for seeing absolute savings at Syncrude? That's my first question.

**Rich Kruger:** Yeah, I'll let John expand on that in a second here. But you know, I think an important thing to note is, there have been a number of changes that have went on. One, we have one owner that owns a lot more of it, but they owned, they were around the table previously. We have fewer owners. John commented how essentially 85% of the ownership has tangible oil sands mining experience. So, whether it's the networks, whether it's the, you know, operating committee meetings, they're just far more focused on making things better and there have been sharing of best practices, operating practices. We're getting into more synergies on logistics and surplus – inventory management, things like that. You know, we're on that journey. I think we're still pretty early on it.

John, do you want to offer some further comments?

**John Whelan:** Yeah, exactly how I describe it. I think if you think about responding to a situation – so, we had the power outage at Syncrude. The response to that, we brought people from ExxonMobil, from Imperial, from Suncor, that was quick. You know, it's immediate, it's automatic, we kind of get in there and help out and I think that really does help the asset. I think, and for the production forms, they're up and running and I think there's learnings, you know, but it takes times to translate those learnings into results. So, I don't think we're seeing much of that in the bottom line yet. And then when it comes to regional sharing's in the commercial, we're just scratching the surface. I mean we're moving as fast as we can, everybody's on the same kind of songbook in terms of moving that forward. I think we have not seen the benefit that that's going to bring yet, so that's to come.

**Rich Kruger:** And the belief on that, a lot has been made about these pipelines connecting and things like this, but it gets back to this incremental unit cost idea. The more we can utilize any and all existing facilities and these big plants, they're more like refineries in many regards versus an oil and gas operation, so those incremental costs are quite low. So fully utilizing facilities. Syncrude, base reliability for what we have, but then when we have two facilities across the river from each other, then we can connect them and move fluids to use surplus capacities at any point in time, that is what we really think is the ultimate winning formula to continue to drive down the unit cost and along with that increase, the overall throughput of the facilities. And as I said, I think you said it well, we're early in those things that would – are more integrative in nature than sharing what I do, what you do. Can we do it? Can I do it better? Can you do it better? It's the collaboration is the next level. And Steve Williams and I meet pretty regularly on this thing and we both agree there's – we think there are large prizes there on that side of it. But we're, you know, we're earlier on that journey.

**Jason Frew:** Thanks. On Aspen – this is my final question – I'm just wondering, I understand it's in your wheelhouse, it's not the scale of Kearl and that was a new mining experience. But do you take a different

approach or a more proactive approach to risk management in terms of the execution plan and the construction of that facility?

**Rich Kruger:** I think we, it's hard to say this after Kearn because folks will discount it, but the ability to plan and execute projects is something we're actually quite good at and with the history of Cold Lake, the planning and executing projects, and then the leverage effect we'll get from ExxonMobil. So, on this one, it's a good time to be investing. It's kind of like when's the best time to hire folks? When no one else is hiring. You get your pick of the litter. When's the best time to build things? When no one else is building because you get the highest quality trades and contractors. And so, we're looking forward to that. We've been, you know, the market is quite hungry to help us build Aspen. And I think that's going to show up in quality, productivity, and although we haven't built it in yet, the potential there for schedule because we'll have the best of Alberta and beyond that workforce to help let us do that.

That's quite different if you dial the clock back five, six, seven, eight, nine years ago when everybody was building things in Alberta - mines, new in situ projects and we were calling in workforces from further and farther afield and productivity plummeted, safety plummeted. We're not in that time right now. Someone was asking, you know, kind of the word, the phrase we use, "counter cyclical," that's really what we're talking about. Doing something when nobody else is doing it, you're able to do it a bit better. And so, I think we're going to see those kinds of benefits on Aspen and they always translate into cost and schedule and that's the name of the game. Once we've made the decision to execute, cost and schedule is the name of the game.

**Jason Frew:** Thank you.

**Dave Hughes:** Okay, we have time for a couple more questions.. Okay, that looks like that's it then.

**Rich Kruger:** Yeah, Dave, let me just make a comment. I want to thank you, not only for attending today, but the feedback you provide us on how we can do a better job of helping you do your jobs. We understand what our jobs are to do, is to safely, reliably operate, to invest in new technologies and invest in new facilities to provide energy to supply customers' needs. We get all that. But we also recognize you guys have a very important job and you've helped us and continue to help us on how we can better communicate, what's important to you and we take that very seriously. So, I'd just like to thank you for that. Thank you for your time and attention today. And Dave is, he's kind of like those Kearn folks, but a little different. Dave actually works twenty four seven, 365. So, there's no fly in, fly out. He's available at all points in time. If you don't have a cell phone, I can give it to you. Calls in the middle of the night, I know he's always available, so please don't hesitate to do that because that's what they're there for. All right, Dave.

**Dave Hughes:** Okay, well with that, we'd like to invite you all to join us for lunch. It's just out in the main area here and management committee will also be there, so it'll give you an opportunity to have further conversations. Thank you.

**Rich Kruger:** Thanks.