



National Council on U.S.-Arab Relations

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24th Arab-U.S. Policymakers Conference

U.S.-Arab Relations at a Crossroads: What Paths Forward?

**Washington, D.C.
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“ARAB-U.S. ENERGY COOPERATION”

Chair:

Mr. John Pratt – Member, Board of Directors, National Council on U.S.-Arab Relations

Speakers:

Ms. Molly Williamson – Distinguished Scholar-in-Residence, National Council on U.S.-Arab Relations

Mr. Richard W. Westerdale, II – Director, Energy Resources Bureau’s Policy Analysis and Public Diplomacy, U.S. Department of State

Ms. Sarah Ladislaw – Director and Senior Fellow, Energy and National Security Program, Center for Strategic and International Studies

Dr. Herman Franssen – Executive Director, Energy Intelligence Group

Remarks as delivered.

[Dr. John Duke Anthony] It has been our procedure to have Chas Freeman give this opening overview and he is masterful in the reach and the range of his analysis and assessments as dire as they are, as serious in the extreme as they are and problematic run amuck as they are. Nonetheless he called for dialogue, he called for imagination, he called for innovation there and this conference is for that and I ask that each speaker end her or his remarks with a one sentence policy suggestion, policy recommendation something that can by some lights and rights and deserve serious and favorable consideration.

So Ambassador Freeman has set the tone for this kind of thinking and as I said earlier borrowing a phrase from another organization about dialogue created by Hal Sanders listen clearly, listen carefully and be willing to change as a result of what you hear and what you learn. Thank you Ambassador Freeman very much.

John Pratt I believe the energy session please come forward.

We make the statement sometimes that the region is characterized rightly if only figuratively and metaphorically as laced with two kinds of oil, turmoil and that other kind. This session is focused on that other kind. We've had oil prices plummeting, massive over supplies, concern in terms of what Iran's entry to a greater degree than at any time in the last three decades into the oil market will mean. What are the implications of that for anyone's and everyone's needs, concerns, interests and policies?

[John Pratt] Your excellencies, distinguished guests and speakers good morning and welcome to the first session of our conference. We're honored to have with us today a distinguished group of specialists who formulate energy policy, follow energy matters and markets on a daily basis, and who focus on energy in U.S. Arab relations.

Before we begin a few housekeeping details, each of the speakers in this session which has to do with the energy component of Arab US relations will have about 10-12 minutes for their remarks. In the interest of time I refer you to their bios in the program booklet this will allow more time for questions and discussion and as mentioned by David Bosch earlier that on your chairs there are 3x5 cards. Please write your questions and pass them to the National Council staff around the room who will bring them forward and we will do the best we can to answer them as fully as possible, and then we will wrap up promptly at 11:30.

In setting the stage for our speakers remarks let me start with a few general observations. Over the past year crude oil prices have declined 45%, and the price Americans pay for gas at the pump has fallen by more than a third. Globally long term supply relationships are changing, demand has been moderated by structural change, national producers continue to compete with each other for market share,

innovation and alternatives are yielding new energy supplies, and crude oil inventories are building. In short we are witnessing the most profound change in the energy production and the supply demand balance in decades.

So what if any might our resource specialist have to offer. What might they suggest in the realm of more effective policies to address the kind of issues and challenges that confront American and Arab energy policy makers? And what are the implications of those long term long established policies and relationships built around energy? This morning we are fortunate to have with us a select group of specialists who understand how this changing landscape will impact the nature and future of US Arab relations.

So it is my pleasure to introduce our distinguished speakers. I refer you to their bios in the booklet and I am not going to waste time basically reiterating what's there. First on the order of speakers we will have the honorable Molly Williamson, Richard Westerdale, Sara Ladislaw, and wrapping up will be Dr. Fransson. So would you begin please?

[Molly Williamson] Thank you John, thank you John, thank you David and deep appreciations to the National Council for having me back. It's a tremendous honor and I am proud to be associated with all of these wonderful experts on the panel. I have a general problem and that is that I get all excited about my topic and then I over talk my time and then Dr. Anthony has to get a hook and pull me off the stage. So I am trying really really hard, I have cut back a lot.

Let me just start with observing that every day this planet consumes more than 93 million barrels of oil, it is the single largest single most energy dense form of fuel and all of the projections are that demand for this fuel will increase. And in fact it is what has happened; this is the trajectory. When I first started speaking here the global consumption of oil was right around 87 million barrels of oil a day, and with a brief glitch because of the 2008-2009 recession when we did in fact as a planet consume less ever since we have in fact been growing and all of the projections are that we will continue to grow in or demand.

Now the top five oil producing countries in the world and they are and they've moved around a little bit in order but the top five are now Russia, Saudi Arabia, the United States, China and Canada. The five taken together produce almost 50% of that 93 plus million barrels of oil a day we consume. We are all, all five of these producers are obliged to take some key elements into account. All consuming nations are obliged to take these same key elements into account. That's everybody. And the problem that you will notice right away is that none of these factors is about geology, its not about what's in the ground; these are all above ground issues that affect policy makers around the globe.

They are all obliged to worry about very fragile economic health both nationally and internationally. They are all obliged to worry about a China economic slowdown;

they are all obliged to worry about Russian aspirations, both in Europe and now creating a two front war situation by including Syria. They are all obliged to think about the consequences, unintended consequences of oil price fluctuation that is its not unprecedented but by golly it disturbing in the volatility that it has produced.

These are delicate times and if I hadn't paid attention to, made mention of the incredible regional unrest that we see in a critical part of the planet, namely that area that large swath of geography referred to as the Middle East which houses two thirds of all of the reservoirs of conventional hydro carbons let me underscore that right now. Everybody needs to worry about the conditions in the region and those ramifications.

When it comes to those five top oil producing countries they all each have a clock to beat and the trouble is no two clocks are in the same time zone. So looking at how they address their challenges both for policy making and for international marketplace concerns we need to keep in mind how much difference there is in addition to these common concerns. What are these clocks?

If you were looking at the Russian clock for example you are concerned about a demographic clock. You are actually losing people, unprecedented in history that a literate country at a time of peace with abundant resources in high demand by the planet is actually losing people. But 13 million more Russians have died than have been born since the fall of the Soviet Union. It is wonderment; nobody wants this. Russian demographers are very unhappy about it but demography and statistics aren't what make babies, my mother explained that to me.

Given the fall in oil prices as John has just pointed out it means that the Russian economy overwhelmingly reliant on its hydro carbon revenues is now worth about half or slightly less than half than it was a full year ago. So running out of people, running out of money, oligarchy needs to maintained, you've got to keep a corrupt regime going costs money.

If you are going to cause mischief whether in Ukraine, whether in the Middle East it is in the interest of the Russian clock to cause that mischief sooner rather than later. Next year they are not going to have more money, next year they are not going to have more people, the trajectory is clear.

Different clock; Saudi Arabia. Saudi Arabia has a different demographic profile, as does the entire Middle East region where more than 50% of the populations of all the countries in the Middle East are under the age of 27. In some places more than 50% under the age of 24 and these young people are looking for opportunity. They are trying to picture the rest of their lives, where are their options, what does that look like.

It was King Abdullah of Saudi Arabia who had a vision of needing, recognizing and wanting to provide for these young people in Saudi Arabia and dedicated trillions of

dollars for the purpose of modernizing the economy, diversifying the economy, establishing and nurturing ever more institutions of learning to try to produce market competitive young people. People with opportunities in high tech, modernized society and with the increasing emphasis on expanding and modernizing and diversifying the economy meant concomitant requirement using more of their own product namely more energy and more of their energy revenues to do so.

The clock they have to beat as they have identified it is looking at the region around them, looking at the neighborhood and the potential contagion of violence and looking at the spread of unrest throughout the neighborhood. That's a clock to beat and they don't know, nobody knows how much time is on that clock.

Another clock, the United States. The United States as Chas had pointed out earlier has a severe infrastructure problem. Has anybody noticed the challenges of getting product to market? This is big in that it relies on one confounding principle that we have witnessed not just in the United States, this is global, this is universal it's a principle we have all lived with not in my backyard.

So yes we want more electricity we don't want the generator on our block, yes we would like to have more terminals for gas, re-gasification, liquefaction all of this, not in my backyard. Yes we would like to move it, transmit it, we want these electrical lines, sometimes we want pipelines, that's a whole different conversation. And where are we going to put this? Anywhere, just not in my backyard.

So the permitting process of doing that which we even recognize we need that we even want to the extent that we can agree to it, that process is confounding industry, confounding our own ability to supply our own needs. When we have the product, and we have the demand and we can't put the two together that infrastructure problem is huge and it's time consumer. And we don't know how much time we have, some already argue we are two late that no matter what its going to take, five years, ten years to make or infrastructure healthy.

Fourth largest oil producing country China. China is going through an economic slowdown it is plummeting growth projections that are now down to 6% growth and everybody is depressed by that.

They also have a demographic problem and that's the result of their successful one child policy and what that means is beginning this year 2015 more Chinese are going to leave the labor force, going into retirement, than they have young people entering. So if the young people are they productive ones that are going to supply for the caretaking and health and well being of the older ones you have too few people producing for a growing universe of older people.

You combine that with the world's manufacturer that's what China has become, and there's a slow down globally for demand of their products. Who is going to buy all

those Barbie dolls? So they are starting to close factories. What does that produce? Unhappy former factory workers of course. Don't need more unrest; don't know how long that clock is going to run, but that's the clock they have to beat.

The last one, Canada. Canada came into this group of top five oil producing countries when Iran and there was only about a 200,000 barrel difference a day between Canadian production, and what was Iranian production before both global sanctions and the price dropped out of the market. So there's a certain artificiality to the rise of Canada.

They also have a terrible clock to confront and that is also infrastructure. They can't get product to market. They would like very much to get their very thick bitumen, that's this goop that comes out of having washed Canadian oil sands to get the bitumen out and they have to make slurry. They want to get it into pipes that will take it to US refineries; money is to be made here. US refineries that can refine their product and make it possible to get to market and we still haven't made a decision. Working on it though, a good 7 or 8 years working on this one.

Long story short, can we work together? These top fives who produce almost half of the 93 plus million barrels a day of oil that the globe consumes. Can we work together? We already know how to be competitive, the Russians already know how to make a weapon out of energy but can we work together? Do we know how to make this work?

One area that I bring to your attention as an example of cooperation is between the United States and the oil producing Arab world with Saudi Arabia in particular it has been tremendous cooperation in three different kinds of fields. One is straight industry technology. We work together. I've had the honor of getting to see some of this incredible technology in Dhahran and elsewhere in Saudi Arabia.

Another is in renewable and alternative R&D technologies, and another is in a program that the Arab oil-producing world has called for in promoting dialogue between producers and consumers and coming up with increasing avenues where we can work together. That's an impressive thing, and if that can spread and that can be brought to greater use and greater prestige then that's a path I hope will be able to multiply. Any region that can actually solve a problem is a region others might wish to follow and that's a picture for us all.

I'm sorry; I've over talked my time. Thank you very much.

[Richard Westerdale] Good morning. I'd like to thank the National Council, the organizers and sponsors of this event for the opportunity to be here today. I am both humbled and honored to be among such esteemed colleagues and in front of your highness as well as other dignitaries that are here in the audience today.

The mere fact that we are sitting here on this panel one of the opening panels in discussing energy just reemphasizes and underscores the role that energy plays in foreign policy and its important to us as the United States and will be the focus of my comments here today.

Folks the world has changed. We are living in a time of dramatic change in global energy markets. The picture that many of us grew up with that we envision where OPEC countries produce, and OECD countries consume has been shattered. I will talk more to that in just a moment.

Technology, entrepreneurship, good policy and commodity prices have radically changed the energy landscape both internationally but more specifically here domestically at home and this fundamental change has increased our national security, has the potential to do so internationally. Its fostered economic growth domestically and internationally and if we manage it right can have a positive impact on global climate change. And this is actually a good news story.

At the Energy Resources Bureau within the State Department here in Washington we address the pivotal intersection between energy and foreign policy. You see energy really does sit at this nexus, this nexus between national security, economic development and environmental responsibility. The importance of geopolitics of energy is evident from recent developments playing out around the world as my colleague has noted and I will touch on a few before zeroing in within the region.

Russia's aggression toward the Ukraine is playing out in the Ukraine's energy sector and has huge implications on European energy security. Look at the South China Sea. Tensions over the South China Sea where nearly a third of global crude oil as well as half of the global oil and chief supply pass every day is at risk. Venezuela, sizable oil discoveries have been found off shore and yet we are at a time where we are seeing unprecedented level of military deployments by Venezuela in the region. And global supply disruptions to bring it back to energy were at a time where still more than 3 million barrels a day of oil production has been marginalized.

And then to bring it into the Gulf region in particular we know of the challenges faced here and I will talk more about that in a second, that include not the least of which Daesh, Iran and lower oil prices. Our diplomatic engagements aboard enable the US foreign policy to embrace energy's role as a driver of economic growth, stability and cooperation rather than conflict. But what is driving the geopolitics of energy and the US energy policy both domestically and internationally?

I'll come back to some of the points that Molly raised a moment ago. On the demand side we continue to see a historic shift where non-OECD economies have surpassed the developed economies in terms of global energy consumption. In fact in 2014 for the first time we saw that 51% of global oil demand was in the non-OECD countries and we also saw that 53% of natural gas demand was from non-OECD countries.

When you think about that and we look broadly and as Molly has mentioned where is the engine of this growth? It's in the Asia Pacific.

We see China accounting for roughly half of the energy demand growth this decade with India about 10% of that growth, and India continuing to grow into the future.

I'd be remiss if I didn't talk the whole supply demand balance and look at the supply side. Production and delivery of energy is also changing dramatically. Energy supply is no longer concentrated in a small number of OPEC countries; new producers are joining the ranks. I'll mention a few of those.

With roughly 70 billion cubic meters with LNG capacity under construction Australia is on the cusp joining Qatar as the leading exporter of LNG and by 2020 Australia, Qatar and the United States are anticipated to provide approximately 100 billion cubic meters to LNG capacity each to global markets.

Look to our southern border. Look at what's happened in Mexico. The energy security steps that they have taken the recent historic energy reforms have allowed and enabled Mexico to attract international capital and technology necessary to reverse its oil production declines.

And then of course if you look at overall non-OPEC production which has grown largely on the shoulders of north American shale production we are seeing a growth of 2.4 million barrels a day in 2014 and we are looking at a perhaps a more modest rate of growth of 1.4 million barrels a day this year. But it is still significant and it's leading this significant shifts in foreign policy around the world.

Now I have to come back here and talk a little bit about our domestic picture. Let me more specifically talk about the trends here in North America. In a period marked by increased market volatility and given the remarkable shifts that we are seeing globally in supply and demand there is wide spread speculation as to the impact in the future of US shale production, our unconventional oil and gas production.

But the thing that has I think surprised many analysts and many of our friends around the world is that the US shale sector is very resilient. While low prices are creating new challenges on that sector the new technologies and the innovative practices are allowing producers to continue to keep overall production levels up, to meet the decline rates that we are seeing here in the US.

A couple of interesting statistics in that regard; the US is producing about 9.1 million barrels of oil a day, that's just short of the four decade high of 9.6 million barrels a day we saw back in April, and its well above the 5.2 millions a day we were producing just a decade ago. This increase in oil production, more specifically over the past 4 years has been about three and a half million barrels a day.

Lets put that in perspective for this audience. That's like adding a new Iraq to global supply. It is more than countries such as Kuwait, the United Arab Emirates or even Iran, which we will talk about in a moment, produce today. And according to the US Energy Information Administration natural gas production, again mainly based on the developments we are seeing in the shale sector here is anticipated to skyrocket more than 40% to a trillion, a trillion cubic meters per year by 2040.

As US oil and gas production is expected to continue to increase renewable energy and technologies like wind and solar have also reached a technological maturity and the costs are now competitive with conventional resources in an increasing number of areas. In 2013 here in the US renewables accounted for 60% of US, new US generation capacity.

US producers will need to continue to adapt this supply and demand dynamic and market changes but we remain optimistic and the United States and our energy future is bright and its with that that the United States can play a transformative role in the global markets.

But just to be clear no matter how much energy we produce the United States neither has the desire nor the ability to uncouple from global energy markets. These changes the changes were seeing that I described have implications. They have implications on our national security; they have implications on our geopolitical relationships, and on our economy. So we cannot isolate ourselves from the rest of the world. We live in a global economy that is interdependent. One that there is no better example of that than the global energy markets and in particular the global oil markets.

A fine point to this is disruptions any where in the world cause price volatility and have an implications on Joe Q Public right down the street who is putting gasoline right into their car. So it is in our vested interest to remain engaged and the fact is very simple. We are energy interdependent. I would submit to you for these reasons that we are actually emerging from four decades and it really has been since the oil embargoes of the 70's where much of global energy policy not just the US but broadly was driven by energy scarcity and in many instances a zero sum game mentality.

But today we are entering a new era, an era of energy abundance, certainly true here domestically within the US as we look at global oil markets being over supplied and its really in everyone's best interest to ensure that all nations are able to meet those basic needs that a represented by this nexus of energy that I have described to you.

Now just to try to wrap things up I would like to talk for just a moment on energy security. It's that energy independence that's part of why the United States is so committed to ensuring efficiently operating markets and energy security of our friends, allies and most specifically those within the Gulf region.

Most recently the US has reinforced this leadership through our efforts to combat ISIL in both Syria and Iraq. Its well known that ISIL extracts revenue from the oil produced in the areas that it controls and although the value chain there is complex and in many instances opaque we continue to make strides and move forward in lockstep with our international coalition to disrupt this lucrative trade. We can talk more about that during the Q&A session.

Similarly our commitments to the region are demonstrated through the historic deal with Iran. I know there's been a lot of discussion about that here today but the fact of the matter the provisions that have been put into place allow us to verifiably prevent Iran from obtaining a nuclear weapon. And I could go on at length, I think you all know many of the points in this regard. But moreover I would like to talk about the energy relationship and as and how Iran comes back into the global market and the implications that has on this global supply balance and dynamic. I think that's important. That's an area we need to address and we need to be cognizant of.

In the interest of time and knowing that we will have an opportunity to discuss these matters further I'll bring to a close my remarks but just simply we are finding ourselves in the midst of a major transformation in the nature of global energy markets even as we grapple with the implications of the rapid changes around us its clear that energy markets remain more interconnected, interdependent today than at any other point in the history.

Energy independence is not an option in today's interdependent world. The United States will remain engaged to help our partners and our friends especially those in the Gulf region, to address many of these energy security challenges and to help usher in a cleaner energy future.

Thank you.

[**Sarah Ladislaw**] Good morning. Thank you very much for having me here this morning. I want to thank John, John, David and the rest of the team for having us here in your ongoing deep dedication to these two very important regions of the world. You are to be congratulated for hosting this event every year and serving as sort of a benchmark for us to think about how we progressed from the year before.

I know I've got one clock to follow and that is my time clock for talking so I am going to offer a few perspectives. I was asked to talk a little bit about renewable energy and alternative energy cooperation an area that I spend a good deal of time focusing on.

As many of my colleagues suggested we are living in a time of great change for the energy sector and great uncertainty in the global security environment. Given all that has happened in the world and the complex contentious set of issues on the

agenda for world leaders I am routinely surprised or struck by the role that alternative energy, be it renewable or unconventional or even energy efficiency play in the relations between our broad and diverse set of countries around the world.

Here in the United States our experience gained from the remarkable surge in tight oil and shale gas production along with the efforts to promote renewable energy as part of the administrations comprehensive plans to address climate change has served as tools of engagement with long time allies such as the EU, Japan and GCC countries as well as emerging powers such as China and India.

Barely a meeting goes by without a mention of this strategic imperative of renewable energy, alternative energy and advanced energy systems in one of these multilateral or bilateral meetings.

Sometimes it makes me laugh to think of the heightened role of clean energy and alternative energy plays in these forums. I suppose next to the issues of terrorism, political instability, territorial claims, mass migrations, energy promotion of any source is looked to as a source of productive and positive cooperation.

As many GCC countries can attest despite the shared recognition that alternative energy sources provide a wide variety of potential benefits, realizing that potential is no easy task. As home to approximately one fifth of the global gas reserves, one third of global oil reserves, some of the lowest cost production in the world and governments that are dependent on oil and gas for nearly 90% of total revenue the comparative political and economic advantage of oil and gas is very hard to beat.

As the cost of renewable power generation comes down countries all over the world including countries in the GCC have actively reevaluated ways to tap into the equally abundant renewable resources that exist in their region. Ambitious solar targets in places like Saudi Arabia, the UAE and Kuwait and for those of you who watched the democratic debates last night understand the United States as well. I think we had a few ambitious solar targets that appeared in the platform that appeared last night.

These targets are proliferating widely across the globe. And it is true that compared with the past renewable energy sources and systems are advancing far faster and reaching more significant shares in the global energy mix than ever before.

But the share is still a minority of the system and far from delivering in full some of the lofty objectives attached to its promotion. Most notably the deep decarbonization of the energy sector to avoid another looming clock the long-term impact of changing global climate.

All of this is not to poo-poo the progress that has been made. I suggest the instincts to reach renewable energy and alternative energy is a positive source of cooperation are well placed but they must be followed through by the actions that will make

them succeed. A clean energy agenda can be a compliment and not a detractor from other goals.

Development, economic diversification, energy efficiency, employment, environmental impacts, all of these things are complimentary objectives to the renewable energy and alternative energy agenda.

International multilateral stakeholder initiatives are available to provide technical and policy oriented skills and advice but they don't help in making the difficult political decisions at home that are necessary to create the policies, regulations and economic incentives. The institutional base and inertia that is required to achieve some of the transformation that we are discussing.

These are difficult and groundbreaking objectives and worthy of our shared dedication and focus. And given the atmosphere of great change and uncertainty it is important that organizations like this one help to craft new and ambitious cooperation efforts that rise to the challenges of our time.

Thank you.

[Herman Franssen] John I too would like to thank you for inviting me to this very very important conference.

I think what has already been expressed is that energy is vital to the region but it also vital to us, vital to almost every country, and while major efforts are being made as Sarah indicated to increase the renewables in order to reach the targeted CO2 emissions. When you look at any available long-term assessment whether it is OPEC, the IEA or the EIA or the industry every single one indicates that it may be unfortunate but in reality fossil fuels will remain dominate for decades to come.

At the moment fossil fuels are about 80% of the fuels that we are using in the world. The IEA OPEC and others say that by another 25 years or by 2040 or as long as those long term forecasts go in the most optimistic case its about 74% and the more pessimistic OPEC case it is 78%. So it is going to be with us for a very long time to go.

And oil share it used to be 50% when the major changes started in the mid 1970s now down to 32% and for a variety of reasons it continued to decline somewhat the more optimistic case of the IEA is 24% in 2014 OPEC is 29% but it is somewhat in that range. But its still a lot of oil and it means in terms of actual consumption, consumption is likely to continue to rise to about 90 million barrels a day to 110 or 115 million barrels a day 25 years out.

We also know it's a fact that of all the oil reserves in the world today 1.7 billion barrels half of it is in the Middle East. So whatever we say about tight oil and everything the Middle East remains crucial for global supply of oil for decades to come.

The demand will be there because in that same period population is expected to grow by 2 billion people. Now most of that is outside of the almost of that is outside the OECD but those 2 billion people they aspire the same standard of living as we have. The Brookings Institute indicated that the middle class global middle class expected to grow from 2 to 4.9 billion as early as 2030, which is, I think is fairly optimistic.

The question is what do you mean by middle class? But that means that all these middle class people want to have refrigerators, a nice apartment to live in and ultimately there own means of transportation preferably a car. For that you need oil.

Yes it is true that we have Tesla and others beginning to make very small but determined inroads in the oil sector, we have to watch it carefully because ultimately they could be a major breakthrough and that says danger for the automotive industry, as it would be for the oil industry.

I remember my wife typing my doctoral dissertation on an Underwood now many of the young people sitting there think Underwood is a type of underwear. No it was typewriters. Have any of you ever used a typewriter? Not anybody. My poor wife had to type 250 pages on a typewriter and white out the mistakes. It's hard to believe we have that technology.

But the technology now is moving so quickly and so fast that don't underestimate what Tesla and others are doing. It's a massive effort and it's going to succeed. The question is when and how long and will the producers of oil change their policy keeping this in mind. I think they will.

I just want to say a few words about where we are now and where we are going. It is quite clear that once Saudi Arabia made the decision in the summer of last year to defend their market share it was primarily caused by what happened in the United States. We had year after year after year for several years produced more than a million barrels a day of additional oil, traditional tight oil, it was a light oil and therefore imported less oil from the countries that were producing that oil.

Now those countries those African countries that were producing that oil were then forced to find a market for it somewhere else. They went to the Asian market and sold it. But those were the traditional markets of the Middle East producers and they wanted to keep their market share. So the Saudis and others said we are going to defend our market shares and they began to discount.

But the game went on and then by the time the autumn started al-Naimi the oil minister tried to find a kind of group of OPEC countries to see if we could cut production sufficiently to sustain a high oil price. But it didn't work so then Saudi kingdom decided with its OPEC partners enough is enough we are going to go for market share.

Is this new? No. For those of you with as much grey hair as I have, I was there in 1986 when a similar situation occurred. At that time it was Zaki Yamani and Zaki Yamani at the instructions of his king after having lost by cutting production from the early 80s until 1985 by more than two thirds and continued to lose because others were producing more. Then the kingdom decided enough is enough. They said they were going to go for market share. Within half a year oil prices collapsed by about 50% just like today.

Now in that case after a few months OPEC began to agree a new consensus emerged in OPEC but OPEC did not regain the market share that it had in 1979 until around the year 2000. Now this time around is quite different because this time around there is no, at that time there was 50% spare capacity within OPEC, and 50% of OPEC capacity was shut in.

Today the only spare capacity in the world is Saudis about 2 million barrels a day there is no other spare capacity, and we are not a swing producer as some people say because we are not like Saudi Arabia that have oil fields where they can just pull more very quickly within 30 days and certainly within 90 days. We can't do that with tight oil. It takes time. Once you start, we are now reaching a plateau and you start declining if prices continue to be weak you cannot very quickly bring it back into production. It takes more time.

We can use strategic reserves of course if prices get too high if that is what we want to do. There is no very quick solution for that. So the kingdom still has that power and OPEC still has that power. The situation as it is now since the price collapse we are now looking at what are the results, what has happened since the prices declined.

Indeed has Saudi Arabia achieved its target of bringing back the market into balance, and I would say not yet. It takes time its like a supertanker in the ocean it takes time to turn around. This is going to take time because the momentum was still there on the supply, investments made years ago are now beginning to bear fruit like [Imbecile] and other cases.

And a country like Russia they massive devaluation of the currency made it much cheaper now for them to produce oil than it was before because they are paying their workers in rubles and getting foreign exchange when they are selling oil and gas. It all takes time. A low price has an impact but it takes more time.

And on United States production I think all of us have been surprised how well it has held up this year. The question is whether it will continue to hold up and what does 2016 look like.

Well the demand goals, the IEA just released its latest report for October and the optimism that exists for the demand sides hasn't evaporated but it has been

significantly reduced. Now IEA has taken about 1.2 million barrels a day in 2016. Others are still saying it could be as high as 1.8 so you have a range of credible forecasts for next years demand, 1.2 to 1.8.

On the supply side we find a similar situation. IEA in their October report says non OPEC supply will come down by half a million barrels a day. Other credible sources forecasts have it from plus 250,000 barrels a day to minus .8. So a huge range on the demand side and a huge range on the supply side.

So as a forecaster you can actually make it come out the way you want. The glass is half empty or the glass is half full. It is difficult to say what is going to happen particularly since we were not expecting what happened in 2015 to actually happen but it did.

So it looks like however that whatever scenario you take the market will continue to be in oversupply at least until the third quarter of 2016. OPEC is going to continue to be above its target the 30 million barrels a day. This year it has been 31.7 and there are expectations that Iraq will continue to produce more. Iraq and Alaska appears to produce a million barrels a day more than it did before and of course with the agreement with Iran, once international sanctions are lifted, Minister Zangeneh believes that by the second half of next year it will be producing another million barrels a day. I have doubts about this. Some say yes and some say no. We don't really know if this is going to happen but you could argue that you could make a case that by the end of next year or early 2017 the markets will begin to balance. Demand and supply will be back in some sort of balance.

So it would mean that it is not very long low price tag that many have predicted, but there is a but to it, there is always a but. Once you have the rebalancing but at what price? It is highly unlikely we go back to \$100 a barrel.

Mike Pappas the king of tight oil needs about \$100 a barrel in the United States to get the same kind of growth in tight oil as we had in 2010 and 2014. He also said, he said this last week at the oil and money conference in London; he said that for a green field project a new project of tight oil you need the price of at least \$70 a barrel. Now keep this \$70 in mind because this is the price where many people are looking at that will happen after the rebalancing. We will have a period of \$60 a little bit less for the [???], but a range of \$60 to \$70 a barrel maybe slightly higher but in that general range.

Now if that happens it will mean the Saudis have reached their target and the world will have to see then what happens to this tight oil. If prices go at \$70 or at about \$70 will tight oil production stop or be ramped up again or will it not. Someone has to find out, and what would be the counterstrategy of OPEC and in particular of the Saudis?

They have far more oil than you and I think, they are very modest about their oil. If you take their oil reserves from the BP statistics at about 260 billion barrels but that was based on about one-third-recovery factor. But if you take the current recovery factor in their major fields like Abqaiq, Safaniya and so on it's much higher than that.

So they are looking at ultimate recovery of about 50%, now if the ultimate recovery is about 50% and you look at the real oil in place then they may actually have producible oil of 400 billion barrels. Now if you have that much and you have a target in mind by 2050 and a world that wants to be out of fossil fuel for cars and you have Tesla coming up do you want to think that it might not be a bad idea to produce more of that oil now rather than keeping it in the ground. In other words, monetize it now, don't monetize it in 2050.

If that is what you do then the OPEC family particularly the Saudi and others in the GCC can slowly but steadily ramp prices to move a little bit better. Take that additional market share because the high cost oil, the arctic oil or deep-water oil needs a much higher price and it will take the industry which is bloated with technology a longer time to find ways to do it cheaper.

And in the meantime OPEC particularly the kingdom and its GCC partners have that option. I don't know whether they will do it but it is an option. So I think it is still the next year will be difficult but it looks like things might improve by around 2016.

Now finally one comment about the US. If we stay at a relatively low level of price we may not reach this target of independence by the time we had hoped for. Mark Pappas who I quoted before, the king of tight oil and very successful one of the most successful people in the tight oil business told us last week that if we get to a higher price level of \$70 or \$80 oil we may get back but not the same rate of growth, maybe half a million barrels a day for a period of 6 or 7 years.

That is in line with IEA and EIA assessments that we may reach a kind of plateau in 10 years time on tight oil and after that we don't know. We hope technology will continue to improve and we will continue that parity. But Saudi as I said is sitting on a massive oil reserves that can easily be produced for a very long time. So we should keep in mind that the Middle East is not a place to leave because of short-term attractiveness if we were to become independent, because that is the part of the world that 50% of the oil is.

As we heard this morning from Ambassador Freeman that our policies have been less than optimum, I want to be kind, if that region, if we were to no longer have significant influence in that region then I just want to end with a quote of the geopolitical geo study writer Mackinder "that he who controls the rimlands those areas in the Middle East controls the heartlands which is the Euro Asian continent and he who controls the heartland controls the world."

We want to keep a finger in the pie and we have our friends in the region. Let us honor our friends and keep that relationship going rather than allowing it for short-term convenience to get out of our area of interest.

Thank you very much.

[Q&A]

[Anthony] The speakers have been commendably within the time limits assigned them as a matter of fact they are ending five minutes early. We have 35 minutes for discussion, questions. We have a range of questions I hope those who have them have taken advantage of writing them down on their 3x5 cards. It is best to preface them with how because the answer to a how question cannot be asked cannot be known. It draws out more substantively insightful knowledge and insight and information which is vital to our quest for our understanding.

Among questions I will ask one then John Pratt will ask one and we will go back and forth and any of the panelists can raise their hand and John will recognize them to respond. Again I would like to reinforce that this is a policy makers conference, we want to provide food for thought for the policy makers.

What might we do differently and specifically better or more effectively? Why, how, how feasible is it, how practical is it, and jar the minds of those who are in a rut or a routine or a regimen of doing the same old, same old but they haven't been challenged. Here's a chance to challenge the policy makers and try to improve the situation.

[Question] How will the increased energy self-sufficiency of the United States impact relations between the United States and the Arab world more generally and the Arab world producers specifically? Do you want to have Mr. Westerlake to have first cut at that, then maybe Molly and Herman, or Sarah can have a whack at it too.

[Westerlake] I think very simply all you have to do is look at the interconnected nature of the global economies and specifically the oil markets to realize the fallacy of the idea of energy independence and while here domestically and certainly within North America there may be the ability to balance the scales the fact of the matter and the tsunami in Japan is probably a great example where Fukushima the incident there caused the Japanese to take one third of their power generation off line. That caused them to in fact to have to increase their imports of both refined fuel oil as well as that of liquid natural gas.

The ripple effect in an interconnected economy was that yes we at home here in the United States felt the implications of that. You could use any supply disruption to that point. Now more specifically our commitment to peace and stability in the Gulf and the Middle East has never been stronger. We recognize the challenges that are faced today and in fact we are concerned and we have a vested interest to ensure

because if you think about it as my colleagues, my esteemed colleagues here have pointed out look at the Straits of Hormuz, look at the amount of global energy that passes through that choke point or that bottle neck. Look at the region at large and while we can boast the US production today as we look into the future and the growth in global energy demand it will in fact be the Gulf region and the Middle East that is going to be the dominant supplier there.

So we need to not only look at the short game, we need to look at the long game, we have to recognize the globally interconnected nature of the markets and we need to reaffirm that commitment that we have, because as I have said energy can be a source of cooperation or one of conflict. Thank you.

[Williamson] Thank you. As I started out to observe we have a consistently growing trajectory of global consumption of oil. I mentioned it started out as 87 million barrels a day and today it is 93 plus million barrels a day. You heard projections going out to 112, 115 to 120 million barrels a day. This means there is growing demand.

What we have is an unusual imbalance of supply and demand right now. That it will even out with growth of demand is not really a source of debate. The point that John has just addressed which I think is terribly important when looking at a region which holds the majority sits atop the majority of conventional hydro carbons 40% of all the globally traded oil today comes from this region called the Middle East and it has to go through three check points, Bab el Mandeb, the Suez Canal and the Strait of Hormuz and the Strait of Hormuz is the largest of those three chokepoints.

Any major disruption, any fear of major disruption throws the global marketplace into a tizzy. One cannot walk away, the interest of the world are ill served by not doing everything possible to promote smooth consistent transmission of this important commodity globally. And the fact that the United States really only gets supplies from the Middle East are overwhelmingly from Saudi Arabia rather than any other country in this reason doesn't mean it is easier to walk away.

To the contrary our friends, our neighbors, our allies are in our face throughout diplomatic exchanges saying what about us? Make sure there is the availability; make sure that we don't encounter security problems. So these are issues long term and short term that will tie us together on an energy basis. There are lots of other issues that hold us together but in particular an energy basis.

[Fransson] The global energy security issues are and will continue to be extremely important and may be dominant. To look at energy independence as an excuse to rebalance our interests in the world may not be the smartest thing to do because although what do we see now? We see how in the region a much more assertive Russia, moving into Syria to back up the Assad government and if it succeeds with support of Hezbollah and Iraqi Shia and Iran it would be the change in the region that leads to a very difficult situation in the region.

So it doesn't appear that we have at the moment an actual policy to cope with this. We were surprised in a way by this but this puts so seriously an impact on the whole control of the oil of the region that this I think is probably the biggest challenge we are facing. Its amazing that those who are making oil price predictions and they see a very very long term period of low prices are not taking into account the biggest upheavals that exist in the region since the end of the Ottoman Empire. And not to put that into part of your energy equation is a very serious mistake. Thank you.

[**Ladislaw**] And just really very quickly I realize that I am up here with some of the most sensible and experienced energy policy wonks in the city or even the world and I often fear this discussion we give the sensible answer which I think is that you know the unconventional oil and gas revolution really hasn't changed the strategic position of the United States vis a vis the Middle East. I think while that is a recognized reality for many of us who sort of work in or advocate for some policy in this area I do think we have to acknowledge that in a lot of our political discourse in the United states the opposite is true.

Energy independence resonates for a reason whether you think it is realistic or not. The unconventional revolution in the United States has sort of fed into that dynamic. We did a major study on this almost two years ago at which point we were sort of at a different point in the unconventional revolution in the United States and we interestingly sort of found that energy was being used as a proxy for a general feeling of the US desire to withdraw from the world and the region in general. People were kind of conflating those two things.

What has been interesting and useful for me in the last two years is to see how even sort of absent that or even with that line of argumentation the United States was on a path towards energy independence and the more plausible and dramatic that seems the United States the world power really couldn't detach from the region and in fact the response has been deeper engagement.

So I think that that's a really tremendously useful experience for the United States to have when you look back at the last 40 years at this mantra of energy independence and I think that's a learning process that we are undergoing. But we would be probably misleading if we didn't say that among some policy circles here in Washington it was still a message that resonates.

[**Pratt**] I have one comment if I may please and this gets to the complexity of the challenge. We can look at this in political, geo-political terms, we can look at it in economic terms but one thing that I want to reemphasize is that the signals that the markets are many today. You have heard each of us talk about those and what will be interesting in terms of this interdependence this balance between US shale production and more specifically the Middle Eastern production is how responsive the US shale market is to price signals, how quickly that this oil production will

come back on line. I think many have been surprised by what we are seeing unfold in front of us.

Some analysts argue that we are at a time where the US is by defacto or default becoming the swing supplier in the world, a role that Saudi Arabia had held for many years. Why put it in this context is because I think there is still I talk about the sea state change, I talk about the changes in the market we're all still assessing this and how that factors into the relationships we have and a day of reckoning and what I mean by that with this sustained low oil prices what that's doing to the US shale production here.

Many argue that the smaller the medium cap EMP companies in the US there is a time where their balance sheets are susceptible and the changes in reserve based lending here in the US, not to get too wonky, are actually putting them at risk. That could change the dynamics so we are really watching the newness and its really been within the last 4-5 years of these changes and we are all assessing and that is why we have seen a lot of the volatility in the marketplace and I think economically we have to keep those considerations in mind because they do play into the geopolitics.

Basically that leads us into the next question. How can we raise the energy literacy rates over sound bites on this debate and the US media and the NGO advocacy sector? So is there a strategy that could be adopted to make this energy component of our economy a little bit more out there in terms of peoples awareness and literacy on the issues rather than just being a marketplace or market driven process where people realize oil prices are going down, we have energy independence and we can go on to the next show?

[Ladislaw] I always worry about when we get into the territory of energy literacy and sort of making sure that everyone understands where their energy comes from and all of that sort of thing. I do think it sort of happens, it comes up a lot in US political debates. I think that a lot of people do understand certain components of the energy sector but sort of understanding in its entirety is sort of asking them all to become an energy specialist which I think is mildly unrealistic for most of the population. I think that the question for policy makers even though it is a lofty objective that I actually teach so I should shut up right now.

But I do think that the imperative for policymakers is to send the right signals to consumers. It is hard to envision even sort of the types of policy debates that would be or policy interactions with the public that would be as developed as any one would want to have them in terms of energy literacy. I think the idea here is to try and figure out how the policies we create and the economic incentives and market mechanisms we use interface with the people who are consuming and producing energy.

And I think that is getting much more complicated. Right? The era of the enabled consumer is something we are talking a lot about on the electric power side of the equation and certainly something we are going to be talking about on the transportation side if we are not already. So understanding how consumers will view the interface with the energy that they have is I think an area that quite frankly not everybody understands perfectly and policy makers are getting educated about may help raise the level of debate.

[Williamson] I applaud the question I think it is a noble goal. I would like to see this not however not a matter of government policy lest we get government doing all sorts of direction of education. But I have noticed that industry itself has undertaken programs, companies have undertaken programs to engage their communities with sort of science of the day for grade school kids, for high school kids in some cases helping them just the science end of things but opening this up later for being able to identify their own labor pool of trained people perhaps done later on with scholarships and the like.

Something that Sarah didn't say when she just made her remarks was the I think the unique role that her organization CSIS has undertaken in producing an iTunes university program of an energy education primer. I think that's wonderful. It is a 13 part series, and organizations reaching out so that people don't have to just look up, frequently ask questions on websites, they can actually have a little program, very understandable, very digestible and no doubt in my mind will raise the energy levels in this country enormously.

[Anthony] Shifting somewhat here. With regard to the new discoveries of gas supplies and sources on shore and off shore Egypt and the other new found pockets of natural gas not just off the coast of Egypt but Lebanon, Palestine and Israel where might these or how are these likely to affect the power dynamics in the area sooner, mid term, longer term if at all?

[Fransson] It started with Israel the major discovery that was made several years ago off, I think it was and correct me if I'm wrong, 30 trillion cubic feet which could keep Israel supplied for a very, very long time and enable them to export to surrounding countries as they want. Egypt is more recent, a very large find also around maybe 30 trillion cubic feet by ENI but it will take a little bit longer to develop. It cannot be quickly developed it will take years. [????] an interesting possibility in the past, as you know Egypt exported gas to Israel perhaps now Israel will export gas to Egypt. Then when Egypt's fields are developed maybe ten years from now or maybe a little earlier it would benefit Egypt and it could also be exported not exported again at that time.

[Westerlake] If I could jump in. We have to also put this into the perspective in the fact that countries such as Egypt that need direct foreign investment are in fact competing for those investments globally in a market that is right now saturated and as such it will become very important to get the framework right to incentivize

the types of investments that are going to be necessary to realize the potential that these resources have. So I just wanted to add that bit.

[Pratt] I wanted to mention Tesla the electric car 2015. The question came up how will Tesla decrease oil needs, as electricity must be generated and usually by oil generation. Basically not in my back yard. Dick if you wouldn't mind addressing that.

[Fransson] Well the one thing we have at the moment a real abundance of in the United States is gas, contrast to tight oil, shale gas is much more abundant so we are going to be major exporter of LNG in the next decade starting the very end of this year the first cargo. But what is holding back shale oil development is a market; there is not much demand for gas in the American market at this point.

The power sector is not consuming enough gas strangely enough so the future of electric cars will largely be fueled by natural gas and perhaps in states like California, and other states later on will be fueled by renewables. And that would be the ultimate and you could have a combination of the gas and the renewables and what makes these Tesla's so interesting that they are also developed a billion dollar factory in Nevada they have developed a system that you can put in your garage where you can store electricity that you collect on your move during the day and at night you can use it, in other words you could become as a household almost independent. It is a fascinating idea.

So that is the long-term direction that we are going. I would be quite optimistic with this but the problem is the time it takes to really build the facilities to produce a meaningful number of cars to make a difference and get the price down sufficiently to compete with current hybrids.

[Westerlake] And batteries. Battery technology as well.

[Ladislaw] I would really like to underscore that last point that Herman Fransson just made. I think it is important to keep in mind that when we are talking about long term that is not just a word. When President Obama first took office he pledged that by the year 2015 there would be a million electric cars, all electric cars on US highways. We have less than 350,000 electric cars on the highways today and we have 5,600 electric charging stations throughout the United States. That's it. You are on the Jersey Turnpike, where are you going to pull over to get a fill up. So this is going to take time and by time I am really talking about generations of drivers so we kind of keep in mind what long term really means.

[Anthony] Build on that previous one having to do with transportation. The US march to the west was heavily dependent on and facilitated by railroads and Teddy Roosevelt broke up the trust etc and its never been quite the same in terms of railroads, unlike China unlike Russia. Why is the United States focusing more on developing this newer rail system in order to improve energy independence and

what role, how do the automakers come into this question? As an obstacle, a vested interest, does not want to see this occur?

That's the question and then unrelated to it though, we are trying to get as many questions as we can. How can you educate us as to the extent to which oil prices are influenced by geo political dynamics, factors, forces, phenomena? One used to hear that the strikes in Venezuela and violence in Nigeria and violence in Iraq etc had a certain percentage of the overall price. I don't hear that anymore. How would you educate us on that?

[Ladislav] So just on the transportation real quick. If I had the formula for geopolitical risk in all markets I wouldn't be doing this job. On transportation markets to sort of build on the previous question and get to the real question. I mean massive infrastructure projects in the United States are very hard to get built. I think Molly underlined that for a number of regions and the cost benefit analysis of doing it in any one region is challenged for various reasons. We had a vast stimulus program that tried to incentivize some of these high speed rail programs and even with all the talk of multi modal transportation it was something that was very hard and continues to be very hard to get off the ground.

I do think though that we are in danger of being a little bit flat footed on the transformations that are happening on the transportation sector by just focusing on sort of new fangled technologies like Tesla, though I love Elon Musk just as much as everybody else, I think that the real question and danger here is yes global oil demand or the danger for folks who produce oil and gas is that oil demand and gas has risen but it is a smaller share of the overall mix both in the transportation sector and in the power generation sector and there are people actively competing for market share against oil in the global economy for a vast varieties of reasons.

And so energy efficiently, things like energy efficiency policies proliferating into the developing portions of the world that will drive future demand for oil in the transportation sector or driving it out of the power generation sector or industrial sector in different of the world are also eating away at potential for future demand.

Things like ride and vehicle sharing technologies that are being not only proliferated but promoted as anti congestion policies in rapidly urbanized settings. These are things we are not really great at but there are lots of advanced algorithms to try and make sure that all your millennia's and other people who are not digital natives start transforming the way they use transportation.

I am not saying it is going to change the face of transportation, I'm saying we really don't know because most of the information is pretty anecdotal. So I think we have to take a broader more expansive look at the things that are actually out there potentially transforming the future of transportation.

[Williamson] If I could tackle that question about how to translate geopolitical risks to cost of energy and projections of energy security. First of all I am unaware of any formulaic approach that a particular crisis translates into a price increase or price plummet. The challenge is and I'm sorry you have to understand people better, understanding people has never been easy and what we are facing are things like consumer preferences, these things come and go. Whoever thought we were going to have a run on granite for kitchens.

The issues like internal political decisions having nothing to do with energy but having profound impact on energy and this can be for political purposes and the application of sanctions and we have heard from Chas about how effective that's been. The prospect of using as political weapons economic tools having clearly unforeseen and unanticipated ramifications. I wish there were a formula that would say here's how geopolitical risks throws the energy market into a tizzy but so far as I know, no such tool exists.

[Pratt] We've got one question really driven by Iran. How does an American opening to Iran and its oil market affect America's relationship to Saudi Arabia? How can the US balance this relationship? Who would like to answer?

[Williamson] What we have at the moment with respect to Iran is a P5+1 joint plan for implementation. It is not a marriage proposal, it is not friendship for life, these are very tough issues that are among folks of longstanding mutual suspicion and hostility. We have not had some wonderful sea change of any of the P5+1 or Iran who have been parties to an agreement born of mistrust born of all of one side of a table being anxious about the developments on the other side of the table.

As much as the west has been deeply suspicious of Iranian nuclear behavior so has also Iran been deeply suspicious of western motivations. So we are not talking about a zero sum game, you can only have 17 friends and if you open the door to a former enemy then you don't have 17 friends anymore you have to have 16 friends and somebody else nudging at the door. That's not the nature of the business nor is it the nature of the agreement.

The hard work for monitoring and verifying compliance with a very very complex agreement begins now and never ends. This is not born out of love and friendship it is born out of a desire to have an option not to have immediate escalation. We can always escalate the question is can we find a way to buy some space for the future of this planet that does not necessarily involve an escalation. Sorry I have over talked again.

[Anthony] No you haven't. We are just coming to the end. Yes Herman and then I want each of you to think of maybe a one sentence or two answer to these two questions. What is the estimate of US shale oil reserves? How can we believe reports that say it is more than Saudi Arabia's 260 billion barrels? That's one question.

Then how might one analyze the prospects for a greater Arab Israeli cooperation in the near future as a result of the Iran nuclear deal if at all?

Lastly, how has President Putin's intervention changed the Middle East and the Gulf and how do you view the estimations of some that it's a positive challenge to President Obama and the leadership of the west? Those last few questions a one or two sentence answers please. Herman you lead.

[Fransson] Can I just add something to what Molly just said? Iran is ready to reengage with the oil industry. US for the time being will not be in not because the oil industry does not want to be there but because US sanctions after UN sanctions lifted we still have US sanctions to cope with. The industry Shell, Total everybody is negotiating. Negotiating and putting out their feelers in Tehran to find out what they can do, new rules and regulations are being prepared, they were supposed to be ready this month, but are postponed.

There will be a big conference in London about the Iranians in February where these old regulations will be detailed. Its quite clear that the European and Asian industries are ready to go not only for oil but also for gas because Iran after Russia has the biggest gas reserves in the world. Iran is ready for business but industries like to find out just how good are the regulations? How do they compare with the opening of Mexico and the opening of other countries that are beginning to attract the industry and the jury isn't out yet. But given its size everybody really wants to explore and see how important it is going to be for them.

[Anthony] Is energy interdependence really as inevitable as the panel seems to imply? Would not US independence remove energy as a distorting factor in America's foreign policy? How might that occur? That's a question for you in the networking there. You want to have a final comment Molly on these questions that were just asked about Russia? The impact?

[Williamson] The overwhelming point I think we should have no illusion about that this is a time of tremendous volatility, tremendous fragility not just for the Middle East region but globally and what we are looking at especially with the most recent steps from Russia into Syria is unfortunately now of greater incidence or likelihood of accidental involvement, unintended consequences, war by accident, just too many moving parts too many different agendas and assumptions out there. People don't agree on who the enemy is they don't agree on what the target is and so the room for misunderstanding for umbrage for retaliation has increased enormously.

[Pratt] Thank you all panelists for excellent presentations and I think what we will do for now is to break. It is now 11:30, and clear the room if you don't mind. You are networking out there while the set up for lunch and then back at 12:00. Join me in a round of applause for the panelists please.

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