



**EU Energy Panel Transcript
December 1, 2015**

[01:00:23:28]

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

Just to take boots for my class tomorrow.

[01:00:52:23]

SHANE SKELTON – EXECUTIVE DIRECTOR OF THE ALLIANCE FOR INNOVATION INFRASTRUCTURE

Good afternoon, first of all everyone and thank you for joining us everyone, please feel free to move forward if you are so inclined but in any case I know there is a lot going on in the Hill today, we really appreciate you taking the time out of your schedules to come and join us. I am Shane Skelton, the Executive Director of the Alliance for Innovation Infrastructure. [01:01:22:27] First and foremost we want to thank Jason Iskovich in the back there and Congressman Bob Latta for securing us this location and allowing us to move forward with this event. A little bit about us, the Alliance for Innovation and Infrastructure is an independent nonpartisan nonprofit, so the alliance is between our 501C3 organizations or 501C4 organization, National Infrastructure Safety Foundation and the Public Institute for Facility Safety. We are focused upon examining [01:01:52:28] innovative and outside the box policy solutions to infrastructure and mobility challenges through both awareness and education. Before we introduce our panel, we have our board member Scott Vokenger here to join us and another one coming soon but Scott please stand up if you don't mind, say hello.

SCOTT VOKENGER – BOARD MEMBER EXECUTIVE DIRECTOR OF THE ALLIANCE FOR INNOVATION INFRASTRUCTURE

Hello everybody thanks for coming.

SHANE SKELTON – EXECUTIVE DIRECTOR OF THE ALLIANCE FOR INNOVATION INFRASTRUCTURE

And we have got a great panel now so I am excited to introduce them: we have Deputy Head of Mission, [01:02:22:22] Peter Zelenak from the Embassy of the Republic of Slovakia in the United States. We have Deputy Head of Mission, Mendavo Ziccus from the Embassy of the Republic of Lithuania in the United States, we have Ambassador Andras Simonyi, he is the Managing Director of the Center for Transatlantic Relations at the Paul Nett's School for the Advanced International Studies at Johns Hopkins University in Washington DC, he served as the Hungarian ambassador to the United

States between 2002 and 2007, [01:02:53:00] he also served as Hungary's ambassador to NATO. And we have Ambassador Rich Kauzlarich, he is the current Director of the Center for Energy Science and Policy at George Mason University, he previously served as a National Intelligence Officer for Europe on the National Intelligence Council and was responsible for analyzing European Energy Security, the role of Turkey as an energy hub and energy relations within the Caspian region. He served as the United States Ambassador to Bosnia and Herzegovina [01:03:22:21] as well as to Azerbaijan, sorry about that. We have Mr. Douglas Hengel, he is a senior resident contributing to German Marshall Fund work on Global Energy, the Climate and Resource Challenges in International Economics with a particular focus on European Energy Security, a career US born service officer Hengel has served with the US Department of State for more than 30 years. [01:03:52:28] And now I would like to turn it over to Brigham McCown, Brigham is AII's Chairman and CEO, Brigham is an Ohioan and proud and a proud graduate of Miami University, Brigham served almost 30 years of federal service as a Naval aviator and as an appointee. He has founded several companies and he is our founder here at AII and it is with great pleasure that I introduce Brigham and let him take over with this panel. Thank you Brigham.

[01:04:22:29]

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Shane, thank you very much and I would like to thank everybody for being here as well. We are really excited to put this panel on today and we hope that everyone participating will feel free to ask questions as we get toward the end of this as well and take advantage of this really exceptional and scholarly panel that we have before us. My job is to ask the questions and keep us running on time but otherwise stay out of the way and let the conversation develop, [01:04:53:08] unlike Alex Trebek I do have questions but I do not have any of the answers so hopefully that's what we are all here for today. I am honored to serve as Chairman and CEO of AII and hope you will have an opportunity to read an article titled "An Energy Disunion, the Challenges and Opportunities in Europe's Emerging Energy Market" which will be published in early January in the European Energy Journal, copies of the report can be found on your seat and on our website.

[01:05:23:04]

Now, onto the discussion, let's start by lighting out the context of the European Energy Strategies, I have asked Mr. Hengel here to help us start off by sort of lighting out the background for to help us understand Europe's traditional approach to energy and how these policies [01:05:53:10] reflect differences between the different member states and Doug if you could start and then after that we would like to ask the others to add their national perspectives.

DOUGLAS HENGEL – SENIOR RESIDENT GERMAN MARSHALL FUND ON GLOBAL ENERGY

Am I on here? Now, I am on, okay, okay, thank you and you asked me to do this in like 3 to 4 minutes, so.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Can you sum up European history in 3 or 4 minutes?

DOUGLAS HENGEL – SENIOR RESIDENT, GERMAN MARSHALL FUND ON GLOBAL ENERGY

So, this is really a 30,000 foot overview so thank you, thank you for inviting me here and very pleased to have this opportunity. [01:06:23:08] So, anyway very quickly and this is really just an overview, you know, if you go back to the beginnings of European integration after World War II energy was at the center of it, it was the, you know, the treaty establishing European coal and steel community but since then European integration as it effects energy policy has not been smooth I would say, there are differences among the countries in their energy mixes [01:06:53:12] and structures of energy markets and a desire to protect national champions, this has all resulted in different interests of member states, I think hindering energy policy cooperation. So collaboration has gradually become closer but European Commission came up with two ambitious plans, they tended to be shot down by opposition from member states. Again this has been changing. But today despite the so called European Energy Union being formally [01:07:23:00] launched earlier this year many policy competencies in relation to energy remain at the national member state level and progress in policy at the European level requires voluntary cooperation by member states, it is a little bit different when it comes to competition policy where the commission does have a clear role and that's been very useful in overcoming some of these obstacles to uniting the energy market. So where are we today? [01:07:53:04] The EU imports more than half the energy it consumes, its import dependencies is particularly high for oil, more than 90 percent and natural gas about 2/3rd with a total import bill of more than a billion Euros a day. These dependencies on import of oil and natural gas are likely to grow.

Of particular concern is where countries rely on a single supplier for an energy source such as the countries, there are 6 of them that rely entirely [01:08:23:09] or almost so on Russia for their natural gas and in the Baltic countries which are heavily dependent on Russia for operation and balancing of electric grids. Russia supplies about 30 percent or so of EU's gas supply. So, these dependence leave these countries vulnerable to supply disruptions whether it is political reasons or commercial disputes or failure of infrastructure. So for example in 2009 there was a major gas dispute between Russia [01:08:53:07] and Ukraine that left the EU countries with severe shortages and there have been other disruptions over the years too and let's not forget that Russia has had a tendency to use energy as a foreign policy tool. In addition to that turmoil in North Africa and the Middle East and Ukraine can all threaten supplies to Europe. So, Europe has adopted many strategies over the years with lots of targets, many of those are geared towards combating climate change [01:09:22:25] but there has also been an important focus on liberalization of the internal markets for electricity and natural gas and to promote physical inter-connector where necessary all meant to promote competition and energy security. I won't go into the details of those but I mean the main ones to think about are the third energy package from 2009, the use energy security strategy of 2014 and then [01:09:53:10] the Energy Union which was formally launched at the beginning of this year, but they all have... they are all geared towards the idea that completing the

internal energy market and building these missing infrastructure links are critical to Europe's energy security.

So, the Energy Union can look like a repackaging of a prior energy and climate policies under a new name, [01:10:22:22] but at least the leaders say that there is really political will behind this, that they understand that there is a need for more cohesive set of measures across policy areas in EU at national level and there will be new measures coming, a new security, a security of a of electricity and gas supply directives, something on LNG strategy, revising the renewable directive for 2030 and others, it is supposed to be one cohesive strategy [01:10:53:02] based on solidarity and trust between member states. I think there is some questions about that in light of Nord Stream-2 but I think others will address that issue. And the US has been an active supporter of this along the way: we have been very active in promoting European energy security particularly where it has been weakest in Central and Eastern Europe. So, where are we now [01:11:22:27] I think since around 2008 or so the energy markets in European Union have been much more integrated as lot of increasing trade flow across borders, we have seen gas hate... trading hubs becoming more and more liquid, the oil price link with... for gas has been greatly diminished and is decreasing and electricity markets has a very active day head, [01:11:53:08] market now across the European Union so this has all been good for the integration of the European energy markets and there are signs this is affecting how Gazprom looks at Europe, that they are changing their business model, not only because of realities in the world market but also because of the anti-competition case that has been filed against them.

At the same time I would say the European Union is yet to create, it is not a fully integrated energy network and market, [01:12:22:25] both gas and electricity market suffers from low cross boarder capacity and many interconnections, large parts of market in Eastern and Southern Europe, South East Europe remains isolated. The European Union is trying to address these challenges by harmonizing network rules and speeding up investments and priority infrastructure projects, the so called projects of common interest but there is lots to do and there is still resistance in parts of Europe to this. And another challenge [01:12:53:00] relates to the transformation of the energy system to accommodate higher share of renewable energies that can only have an impact on energy security. So, I will stop there and with that quick overview as I think I kept it under 4 minutes.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

You know, you raised a couple of really good points and looking at the European Commission strategy which was adopted this last February and taking them in the order that the EU brings them up [01:13:22:15] let's take a look at the first pillar which is the reducing the dependence on single suppliers which I know is very near and dear to many of you what I call the solidarity clause and DCM Peter Zelenak, would you mind taking that one with I am sure [Inaudible]

PETER ZELENAK – HEAD OF MISSION FROM THE EMBASSY OF SLOVAKIA

I don't think that is very appropriate for me coming from Slovakia. When we are talking about European Union we in fact are talking about two groups of states [01:13:52:29] within European Union. I come from the less fortunate part, from Central and Eastern part and this is the part that is completely dependent on importing oil and gas from Russia and that is an inheritance from the Cold War days but it is there for, you know, more than two and a half decades after the Velvet Revolution in Czechoslovakia and things like that, they are now member of NATO, member of the EU but as far as the dependence on the imports of oil and gas, [01:14:22:24] the situation has not changed, you know, for us. We are fully dependent on Russian imports and as was correctly mentioned this is not a very good situation because it is not... Russians are not hesitant to use that position, monopolistic position for their... for the improvement of their own situation and they could be quite ruthless. As was mentioned winter of 2009 there was a dispute [01:14:53:05] outside of the European Union, that was the dispute between Russia and Ukrainians, the outcome of the dispute was shut down the pipeline.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

For maintenance, right?

PETER ZELENAK – HEAD OF MISSION FROM THE EMBASSY OF SLOVAKIA

Yeah and we were on the receiving side, not having to do with the dispute being third side paying customer responsible for transporting gas throughout our territory to our Western Allies and we were left in the cold winter for several days with no gas. [01:15:23:04] the good outcome of that is that it was a wakeup call for us. It is to be said, you know, not to be completely pessimistic that there were some improvement in the infrastructure done in our part of Europe, namely inter-connectors between... in my case it was inter-connector between Czech Republic and Slovakia, between Austria and Slovakia, between Hungary and Slovakia and I need to mention reverse flow was physically [01:15:53:02] put in practice between Slovakia and Ukraine and that is very important because you know that the situation between Russia and Ukraine is very serious and by us providing the reverse flow that's changed dramatically, changed their position. I think I will stop here, I will let the others speak and then I will get back to some other issues.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Would Hungary or Lithuania like to comment, Ambassador? [01:16:23:06]
Lithuania.

MENDAVO ZICCUS – AMBASSADOR, LITHUANIA

Thank you very much and I don't know why they invited me here and actually because I bring luck wherever I go. Now, on the day I left my previous posting in NATO the war in Georgia started and on the day I arrived here in the US the war in Ukraine started. No but really what is going on... but what is going on in Europe is not a joke, what Russia has triggered [01:16:53:06] is something really serious and also serious not just from the security and defense perspective but also from the economic and the energy perspective. The situation is really, really serious but I don't want this argument to serve as a platform

for me to start to explain why we need the United States. I want to actually choose a completely different platform and say that I think it should be a natural interest for trading [01:17:23:03] power, liberal trading power, power behind establishment of the world economic order the way we see it, of the capitalist economic system that we see, economic and financial system that we see that a power like the United States simply cannot stand behind closed door having the key and having the ability to open that door and just refuse to enter the new realities that this [01:17:53:08] world presents. And the new realities come not just because Russia has provoked United States to open the door but because it is natural, because United States went through the shale revolution, that United States faced new realities related to oil and other hydrocarbon resources. So, the United States from my perspective, being not an American but from a country [01:18:22:23] that shares a lot with America including basketball, just to tell you, I mean we have defeated dream team a couple of times but we would never forget that and if you ask me a couple of times to remind you I will gladly do so. No, but the United States is a power that has this unique revolution haven taken place inside the United States and the new realities in the world [01:18:53:18] including the technologies available in order to exercise the power and being from the country that I am from this is the kind of thing that United States absolutely must take full advantage of without Russia being there or not. I will bring in Russia at a later stage but from a commercial point of view this is what should be done. I am not going into discussion about what a couple of the feasibility studies [01:19:22:18] told about whether the increased volumes would result in an increase in prices inside the US market or not, I am not going there and I am not going there to start telling about what the volumes per day or per month should be but I am just a believer, I am not... I am a religious person actually but I am a believer in the sense that this is something that US has previously taken full advantage of.

Second thing, [01:19:52:14] it is absolutely clear and on the day I came here for me it became clear that I am here to try to explore ways how to, how to try open the eyes of the people in my country in Europe and eyes of the people here in the United States to these opening possibilities and I understood one thing, there is a huge gap in terms of [01:20:22:14] understanding and in terms of actually the extent of action that private or public entities are willing to take at this point and I was disappointed by, you know the mission was clear, we need to have this change and when I say let me briefly explain. I have spent, you know, Lithuania is one of the countries that actually did something about trying to reduce dependence [01:20:52:13] on Russia, against all odds, against all the propaganda, all the dirty stuff that Russian media did in order to stop the LNG project in Lithuania, for them this was a huge challenge and also a matter of their way of understanding dignity because Lithuania challenged them in a sense that we said that we will build that, we will build that alternative to your supplies and we did. [01:21:22:25] But before we did, this was a huge challenge: this was a full-fledged war: pricing, media, disinformation, a lot of it, a lot of it, corruption attempts and so on and so forth but we did it, but one thing I understand since I have engaged with both administration and also the congress and also the private entities. One thing I understood is how much there needs to be done in order to start [01:21:52:27] explaining how the markets... I assumed people know in America how the market in these region operates, they don't know, they really don't. What sort of notion we employ to explain how these things work, at which

point the public institutions come into play, what this all means and that actually they just need to be a little bit more patient and things will happen, they cannot just come and, you know, just like it were in America and have things done for them, [01:22:23:03] you know, they need to do a little work. And on the other side as well, how to really work with Americans in order to really get what we want but one thing I sensed is that we are really in the beginning of a transition period and that private companies unfortunately are not ready to look beyond what would call a very limited approach to this partnership and this is a disappointment because I would just put it out to you in terms of [01:22:53:01] you remember all those statements about the T-TIP, the strategic import and that is the beauty the other economic energy, NATO so on and so forth. And really it was clear that we have such a long road to travel, to go, so much work to do that, you know, those statements risk just stayed statements, but the thing was and that was a disappointment for me was that including private companies they were not ready [01:23:22:21] to go to the full extent in terms of exploring opportunities for co-operation and this is the case up until now. maybe one the reasons and I am talking more about LNG since we built a LNG terminal, maybe one of the reasons is because it is just so new but the other thing I would say, limited means not just that they want to sell you, that they don't want to invest, limited is also in a sense of risks they are willing to take, the sort of [01:23:52:27] dirty work that they ready to take and I am sorry for maybe using terminology that... I would need to maybe for the next meeting if somebody invites me of course, but to amend a little but the thing is that at this point and maybe also because the political messaging is not as strong as it should be because if there would be political messaging that the companies, American companies would also feel behind, the approach would also be different [01:24:22:14] because now the basic understanding is that the markets in Europe are way too small and way too difficult. That, you know, maybe let's start from selling and then we will see and so on and so forth and then the institutions are so different and then EU, what is EU for many companies, why would we even need to deal with EU? Oh, EU is doing those projects why... maybe we should wait. My answer is no, [01:24:53:00] those are just excuses and unfortunately again this proves that there still needs to be a lot of work to be done and... work to be done to ignite the stronger commercial interest and also work to ignite the commercial interest that would actually result in what a country like Lithuania wants to result in, a stronger strategic partnership which creates opportunities, not just for US to sell more gas or more oil but opportunities [01:25:22:21] for US companies to feel confident, to explore possibilities, to invest in renewables, solar, wind, biomass, anything that you would mention and one other area that many overlook, again because it requires a lot of dirty work. You know, a lot of people like to come and take the, you know, the cake from the table I mean. Insulation, [01:25:52:16] our region is a region where a lot of Soviet type houses are built which are extremely energy inefficient and this is another area, I am not saying, I mean in a country like Lithuania this was estimated to be a business of 9 billion Euros, 9 billion Euros. Again comprehensive partnership which may be down from LNG for a country like ours if we start receiving LNG [01:26:22:17] from US, yes, it will be commercial, but it would also be strategic but I don't want to overplay the argument of strategic just to say that the commercial platform is ready now, we just need to look into it more carefully, you know, employ a little more patience and so on and so forth. And there are things I am a little afraid of: I will save it for later.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Andrea Simonyi [Inaudible]

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

Can I... [01:26:53:06] I am older than the ambassador: can I allow the ambassador to speak first?

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

You agree similarities, differences, sheer perspectives.

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

You.

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

Okay, I will jump the queues, speaking for no one but myself. At the risk of being accused of practicing energy without a license I think there are a couple of things that strike me about how, you know, America usually approaches these [01:27:23:06] questions that we have been talking about. first of all there is this assumption about we and Europe share similar views of what energy security is and as I think as previous speakers pointed out I mean there is no Europe when it comes to that, there are groups of countries, some of them... you know, the six European countries that consume 75 percent of the natural gas coming into Europe have a different set of interest that those countries in Central and Eastern Europe [01:27:53:09] who do feel that direct threat. But setting that argument aside for a minute, there is a demand side to this that I think both policy makers and businesses need to look at, demand and we will just talk about gas right now, in Europe for gas is declining, it is going to be a very, very competitive market, it is not just a question of whether US LNG will and will not be exported. [01:28:22:29] so all you people out in the audience who have anything to say about this make sure we get legislation that allows you yes to export oil and gas. But what's got [Inaudible] doing and what are the Russians going to be doing, they are not going to sit idly by and let either the US or other suppliers take their market share and that means lower prices. So, the question is going to be unfortunately for American and other companies, is it profitable? [01:28:52:29] whether it is just exporting gas or getting involved in some of these other projects

Second point, I think it is important to understand, whatever happens in Paris we may be moving into a different world which is a decarbonized world, how soon that's going to be I don't know, but you know the Germans have very ambitious ideas about renewables and if they are able to bring the rest [01:29:22:28] of the EU along then suddenly the attraction of gas which is not seen in Europe as a transition source for electrical power as it is seen in the United States decreases. So I think we really have to pay attention to that. I was very much involved two decades ago when I was ambassador in Azerbaijan in the major US diplomatic effort to ensure that there was a pipeline that went from the Caspian [01:29:52:19] through Turkey to global markets and one of the problems in the US

government is that when we have a success we like to learn from it and repeat it over and over again. and that was a different time and I think when you have to ask yourself what is the appropriate role for the United States to support I think focus on the countries of Central and Eastern Europe, it is not going to be expending a great deal [01:30:23:02] of political capital to build a pipeline because I think when you start looking at those projects in today's world the economics start to be the major factor and the economics unfortunately just aren't there for a Nabucco or a Nabucco second and the Russians are quickly learning the economics aren't there for a Turk stream, a South stream and I bet even a Nord Stream but that is another story. [01:30:53:23] But I think, you know, the real question is let's talk about what can US do, what should we do, what can we do as a government? I don't think we can make American business... will do the kinds of things that you just mentioned in a place like Lithuania, even companies that were successful in the United States would not, conventional energy development, you can't just transfer that to the European environment, there are so many factors [01:31:22:24] above the ground in the US that aren't replicable in Europe. Everything from the legal environment to tax codes to the kinds of incentives that allowed small companies to succeed. I think we have to be careful about that but at the end of the day it's the companies that have the technologies, that have access to the capital, that is not going to be the US, that is not going to be the Exim Bank, it is not going to be the Congress of the United States. [01:31:52:27] And the real question and I don't have a good answer for that is what can, what should US do, what can it do and let's not just be guided by the experience of the past but look at a different kind of energy environment for the US and Europe for going forward which I think is going to look, you know, a lot different 10 years from now than it does today and can't tell you what that is going to be.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

And we are going to have a question on what should the US do further down the road but Ambassador, [01:32:24:01] your comments, Simonyi?

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

That was not a question to me, was it?

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

No, no, I am just... I am reserving the...

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

Okay, alright, first of all let me say I am really thrilled, this is good, I have got my license originally I am a transportation economist so we used to deal with, you know, pipeline issues many, many, many, many years ago but I would also like to say that if you would ask me very, very nicely I can go into my German energy vendor bashing mode if you really ask me nicely but I won't do that, [01:32:53:16] we might come to it. I am not a great believer in that would make a, you know, that is really the way Europe is going, I think the German philosophy and energy is... comes at a cost and I think it costs... comes at a cost that German industries are almost not ready to bear at this moment so let's not get into that. What I would like to say is first of all, you know, let me start from the reverse, [01:33:22:21] I think the bottom line is, you know, this whole thing... let me

take this to the 40,000 feet level, I think what we are talking about is really do we actually believe that we need to finish the transition from dictatorship to democracy in Eastern Europe, do we actually... you really believe that the complex transformation process is still not complete and the biggest problem that we face here is a Russia that does not want to finish this and we will use any means to stop this process [01:33:52:17] including using the energy weapon, so this is one. The second thing is, I think the European Union is actually moving in the right direction because we just had the visit of the Energy Union Commissioner, Vice President, Sefcovic, he did a damn good job in telling the American public that actually the future lies in very close cooperation between Europe and United States.

So, if the EU Vice President comes here and says that, America, [01:34:22:25] listen to me, we need your participation, for all kinds of reasons, for all kinds of reasons then you better believe it. The next thing I would like to say is that, you know, I do believe that... I don't think that it is just about the molecules it is also about the infrastructure, that's why we really were excited, Debra Keagan, my colleague and former DAS to join this conversation because I do believe that infrastructure [01:34:52:14] is at the heart of this problem. The inter-connectivity in Eastern Europe, the connection between Eastern Europe and Western Europe, the North-South corridor. Now, let me come to the elephant in the room which is Nord Stream-2, Russian gas will never only be energy, it is always geopolitics and trust me while of course the CEO of Gazprom, his calculation, is it viable, [01:35:22:23] is this really a business we can carry but trust me the consideration is first and foremost political. When Germany and a couple of other countries insist on pursuing Nord Stream-2 I would like to use the American expression, I am afraid they are throwing Eastern Europe under the bus, it will cut the lines of communication that we have today that are so vital [01:35:52:25] to Hungary, to Slovakia, to Poland, to the Baltic countries, even the Czech Republic that is at this moment still reluctant to support these countries. I know that these countries made a brave move, very significant, yesterday they sent a letter to the European Commission saying that you'd better not do this because this will be disastrous, not only to our energy independent future but also to the geopolitics and also [01:36:22:21] to the integrity and to solidarity inside the European Union. So, I just like to say that and I just want to come to... and thanks for mentioning this Peter, because Ukraine were trying to figure out how to fix Ukraine. Now, Ukraine is a difficult country, I don't think they have done enough to fight back corruption, it is a difficult bunch to deal with but one thing is clear, cutting them out from the flow of energy in Europe would be a disaster [01:36:53:05] and we would throw them to the Russians like that and I don't want to see that happen.

Now, I have also and perhaps in conclusion and then we better have a discussion here, as we sit here today, as we are having a discussion in the US Congress there is another meeting in Moscow, in the Kremlin discussing how can we use the energy tool to further divide Europe, further divide [01:37:22:22] the United States and Europe and wreak havoc in the European Union, and this is the way you have to think about it. So I would kind of say that this is not a beautiful story, I would say that it wasn't every going to be beautiful but as things stand today with all the mess that we have in Europe I think it is in the interest of United States to be part not only of the [01:37:52:24] debate and dialogue

but show some leadership on how we can fix this together, how the transatlantic community can be more energy independent, taking into account all the developments, renewables, the future of gas, coal, everything so that we can say in a few years that we actually did the right thing.

[01:38:22:25]

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Yes, Rich?

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

Let's get to the supply... let's just talk about gas for a minute, I mean look at Europe's supply situation, what are the alternatives and let's, you know, people always default to talking about US LNG, well, that's not the closest LNG to Europe got our LNG has made major inroads and I think if I were the Russians in the Kremlin I would be more worried about that than about anything else. [01:38:52:15] Second, you still have Norwegian gas: the FT today had an article where the Norwegians have gone to Brussels to say what kind of guarantees can you give us if we developed the High North gas to build pipelines to move that to Europe? You have North African gas, you know, Algeria, Libya when it works maybe and then you have the limited amounts of gas coming from the [01:39:23:22] Caspian through Turkey into Europe and longer term who knows what is going to happen with Egypt and Israeli gas as well, though I think that's far too much in the future. You have alternatives that you can look at but I don't think you are ever going to reach the point where you are going to be able to be completely independent of Russian gas, it is just too darn cheap and, you know, they don't have to have Nord Stream to [01:39:53:00] continue those exports there. So, you know, kind of figure out how you diversify in a way that makes sense, but, you know, at the end of the day I think most Europeans are going to be interested in how much this energy costs.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Yes, I want to move to Peter Zelenak and then and back to the ambassador and let me just put this in your mind when you are thinking about whether the market ultimately normalizes though maybe [01:40:23:00] a different question from the symbolism of provi... of US support for its allies and I would ask you to consider that in your response as well.

PETER ZELENAK – HEAD OF MISSION FROM THE EMBASSY OF SLOVAKIA

Ah, yes, just to be perfectly clear and I am a Slovak speaking here no one is talking about excluding Russia from the market that is not the case. What we are talking about is creating a normal or at least a more normal market conditions and all these resources are there, we know about them and we know that the [01:40:52:29] Russian gas is very highly competitive, they are closed and pipelines, they have infrastructure, they have tradition, they also have a bad name, they have also bad name, so there is to be... there is

price to pay, I call it insurance policy, look at Lithuania, what it did, it was not cheap and it was not politically easy decision to make this, you know, the face of Russians this floating device, they did it and immediately they improved their position so there are different things to be considered but no one is talking about [01:41:22:19] Russians being excluded from the market. We are talking about changing their monopolistic positions there, that's all that we are talking about and the US's resources and we understand that US is putting more and more gas on the world market and it is having its effect, but we would like to increase... we would like to have the increase of that tendency to a larger extent so that we in Central and Eastern Europe would feel it more so, that's the main message.

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

Like, just say that all of the... no, okay, all of the resources that you mentioned except for Norway, they all come with strings attached so we should be very careful. Having US gas and oil, gas and oil in the mix will make all these sources more reliable simply because of the presence of United States as an alternative [01:42:22:23] and I think this is absolutely critical. So may I say that US oil and gas is a strategic asset for Europeans, it is never going to be just oil and gas, it has a very, very important element of security and of an element that ties the US to Europe.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

And Doug, you wanted to comment as well on this? [01:42:52:24]

DOUGLAS HENGEL – SENIOR RESIDENT GERMAN MARSHALL FUND ON GLOBAL ENERGY

Yeah, I mean, you know the critical issue here has been for a long time completing the internal European market because as it has been mentioned, you know, Russia is there, it is going to be supplying gas and so you want... you have to remove the political issues from that and a lot of progress has been made but really that is in hands of the Europeans to finish. I mean Lithuania is a great example [01:43:22:13] of what one can do but there are other countries in the region that we have been talking about certain pipelines between countries for a long time and you know, and the US has been pushing those issues but we can't... we are not going to send a team of people out there to lay the steel pipe and there is a lot of money available from Brussels for these things. You know, the problems are really I don't know if it is a national... it is the level of certain European countries. [01:43:52:26] And when you say, you know, US showing leadership, you know, I think we have shown a lot of leadership over the years as MR Richard mentioned you know, from back in the days of [Inaudible] pipeline. You know, these issues get raised by President Obama with his European counterparts and by others, I mean Vice President Biden is going to be in the region, again this is always... almost always on the agenda. [01:44:22:23] So, I mean what more, you know, can the US do, there will be natural gas coming out of the United States beginning early next year and within a few years an awful lot of it if there is a market for it in Europe. So, when this issue gets raised about, you know, US leadership I sort of wonder what more can we that we are not doing already can we do.

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

Let me... can I make it real simple? [01:44:52:10] I think it would be very important that US leaders encourage US businesses and give them the safety net that they are looking for and I am not going to... we have some ideas, I am not going to go into details but it is important, I mean I would like to see more statements from the energy... the Secretary of Energy, I would like to see more statements from others to say, look, do it, at the end of the day [01:45:23:01] it is something that is very, very strongly supported by the US administration and, you know, we stand behind it and we will talk to you about the risks and we will be there to discuss the mitigation of all the risks. So I think this is the kind of message that I would like to come... to see come out of the administration. I think there are some good statements, I do follow you, I believe Vice President Biden [01:45:52:24] has taken leadership in this, this is very important but I just want to, you know, I just put this behind us and make it very, very clear at the end of the day if there is an understanding that the United States needs to be a participant to make Europe less dependent of sources of gas and oil that are... sources that are difficult, that are threatening, that are unilateral, you know, if that is clear then I think that is [01:46:23:03] our intention, our goal

MENDAVO ZICCUS – AMBASSADOR, LITHUANIA

There are a lot of things US can do but I don't want to place all the emphasis also on the US, there is a lot of homework that Europe can also do and there are also some examples already in place that can suggest sort of possible glimpse of a way forward, because one of the project... I don't want to single out specific projects [01:46:52:18] right now but one of the projects was already financed from the Exim Bank, feasibility study, average duration of a project, energy project, the pipeline or something, like of a more substantial size. The duration of the project from its initiation and inauguration is average duration is 11 years. Let me ask you how long do you think it took Lithuania without EU's involvement, without anybody [01:47:23:08] else's involvement to build our LNG terminal? One year, so the thing is also that there are small things that we tend to overlook because we get carried away by the big, big ambition that we can do can help. Now, let me tell you also some things because I used to work in some places where I had some access to the processes that are actually going, that are not written about in the papers that are actually going behind closed doors because competition not [01:47:52:15] just behind between Americans and Russians for the share of the market but also competition between countries. One country wants to build a distribution hub, another country wants to build a distribution hub, one country won't talk to Lithuanians because they wanted to build the LNG terminal, they just got no work, now of course they are talking to us they are good friends but I am not mentioning the country and some others as well. The thing is that you need to start doing and Americans can help in terms of triggering, [01:48:22:26] in terms of facilitating, in terms of supporting because Exim Bank had given, had given a credit, I am not sure about the exact amount but it was like 1.2 million US dollars I think for one of the feasibilities I think that is it can expect... it cannot resolve the entire problems that exists but it can help expedite and make those 11 years maybe in 3 or 4 years. Also small thing because I heard very, very [01:48:53:06] good arguments about competition, I heard very good arguments about the price of pipe gas. If you take the situation as it is, yes theoretically Russian pipe gas is cheaper, but A,

things can change, B, what Ambassador Simonyi said, it is never just commerce, the price you are getting today may become totally different [01:49:22:28] price tomorrow and if you are not there and you don't have a leverage you have no leverage and not just on pricing, you have no leverage politically because in... I am not saying in a country like Lithuania because we have gone a long way but we are nowhere close to the end of the road, but in a place like Lithuania, no, no, no, you know, having suffered a loss that other player is not going away. And just a small thing I think [01:49:52:28] when Ambassador Simonyi mentioned a strategic asset for Europeans I would say this upcoming period of 3 to 4 years is also a unique commercial opportunity for America because when things and I hope things stabilize in Europe's Eastern Syria I really, really hope, they probably will not, if somebody doesn't leaves the office then somebody sits in, [01:50:22:18] but the thing is it is a unique opportunity because Europeans have not looked in the direction of US as much as they do never before. They are looking towards America, they want to talk to American companies the way they wanted all the time, but what they do right now is they want to return back to the conversation. They want to say, you know, we will try to sweeten the deal, we will try to put in our resources, we will provide [01:50:53:02] in kind support, this is important for businesses, this is important and it may go away in 3, 4 years, so it is a unique opportunity.

Second, there are business models already in place that may get good business case, the other thing that some players are not yet ready because they still have upstream issues, midstream issues and some just simple construction issues on their minds that prevent them to really start seriously thinking about this stuff. [01:51:23:04] Because one of the things that I think actually prevent US exporters, especially future exporters from really getting a good grip on the market right now is also the system of contracts because when you have a company with a good price come in and ask somebody, a buyer to sign a 20 year deal, wow, things can change in, you know, not just in 20 years this can change in 5 years. [01:51:52:28] You know, I come back to where I started, how can US help? I think US, maybe Exim Bank can help, you know, can help make those things like capitalization, raising funds for some of those companies, make it easier, more simple, less risky and so on because right now they need those 20 year contracts because banks insist on 20 years contracts. But look, this means [01:52:22:24] if you want to enter a market like we are this is what we want to get away from, from 20 year contracts. So, for us it is also, you know, there is a long way to go as well, this is what I am saying.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Okay. Rich, you want to make a comment and then I wanted to in some of the time remaining I want to play Devil's Advocate and question the resolve of EU to really make good on the free flow of energy across borders and connectivity, the physical infrastructure, but please get right to it first.

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

Yeah, I... you know the major thing is both US and Europe have to remove the barriers [01:52:52:17] to the markup working, that means allowing exports of oil and gas from the United States for starters and these liberalization methods that we have been talking

about in Europe that still haven't entirely, entirely taken hold. But, you know, I think you have to be realistic, we are not as a government going to get involved in the US capital market, determining the interest rate or the amount of money that is going to go for the projects and if you look at the marketplace today for major, [01:53:22:26] you know, multibillion dollar whether it is infrastructure or production no company is in a position to make those kinds of commitments when you are looking at prices at the levels that they are today. So, then the question becomes, well, what else can we do? And I think it really comes down to removing the barriers for entry on part of countries like Lithuania to make sure that there aren't a lot of extra market [01:53:52:21] oops that companies have to go through but at the end of the day if they can't go to their board and justify putting out a multibillion dollar or even million dollar investment it is not going to happen.

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

As ambassador I need to say that I understand your argument but this to me sounds more and more like the arguments we heard from the Germans yesterday in another meeting which is basically [01:54:22:19] that the Nord Stream...

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

German grandmother.

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

Your German grandmother, yeah, she was there, that's right, she was there, yeah, I remember, now I remember, she was very vocal. But I would like to say that their argument is that, you know, why are you worrying about Nord Stream so much, it is a business proposition nothing more, it is just pure business. And I... that is really what I am trying to say, this is never going to be just business proposition and I insist, [01:54:52:23] I insist US business we want to see US businesses invest, it is not just about LNG it is about infrastructure, it is about renewables, it is in Research and Development, it is in all kinds of things, it is in as Mendacus said it is in new technologies and installation, it is all that stuff, it is all out there but the first thing businesses will be asking, they will go to the [01:55:23:04] State Department, they will go to the Department of Commerce and say, is this something the United States government thinks is a good idea, should we go ahead, are you supportive, when we are out there and we will have our disputes is the US government going to help us through this process? This is something they want and I can understand that and that's just a natural way of things so therefore I would say, yes, that's... for a business it is a business but they know [01:55:52:16] they are going into a political environment and they will want some clarity on where the United States government stands on this.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

I think it is a very valuable point and we have a lot of businesses in the US that need regulatory certainty where you see projects not going forward because we are not sure where the government is going so you are advocating that there needs to be a policy,

certainty, what is the US foreign policy vis a vis these projects vis a vis American participation in Europe, yes? [01:56:22:23]

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

There is one word that has not been said today, it's... we usually say it in another context, it is called leadership.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Okay, I am going to go back to your German question for just a second and talk about the European energy policy, it is there, really an energy policy, some would say there is one based on a low carbon outcome without respect to rational thoughts [01:56:52:21] of the cost, Germany and its zeal to rid itself of all things nuclear has gone back to coal which seems to be a step backwards, the connectivity between different leaving aside the Nordic countries maybe on electricity, some of the connectivity is just simply not there yet. What do you all see for the future of Europe, can there really be a free flow of energy across borders and how long is that going to take? [01:57:22:25]

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

Can I just start out? I mean until the EU has the full competency to speak on behalf of 28 or however members there are going to be on energy issues, no, there are always going to be pieces and if you look at the implementation paper on the state of the Energy Union and it dances around this [01:57:52:27] very nicely and when you... you know, talk about the visit of the energy commissioner to all the member states, when he saw them out there it is almost like trying to get the governors of the United States to act together, everybody has their own idea about how they are going to proceed and the best he can hope for is that they get a beginning. But I don't think we are never going to get the Europe that we want until Europe decides [01:58:22:23] that as in competition, as in the environment that Brussels will have the competency to speak on behalf of Europe.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Anyone else? Doug?

DOUGLAS HENGEL – SENIOR RESIDENT, GERMAN MARSHALL FUND ON GLOBAL ENERGY

As I said at the beginning this has been a very gradual process and the energy mix is still decided by individual countries and some don't want nuclear any more, some want more nuclear for example and so [01:58:53:12] the idea that the Energy Union here was to continue that part of the idea, was to continue that process and to have it, you know, really have more solidarity and more unity. I think the market will drive some of this because in order to increase the percentage of renewables you are going to have to have it to make it easier to flow across borders. Denmark is a great example because geographically positioned when the wind is blowing [01:59:23:02] they can generate most of their electricity that way and they can export what they don't need up to Norway

and it can fill up hydropower dams in there and go into Germany. And when the wind is not blowing the power can come in, more power can come in from those countries but the rest of Europe it is happening but it is, you know, gradual and the faster it happens the better it will be. But just to close [01:59:53:06] I think this whole idea of Energy Union and solidarity has been very much undermined by Nord Stream-2 because it looks like you are just going back to its national interest that dominates, so I think that is a really significant issues.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Does anybody think that project is going to get approved in Brussels?

PETER ZELENAK – HEAD OF MISSION FROM THE EMBASSY OF SLOVAKIA

Yeah, I think that is not yet the case, it is going to be a fight and we Slovaks we feel the pain of it and we did the movie, [02:00:23:03] in fact put together a group of countries who are in a similar position with a similar opinion and we clearly asked the Commission to do its job to have a close look at the project and to scrutinize it and to come with a clear outcome. There is a set of rules we asked Commission to make sure that these rules are obeyed by everyone, that's the basic solidarity and we being a small nation among the group, you know, we say [Foreign language02:00:49:15] so if there are rules lets stick to them. [02:00:53:20] To say for some that this is a commercial project that has nothing to do with any kind of any set of rules it is a false argument, this project undermines the set of rules, the basics of it and that's why we asked the Commission to have a close look to it so we don't think we are now in a situation that today we can say, yeah, Nord Stream-2 is the reality. Far from that, we believe there is going to be an internal discussion that is going to be a thorough and [012:01:23:02] it is going to be a fight.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

A couple of you want to weigh in, just really quickly if you may because I want to get to Q&A before we have to... before they throw us out of the room.

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

I just want to... I totally agree, it is not a done deal and it is worth fighting so I think it is good that this is part of the debate and I really think it is possible to stop it but I just want to say I am glad you mentioned the Nordic countries because they are a point in case, [02:0152:15] they have an incredible energy mix, if you take all the Nordic countries together none of them are ideologically pushing one solution like the Germans do, they push for an energy mix and you will be surprised Denmark that is the poster child of renewables has a much smarter energy mix than people think. They have a lot of fossils but it is a good energy mix so I just want to warn not to... so that is my response to you about Germany [02:02:23:06] that my problem with the Germans is they do whatever they want it is their own thing, but not at the cost of trying to impose their view, their ideologically motivated energy policies on the rest of Europe because it is not going to work.

MENDAVO ZICCUS – AMBASSADOR, LITHUANIA

Let me step in with two messages, first to say there are very... there are a number of very important achievements already in place with the European Energy Union, a number of very, very important [02:02:52:18] achievements. Of course 11 years for a project to be completed, yes, but at the same time many of the important projects that concerning let's say the region like the Baltic states have been approved and they are already in the pipeline, pipelines in the pipelines so it will take time before they are completed but we hope they will. US can also help in terms of attention to make sure they are completed in time. [02:03:22:28] Second thing, on December 14th last year we inaugurated LNG terminal, on December 14th we will inaugurate two electricity links, again breaking off dependence on the Russians, this time electricity network because this comes as a package, we have to see as a package and one connection will be with Sweden the other connection will be with Poland, we need another connection with Poland to do something we call strategy and now [02:03:52:23] on this something we call strategy we really need America. We need synchronous, simultaneous connections so that we need two connections because right now even with the two connections with Sweden and Poland I don't want to get into too much detail with that but in terms of electricity system itself we are still part of the Soviet grid, we are able to buy from different markets and this will come through the different grids but in itself the system is still supported from the Soviet system. [02:04:22:28] It is an expensive project but this has to be the project on our minds.

A very, very important message, when we talk about American involvement we also talk about the rules of the game, changing the rules of the game because right now and up until now for Russia energy has been politics, it has been manipulation, yes, and this is where I say [02:04:52:19] it has a strong commercial case already, America can make money, but as it makes money it can also make democracy, the message that Andras mentioned, it can make rule of law system really work and it can help Russia hopefully change its behavior because what it is doing now and somebody overlooks it but I want to single this out. Russia is going nowhere, Nord... Nord Stream and I subscribe 100 percent to what my Slovak colleague said, but Nord Stream is not [02:05:22:24] the only project, many overlook the nuclear power project that Russians are pursuing 30 kilometers from Lithuania, in Belarus. Belarus, no track record on nuclear power, no, no, no knowledge whatsoever but they want to build it, they want to disrupt other projects, they want to dominate electricity market, they want to dominate pricing, they want to raise the entry level threshold [02:05:52:26] and so on and so forth. And they said they are going to make the nuclear power project in Belarus the cheapest in the world. I don't really think we want to hear somebody who wants to build somebody who wants to build a nuclear power project and has a track record of Chernobyl, tell you, yeah, we are going to build the safest power plant. So, we have to watch out.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Alright, with that I would like to take [02:06:23:11] a few minutes and see if anybody in the audience has questions that they would like to ask the panel, we have quite a scholarly panel here and they would love to answer your questions for a few minutes before we wrap up.

AUDIENCE MEMBER, FEMALE

So, part of this is [Inaudible] part of this is what can be done to allow US industry to participate on a level playing field in Europe, so everything [Inaudible] under competitors, these among competitors [Inaudible] going to Europe and they don't get to wait 2 years for License and they can go through this [Inaudible] go through process. [Inaudible] in 1974 legislation [Inaudible] in this building these are the things to be discussed So, what would you like to see to allow the US to have as free reign in market as [Inaudible] or Azerbaijan [02:07:55:06] or Algeria or as we think about lifting the sanctions off Iran why we are letting Iran have more of a play in Europe than we allow US companies who by the way are going bankrupt because of these super low prices and they are losing markets?

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Who would like to take that one on? You were singled out Ambassadors, would you like to...

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

Yeah, I mean... okay, we remove the ban on [02:08:23:02] oil and gas exports you are going to have to get rid of Jones Act which requires shipping by US bottoms so that all this wonderful non-conventional oil that we are pumping out in North Dakota has to wait for the next American crude owned tanker to move it away. I mean there is some very important legislative things that need to be done, we are not going to get away from the foreign [Inaudible 02:08:48:09] practices so the United States is always going to face whether it is in Europe or [02:08:52:24] other countries, you know, barriers that other companies may not, may not face. I would say go for... full bore ahead for T-TIP, it, you know, it makes sense, it makes sense from an energy point of view. I understand that free trade and energy doesn't really work but, you know, once you have that agreement in place then exporting becomes a lot easier with or without removing the export path.

AUDIENCE MEMBER, FEMALE

So, can I... can I just... [02:09:22:27] why wait for change, we both know that [Inaudible 02:09:26:23-02:09:41:07] administration has trade units that's not [Inaudible] closes our allies and partners [Inaudible] and why we treat them differently [Inaudible]

RICHARD KAUZLARICH – DIRECTOR OF CENTER FOR ENERGY SCIENCE AND POLICY

Well, if you could... you know, it seems to me as though the legislative problem is the same.

ANDRAS SIMONYI – AMBASSADOR, HUNGARY

Can I just add something which has not been discussed here? [02:09:53:01] I do believe that one of the biggest... one of the greatest enemies of the transition in Central Europe is corruption and there is nothing more corrupt than Russian energy practices. Nothing has done more damage to Hungary than Russian nuclear agreements, gas agreements. Thank

god, the Hungarian government now understands the threats and challenges [02:10:22:14] and have joined the other 7 or 6 other countries to support this message to question Nord Stream-2, but I just want to say that please fit this in to your thinking so when I say this is not just about any kind of gas and oil, when I talk about US presence or just any kind of infrastructure projects. I want to repeat what I said [02:10:52:28] related to the other possible suppliers, it makes a difference that there is the foreign cry for corrupt practices act because that is the best bet we have to clean up the Central Eastern Europe energy sector and I must say that I am... Lithuania has to be proud to show the way how you can do this without actually being corrupted but it would be a great [02:11:23:06] help if the United States understood how this and I will come back to the very, very beginning of what I tried to say, this is very important to the completion of the transition of Central Eastern Europe from dictatorship to democracy, from planned economy to a full fledged transparent, non corrupt market economy.

BRIGHAM MCCOWN – CHAIRMAN AND CEO OF AII

Do we have any other questions [02:11:53:14] from the audience? Alright, I am seeing none, I am going to turn it back over to Shane.

SHANE SKELTON – EXECUTIVE DIRECTOR OF THE ALLIANCE FOR INNOVATION INFRASTRUCTURE

Well, first and foremost I just want to thank our very distinguished panel for being decades of experience and expertise to what I thought was a very informative and helpful discussion, we really appreciate you guys taking the time out of your day and these are issues that are just way too deep to look at [02:12:23:02] through a series of talking points. There are issues we need to hear from experts, we need to hear it from the people on the ground both here and there about how these policies actually interact as opposed to how we think they interact, you know, based on what we read this morning. So, thank you that and then thank you to all of you for attending, I appreciate you being here and I guess my last ask for you would be that if you didn't have an opportunity to sign out... I am sorry sign in on your way in please sign in on your way out so that we can invite you to future events and send out [02:12:52:19] other Research and Policy papers that we push out from time to time. so, thank you all so much for showing up and we hope you learned as much as I did.