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OFFICE OF ANALYSIS, RESEARCH, AND TECHNOLOGY

Benefits of the Commercial Vehicle Information Systems & Networks (CVISN) Program

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Webinar Transcript

Presenters

- Julie Lane, CVISN Program Manager, FMCSA Office of Analysis, Research, and Technology (ART)

Speakers (optional)

- Kirse Kelly, Webinar Conference Host, FMCSA ART

Description:

The CVISN program is designed to improve commercial vehicle safety and mobility and to reduce public- and private-sector costs associated with the regulation of the commercial vehicle industry. Every state has deployed some aspect of the CVISN architecture and some states have been fully compliant with CVISN for nearly ten years. This webinar, presented by Julie Lane of the ART Technology Division, will illustrate the preliminary results of the recently-completed Evaluation of the National CVISN Deployment Program and the completed CVISN business cases. She will also highlight the safety and operational benefits of CVISN's three program areas, as well as the costs associated with states' implementation of the CVISN architecture.

**PRESENTATION—BENEFITS OF COMMERCIAL VEHICLE INFORMATION SYSTEMS
AND NETWORKS (CVISN) PROGRAM**

**PRESENTATION TITLE SLIDE: BENEFITS OF COMMERCIAL VEHICLE INFORMATION SYSTEMS
AND NETWORKS (CVISN) PROGRAM**

Rebecca (Operator):

Today's conference is being recorded, if you have any objections you may disconnect at this time. Now I'll turn the meeting over to your FMCSA web conference coordinator. You may begin.

Kirse Kelly (Webinar Conference Host, FMCSA ART):

Thank you, Rebecca. Hi, this is Kirse Kelly. I just want to welcome you and thank you for coming to today's webinar, which is part of a series put on by the FMCSA Office of Analysis, Research and Technology. We will be answering questions at the end, but you can type them in the box at the lower left side of your screen. You can type them throughout, but like I say, we will get them at the end. Also at the end, you will be able to use your telephone and just hit *1 to ask questions over the phone. Once again, that's at the end. Also a lot of people's favorite question to ask is, are they going to get a presentation, and yes, you will be able to download it at the end. All right, one last thing, members of the trade or local media who are participating in today's call are asked to focus their questions or give their questions to our Office of Communications. That is 202-366-9999. So you can call the Office of Communications at the end of the webinar at 202-366-9999. And now let me turn you over to Julie Lane, of the FMCSA Technology Division.

Julie Lane (CVISN Program Manager, FMCSA ART):

Hi everybody. Thank you for being here today and I'm glad everybody was enjoying our lovely meeting. Thank you for joining us in the second in an ongoing series of webinars about the Commercial Vehicle Information Systems and Networks (CVISN) program.

As Kirse said, I am Julie Lane with FMCSA's Technology Division. I'm the program manager for the national CVISN program.

As you may know, the CVISN program has been in existence for over ten years. In that time, every state has deployed some aspect of the program and 20 states have deployed all of the program's basic functionality, otherwise known as Core CVISN functionality. Today's presentation will illustrate the benefits that states and motor carriers are realizing through participation in the CVISN program. I also want to mention, I noticed there's a few of you on here, who have never heard of CVISN. I'm going to give a brief overview, but also if you go on FMCSA's website, CVISN does have a webpage with a bunch of introductory material, "Introduction to CVISN," where you can learn a little bit more about it if I don't give you enough information today.

SLIDE 2: AGENDA

As part of today's presentation, I'm going to provide a very short overview of the CVISN program and then I'm going to detail the quantifiable benefits that have been generated through the deployment of CVISN. The benefits for each of CVISN's three program areas that are going to be discussed are: electronic credentialing, electronic screening, as well as safety information exchange.

SLIDE 3: CVISN OVERVIEW

The CVISN program provides a framework or "architecture" that enables government agencies, enables the motor carrier industry, and other parties engaged in commercial motor vehicle safety and regulation to exchange and use information to improve safety, and to conduct business transactions electronically.

As the slide here shows, the program is designed to:

- Improve safety and productivity of motor carriers, commercial vehicles and their drivers
- Improve efficiency and effectiveness of commercial vehicle safety programs through targeted enforcement
- Improve commercial vehicle data sharing within states and between states as well as between FMCSA, and
- Reduce Federal/State and industry regulatory and administrative costs

SLIDE 4: CVISN OVERVIEW (CONTINUED) *CORE CVISN FUNCTIONALITY*

CVISN is not a single system but rather it's a series of Federal and state systems linked together by a national architecture and set of standards. The CVISN program relies on a strong organizational structure within a state because many of the CVISN systems are operated by multiple agencies. In some cases, as many as six different agencies are responsible for some portion of the program.

CVISN core functionality falls into three main program areas. There are credentials administration, safety information exchange, as well as electronic screening. States are required to deploy a set of core CVISN functionality in each program area, but also have the flexibility to deploy additional functionality that meets their needs and the needs of the motor carriers. The core functionality within each program area is shown on this chart above.

I'll go over it real quick for Credentials Administration, automatic processing of the International Registration Plan and International Fuel Tax Agreement Credentials, Interstate Data Exchange and funds transfer via the IRP and IFTA clearinghouses. For Safety Information Exchange, sharing of safety data and supporting credentials data among state agencies, Interstate Data Exchange and use of the Aspen Inspection Software. And for Electronic Screening, automated weight and credential screenings at fixed or mobile sights.

SLIDE 5: TYPICAL CVO ENVIRONMENT *BEFORE CVISN*

The diagram here illustrates the typical CVO or commercial vehicle environment without CVISN.

A motor carrier has a commercial vehicle that needs to put into service. Before that can happen, the motor carrier must acquire the necessary operating authority and pay its Heavy Vehicle Use Tax to the IRS. The appropriate Federal/state agency reviews the application and issues the appropriate operating authority or proof of Heavy Vehicle Use Tax payment. The motor carrier must then complete its applications for the necessary state credentials, such as vehicle registration IRP or intrastate registration, fuel tax payments, or another example could be over-dimensional permit if operating oversize or overweight. Various state agencies typically then review their respective credential applications and then mail the credentials back to the motor carrier. The carrier also may go to a state facility or facilities and conduct these transactions in person. At this point, the vehicle can be put into service.

Once on the road, the vehicle may be stopped at a fixed inspection location or by a mobile enforcement unit to be inspected and weighed. At this point the driver's duty status and license also may be checked.

SLIDE 6: TYPICAL CVISN ENVIRONMENT

This slide is going to illustrate the typical CVISN environment. The process elements that are unique to CVISN are going to be highlighted in blue.

The carrier still needs to apply for operating authority and pay its Heavy Vehicle Use Tax. CVISN, however, is working to identify a way in which to allow for the Heavy Vehicle Use Tax payments to be electronically verified by the states. With CVISN, motor carriers can now apply for their credentials electronically, typically via the Internet. State agencies can receive and process credential applications and, depending on the transaction type, issue the credentials electronically. In the case of some oversized/overweight permits, the permit can be issued literally in seconds, 24 hours a day, seven days a week.

Once the vehicle is ready to be put on the road legally, CVISN functionality supports more efficient and effective roadside operations. Electronic screening sites allow enrolled carriers to have the proper credentials and a good safety history to bypass inspection facilities. CVISN systems also allow credential and safety data to be shared across jurisdictions and improve the accuracy and timeliness of data collected at the roadside.

SLIDE 7: CVISN BENEFITS

CVISN has been deployed in some states for more than ten years. In that time anecdotal information has indicated that the program delivers real-world benefits to participating states and motor carriers.

This is a quick summary of the most commonly cited benefits of CVISN, which stakeholders, whether state or carrier, realizes the benefits, and from which portion of the program the benefits are generated. You will notice that the program generates a mix of safety benefits, such as targeted enforcement, improved use of enforcement resources, and real-time access to safety and credentialing data, as well as productivity and customer service improvements, such as improved turnaround time for permits, improved accuracy, or credentials. You'll also notice that all three of CVISN's program areas—Safety Information Exchange, shown here as SIE, Electronic Screening, which would be ES, and Electronic Credentialing, ECA, are delivering benefits.

While this qualitative information has been insightful, we thought that it was important to quantify the program's benefits. To that end, we commissioned the Battelle Memorial Institute to conduct a quantitative business case, as well as a formal evaluation of the program. The remainder of the presentation is going to focus on the benefits of these studies.

SLIDE 8: BENEFITS OF CVISN ELECTRONIC CREDENTIALING PROGRAM AREA

As would be expected, most of the benefits related to the electronic credentialing solution involve improved productivity and reductions in operational costs.

At the state level, a reduction in operating costs is the single largest quantifiable benefit associated with electronic credentialing. State costs are reduced primarily through reducing the number of renewal forms and notices and applications that need to be mailed out to carriers, limiting the number of applications and payments that need to be processed, and limiting the number of credentials that need to be mailed to carriers.

The National Evaluation project cited previous research conducted for USDOT into the benefits of ITS/CVO applications. As we see here, this research indicated that the State of Maryland, as an example, enjoyed a \$53.51 reduction in operating costs per account within their credentialing systems after the state's implementation of electronic credentialing. Similarly, as another example, Kentucky realized a \$79.83 reduction in state operating costs per account after its implementation of electronic credentialing.

SLIDE 9: BENEFITS OF CVISN ELECTRONIC CREDENTIALING PROGRAM AREA

Looking at these savings from a different perspective, states also realized substantial operating cost savings on a per transaction basis. As this chart illustrates, cost savings were found to be between \$40 and \$5.64 per transaction, depending on the state and how it chose to implement its electronic credentialing solution.

SLIDE 10: BENEFITS OF CVISN ELECTRONIC CREDENTIALING PROGRAM AREA

Electronic credentialing also delivers substantial reductions in motor carrier operating costs.

Motor carriers reported that electronic credentialing allows them to put a new commercial vehicle into service three to four days sooner than is possible with traditional paper-based

credentialing processes. This more rapid processing of the credential saves the average carrier \$374 per vehicle, primarily through improved vehicle utilizations that offset finance charges on the new vehicle.

Motor carriers also observed a reduction in their staff time that needed to be dedicated to credentialing once they adopted the use of electronic credentialing. On average, 10-12 fewer minutes were required to process each transaction electronically. This translates to approximately \$4.13 per transaction savings for the average motor carrier.

Carriers' adoption of electronic credentialing also yielded a reduction in their other costs, such as postage, associated with credentialing. These savings averaged approximately \$1 per transaction.

For large carriers, the combination net benefits of electronic credentialing could be as high as \$365,000 per year.

SLIDE 11: BENEFITS OF CVISN ELECTRONIC CREDENTIALING PROGRAM AREA (CONTINUED)

This table shows here the most commonly cited motor carrier benefits of electronic credentialing are accelerated credentialing and reductions in the labor costs associated with the credentialing process. Both of these benefits were reported by the vast majority of respondents.

SLIDE 12: BENEFITS OF CVISN ELECTRONIC CREDENTIALING PROGRAM AREA (CONTINUED)

The National Evaluation Team also conducted a benefit-cost analysis for Electronic Credentialing. This table summarizes the total benefits and costs that will accrue to electronic credentialing over the next 25 years. The discount rates are used to normalize the benefits and costs to 2006 dollars. The 4 percent discount rate is common among public and private-sector economists. The 7 percent discount rate is more stringent and is required by the Office of Management and Budget when doing benefit cost analyses for federal programs.

As indicated in the bottom row of this table, the benefit cost ratio for electronic credentialing is calculated to be 2.7 or 2.6, depending on the discount rate that is applied. This indicates that the total benefits are double the total costs and that the electronic credentialing elements can be justified economically. This table also indicates that the motor carrier industry absorbs most of the long-term costs associated with electronic credentialing, but also enjoys the vast majority of the benefits in this area.

SLIDE 13: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA

Now we're going to take a look at some of the benefits that are generated by the electronic screening program. The CVISN evaluation found that the use of CVISN-related systems, such as inspection algorithms, electronic screening systems, and weigh-in-motion scales, focuses a state's roadside enforcement resources on higher-risk carriers and vehicles.

SLIDE 14: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

As this table shows, the use of these systems allowed three of the four test states to inspect substantially more high-risk vehicles than would have been expected given the state's typical motor carrier population. In Colorado, the CVISN systems resulted in 50 percent more high-risk vehicles being inspected than had the state used simply random inspection at the roadside. Similar results were seen in Kentucky and Ohio, where 16 and 42 percent more high-risk vehicles respectively were identified for inspection through the use of CVISN systems. The State of New York was the only state from the evaluation that did not observe a significant increase in the number of high-risk vehicles identified for inspection, and this was believed to be because the State's practices are very similar to random selection.

SLIDE 15: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

Motor carriers also realize a great deal of benefit by participating in electronic screening programs. The benefits most commonly cited by carriers in this area include:

- Reduced labor costs;
- Increased efficiency and convenience;
- Reduced delays and improved turnaround time for shipments; and
- Improved working conditions for drivers.

SLIDE 16: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

As this table shows, these benefits were observed by the vast majority of respondents that currently participate in an electronic screening program. Nearly all respondents indicated that their participation in electronic screening has "reduced delays and improved turnaround time" for their vehicles and "improved convenience and efficiency". Similarly, over 70 percent of respondents reported that their participation in electronic screening had resulted in "improved working conditions for their drivers", as well as "labor cost savings".

SLIDE 17: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

The national evaluation also calculated the financial savings being accrued by motor carriers through their participation in electronic screening programs. Each bypass was determined to save an estimated 3-5 minutes, which otherwise would have been spent having to exit the highway, be processed through a manual sorting process, and then merging back onto the highway. Based on the operating costs of a commercial vehicle, each bypass was determined to save a carrier \$8.68. Extrapolating these savings out across a year, a carrier can expect to save \$1,169 per transponder-equipped commercial vehicle. Over a ten-year planning horizon, a carrier, depending on its size, could save between \$3 million and \$219 million by participating in the nation's electronic screening programs.

SLIDE 18: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

CVISN, at its core, is a safety program, and the National evaluation sought to quantify the safety benefits being derived through the deployment of Commercial Vehicle Information Systems and Networks program. To accomplish this, the Evaluation Team compared the safety results of six different roadside scenarios. The results I'm going to show are still preliminary and have yet to be peer reviewed, so while we don't anticipate the numbers changing, they still are not considered final numbers. We hope to be able to publish the final report by early 2009.

SLIDE 19: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

For each scenario, it is assumed that States deploy electronic screening at all major inspection sites, and that all vehicles can be identified.

Scenarios are easier when RE-1, listed on the slide here, are random selection and pre-CVISN baseline respectively.

- RE-0 inspectors select commercial vehicles for inspection in a random manner without using personal experience, judgment or any CVISN technologies. A good example would be an officer saying he is going to pull over every fifth vehicle.
- For RE-1 Pre-CVISN baseline, inspectors select commercial vehicles for inspection using personal experience or judgment, but without the aid of most CVISN technologies. RE-1 simply is just officer's discretion.
- RE-2 assumes vehicles classified as low- and medium-risk based on ISS scores—about 60 percent of the trucks on the road—they are enrolled in electronic screening programs, are equipped with transponders, and are allowed to bypass inspection sites.

Inspectors use current processes and practices to select vehicles for inspections from the remaining 40 percent of the trucks in the high-risk and insufficient data categories.

- For RE-3, each truck is screened based on the vehicle and driver out-of-service rate of the carrier. A threshold out-of-service rate is established for both vehicles and drivers of the top 5, 10, and 25 percent of vehicles examined.
- RE-4—Each truck is screened based on violations that have a high relative risk for causing a crash, using information from our Large Truck Crash Causation Study. Namely, this is focusing on brake and overall driver out-of-service rates.
- For scenario RE-5, it's essentially RE-4, but we have added Infrared brake screening technology.
- And finally, RE-6 uses ISS as a tool to select vehicles with the highest probability of being out-of service.

SLIDE 20: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

The evaluation results indicate that predominately manual roadside enforcement strategies, RE-1, are responsible for avoiding about 3,139 crashes annually, which is about 0.7 percent of the 441,000 truck-related crashes nationwide. These results are about 29 percent higher than random selection, or RE-0. The standard CVISN deployment of electronic screening based on a carrier's ISS score, RE-2, avoids an additional 1,004 crashes annually. As such, this scenario prevents 4,143 crashes, 0.9 percent of the nation's total truck-involved crashes. Note that this scenario looks at all aspects of compliance, and is not looking just at the probability of out-of-service as the others do. Safety benefits increase with each scenario, RE-2 through RE-6. Maximum benefits would be achieved with scenario RE-5, where the enforcement resources are focused on the 5 percent of motor carriers with the worst history of safety performance. In this scenario, 21,046 crashes could be avoided. This suggests that 4.8 percent of the national truck-related crashes could be avoided by the nationwide deployment of CVISN and improved targeting of enforcement resources. You will notice that the less targeted that enforcement is, the less the benefits generated by the system. For instance, if enforcement resources were focused on the 25 percent of motor carriers with the worst histories of safety performance, only 15,366 crashes would be avoided in the comparison of looking at the worst 5 percent

SLIDE 21: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

This chart illustrates the fatalities that would be avoided through each enforcement scenario. Pre-CVISN operations, RE-1, prevent 38 fatalities per year. Current CVISN electronic screening operations can prevent a total of 50 fatalities per year. The maximum benefits would be accrued through scenario RE-5, which includes wider deployment of electronic screening and focused enforcement based on infrared brake testing and driver out-of-service status. This scenario could avoid 215 more fatalities than the Pre-CVISN scenarios.

SLIDE 22: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

This final chart in the series illustrates the injuries that would be avoided through each enforcement scenario. Pre-CVISN operations prevent 628 injuries per year. Current CVISN electronic screening operations prevent an additional 260. Maximum benefits would be achieved through scenario RE-5. This scenario would avoid 5,451 injuries if the five percent threshold for vehicle selection was employed.

SLIDE 23: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

Similar to the electronic screening, program area, the Evaluation Team conducted a benefit-costs analysis of the electronic screening program area. This table summarizes the results of this analysis for the typical CVISN deployment. The benefit-cost analysis for this program area indicates that benefits of electronic screening outweigh costs by more than 2 to 1 over a 25-year horizon. As such, electronic screening was deemed to be economically feasible.

SLIDE 24: BENEFITS OF CVISN ELECTRONIC SCREENING PROGRAM AREA (CONTINUED)

The benefits of the safety information exchange program area are much more difficult to isolate and quantify. In many ways, the operational benefits observed under the electronic screening program area could not be possible without the presence of a state's safety information exchange infrastructure. As this chart illustrates, we have made substantial progress in increasing the amount of commercial vehicle credentialing data that is shared across jurisdictional boundaries. In FY 2000, for example, states issuing only 20 percent of the nation's IRP credentials were exchanging credential data via SAFER. Now the 26 states that are certified to share data with SAFER account for nearly 60 percent of the nation's IRP registrations. As was noted earlier, the further deployment of these systems and the further targeting of high-risk carriers and vehicles will dramatically increase the safety benefits being generated by the CVISN program.

SLIDE 25: DETERMINING BENEFITS OF THE NATIONAL CVISN PROGRAM

If you guys are interested in reviewing the methodology of any of the studies cited during today's webinar, or if you would like to review the details of the studies, some of it is available right now; feel free to contact me for information. My contact information is at the end of this presentation. Some of the materials, as I mentioned, still have to undergo a peer review, so we are not distributing those at this time, but the finals are going to be posted on the CVISN Website at *fmcsa.dot.gov*, hopefully in early 2009.

SLIDE 26: SUMMARY

In summary, I wanted to highlight some of the key benefits that we discussed here today—within the electronic credentialing program area, benefits include reduced operational costs for carriers and states, improved turnaround time for credentials, and improved vehicle utilization for motor carriers. Benefits of the electronic screening program area include targeted enforcement, reduced number of crashes and fatalities, labor cost savings for carriers, increased operations for the carriers, reduced delay for commercial motor vehicles, and improved working conditions for commercial drivers. The Safety Information Exchange program area, which serves as the foundation for many of the other CVISN areas, delivers improved data and enables targeted enforcement. As such, the safety benefits observed elsewhere in the program also should be attributed to this area.

SLIDE 27: CONTACT INFORMATION

If you have any questions about any of these studies or would like additional information on them, feel free to contact myself or Jeff Secrist. Our contact information is provided above. I'd also like to encourage everybody to attend future CVISN webinars. One is scheduled for the next three months, and the topics include, "Encouraging Motor Carrier Participation and Outreach," which is tentatively scheduled for October 21st, "CVISN—It's Not Just IRP and IFTA," and in December, the "CVISN Deployment Grant Program" Webinar that will outline the FY09 grant program.

[27:34]

QUESTIONS AND ANSWERS

Kirse Kelly: Now we'll go ahead over to questions. This is Kirse Kelly again and just to run over the procedures—you can type questions in the box at the left or you can dial *1 and pronounce your name very clearly to the operator and they will put you on to ask your question. The questions are going to be answered in the order that they are received. Please note, once again, you will be given the opportunity to download this presentation at the end of the webinar. So to get started...

Virginia Spence: *What is the number of carriers that participated in e-screening?*

Julie Lane: I don't know if Vince Brown is on the line, I don't have the report in front of me, I think it was—which question are we looking at here?

Kirse Kelly: What is the number of carriers that participated in e-screening?

Julie Lane: Again, I don't have that information in front of me right now. I can get it and I'll post it with the webinar slides that are put at the end.

Virginia Spence: *What was the size of the carrier used for the basis of the numbers?*

Julie Lane: Again, I'm going to have to check on it. It's an 800 page report and there's a lot of details in it. I apologize for not having it memorized, but it just came out and I'm not that good. I will happily look through this report and find really specific, detailed questions to address ones that I can't get today.

Virginia Spence: *What are the proposed funding mechanisms to fund CVISN implementation in all states?*

Julie Lane: We have \$25 million dollars available in CVISN grant funds available for the states to help implement all of their core CVISN activities, as well as to also implement any expanded CVISN functionalities such as oversized/overweight credentialing. Funding is also available through grants for that.

Tim Murphy: *What is a non-ratable safety rating?*

Julie Lane: I'm not sure where that was. I'm looking through my report to see where you see non-ratable.

Kirse Kelly: Are there any questions on the phone Rebecca?

Rebecca: I'm showing no questions. Again if anyone has one please press *1 now. I'm showing no questions.

Kirse Kelly: Okay, thanks.

Julie Lane: Again, like I said, it's a very detailed report. I will go through and provide exact answers to those questions and make sure that they're available so when you guys download this presentation, you'll have them there. Any others, feel free to e-mail me at Julie.Lane@dot.gov, I'll be happy to filter through and find out and answer any more of the technical questions that may come out about the probability models that were used and so on.

Rebecca: I do have a question from the phones. Would you like to take that now?

Kirse Kelly: Okay.

Rebecca: I have Leslie Bestick. You may ask your question.

Leslie Bestick: Hi, my question is, is there any to find out approximately what it costs different states to implement the various components of CVISN?

Julie Lane: Hi, Leslie—was that it?

Leslie: Yes.

Julie Lane: We do actually have a national CVISN self-evaluation website available, where states can go on there and voluntarily post some of that cost information. If you want to contact me offline I can help you get access to that and you can do a little bit of looking for what you specifically need.

Leslie: That'll be great, thanks.

Kirse Kelly: We don't appear to have any other questions. So, we'll go ahead and wrap it up.

[32:07]

Kirse Kelly: We would just like to ask people to fill out our evaluation here at the end and answer a few questions. If you have any suggestions for future webinars you can put them in the box at the lower left side of the screen. You can also download a PDF of today's presentation here. So we would just like to thank you very much for participating in our webinar today and have a great afternoon.

Rebecca: Thank you all for attending today's conference. You may now disconnect.

[32:47]