

Interesting Times for Aluminum
Misha Riveros-Jacobsen Remarks
Aluminum Association Spring Meeting
April 23 – 25
Nashville, TN

There's an ancient Chinese proverb – some say curse – that goes something like this: “May you live in interesting times.” Nobody's quite sure where it came from – often it's attributed to a fictional Chinese storyteller Kai Lung, invented by an English author. It's the first of three curses of increasing severity:

- May you live in interesting times
- May you come to the attention of those in authority
- May you find what you are looking for

Well, if you look at where our industry is today, it looks like all three may be true for us.

Let's look broadly at where we stand. As you know, I chair the Association's Auto and Light Truck Group. Last year, we updated a study done for us by Ducker Worldwide on aluminum content for cars and light trucks. A few of the key findings are worth repeating.

- Aluminum content in vehicles has experienced uninterrupted year-to-year growth for more than 30 years in North America -- for applications across the vehicle – from engines to transmissions, wheels, brakes, body closures and instrument panels and more.
- And aluminum content in light vehicles has seen similar growth in Europe and Japan as well.

- Nearly 50 vehicle models and two million units of production in 2006 contained more than 500 pounds of the wonder metal – and about 100,000 of these were to be complete aluminum body structures.
- After surpassing plastics a few years ago, aluminum has now passed iron to become the second most used material in a vehicle, behind only steel.
- In a recent presentation in Detroit, Ducker projected that light vehicle weight will come down from slightly over 4,100 pounds in 2005 to around 4,000 pounds in 2015.
- And in that same presentation, Ducker estimated that, over the next 8 years, 478 pounds of mild steel, iron and other metals will come out of the vehicles to be replaced by 319 pounds of high-strength steel, aluminum, magnesium and plastics.
- The steel industry is very worried about who is going to replace those 478 pounds of mild steel. And they should be. They have developed a new family of products, which they call high-strength steels, to give us a run for our money in terms of offering advanced materials to the automakers.
- In the past, steel has appeared to question the value of vehicle light weighting. Now that they have added the ability to light weight with their new products, their enthusiasm for doing so has increased. We welcome them to the party, albeit a little late, and we're glad that they now share our view that light weighting represents one of the most viable options available to carmakers worldwide as they seek to improve the fuel efficiency and environmental performance of their products.

- High strength steels are going to bring out the best in the auto aluminum industry. The so-called “new steel” still can’t match aluminum’s weight savings, and they still have technical hurdles to overcome. But they will challenge us as we seek our share of the opportunities created by the demise of 478 pounds of mild steel.
- And since we’re here in Nashville, I’d be remiss if I failed to mention the increasingly important role that the transplants play in our nation’s economy. Companies like Nissan, Toyota, Honda, Hyundai, BMW and others have invested more than \$33 billion in constructing 47 US vehicle plants, component factories and R&D centers employing more than 95,000 Americans with a payroll of nearly \$7 billion. Here in Tennessee alone, transplants have made a nearly \$3 billion investment, employ more than 9,000 Americans and have a payroll of \$3.5 million. Their continued growth is good for the U.S. economy and good for the aluminum industry.
- In sum, the auto aluminum business is blessed with some great opportunities in the coming years – but as you will hear in a few minutes, we’re going to confront some real challenges as we move to capture them.

I began by saying that we live in some very interesting times. One of reasons lies in the regulatory and legislative agenda in our Nation’s capital – and in fact worldwide.

As many of you know, the National Highway Traffic Safety Administration, known as NHTSA [pronounced NIT-SA] is the federal agency that regulates the auto industry in terms of safety requirements – and it sets vehicle fuel

economy requirements, known as Corporate Average Fuel Economy, or CAFE standards.

In 2004, NHTSA proposed reforming the CAFE standards for light trucks (pickups, vans, minivans and SUVs) to get away from a fleet wide average mileage requirement and move to a vehicle attribute-based approach.

NHTSA believed that in so-doing, it could discourage vehicle downsizing which it believed had an adverse safety affect and help save energy – to the tune of 10 billion gallons of fuel over the lifetime of the vehicles affected.

To offer NHTSA credible data to help them overcome what we in the aluminum industry believed were misconceptions about the linkage between weight and safety, we commissioned a study by DRI, Inc. to separate the effects of size and weight on vehicle aggressivity and safety. That study found that maintaining vehicle size while reducing vehicle weight created a 15% **improvement** in safety for all drivers. The study also showed that through the efficient use of light weight aluminum, it was possible to increase vehicle crush zones and size while keeping overall vehicle mass constant ... creating the opportunity, through good engineering, to improve driver safety by 26%.

We shared the study's results with them and last year, NHTSA issued Reformed CAFE standards for light trucks through MY 2011 that are based on vehicle size. Talk about coming to the attention of those in authority AND finding what we were looking for – certainly those two results were more proverb than curse. But it's not over yet.

With the increasing concern in Washington about our dependence on foreign oil and greenhouse gas emissions, both Congress and NHTSA are looking for ways to raise CAFE standards. Last year, the President asked Congress for the authority to set passenger car standards, and this year, in the State of the Union, he repeated that request and proposed combining passenger car and light truck standards after MY 2011 along with a 4% per year increase through MY 2017.

At the same time, Democratic Members of Congress have proposed dramatic increases in both passenger car and light truck CAFE standards as a way to reduce greenhouse gas emissions, thought by many to be the chief contributor to global climate change.

It seems consumers agree. In a recent Gallup poll, 86% of Americans favored spending government money to develop alternative sources of fuel for automobiles. In addition, 79% of Americans favored setting higher emission standards for automobiles – up six points from the previous year. Automakers seem to be listening...

In recent hearings in both the House and Senate, the CEOs of General Motors, Ford, DaimlerChrysler and Toyota all testified that they agree CAFE standards can be raised and that they are willing to do their part as long as consumers are offered fuel price or tax incentives at the same time.

At that hearing Tom LaSorda, President and Chief Executive Officer of DaimlerChrysler Corporation, offered an impromptu observation that

lightweight materials will play a role in improving vehicle fuel efficiency in the future. Again, talk about coming to the attention of those in authority!

At these hearings the nation's car makers said they would prefer a broader approach to CAFE standards that would have all American industries participate in some type of carbon constraints – and House Energy and Commerce Committee Chairman John Dingell is working to draft legislation that would require US industries to curb their carbon emissions across the board.

Finally, in a 5 – 4 split decision, the US Supreme Court recently issued a landmark opinion that the EPA does have the authority to regulate carbon dioxide emissions under the Clean Air Act. Several states and some environmental groups had sued the EPA for declining to regulate CO₂ emissions, saying it was not a pollutant and it had no authority to regulate it. The high court disagreed, telling EPA that if it should decide not to regulate CO₂ it had to do a better job of explaining why it would not do so, basing that decision on the science of the matter.

That opens the door to individual states that have adopted tougher California auto emissions standards to petition the EPA for waivers to allow them to regulate CO₂ emissions. And the only way to do that is to make vehicles get better fuel economy or require Americans to burn less gas by driving less. So the betting in Washington today is that there will be some increase in CAFE requirements – and some sort of cap and trade system for carbon emissions from all US industries. The bottom line: there will be some new policy designed to improve fuel economy regardless of the form it will take.

As I said at the beginning, interesting times.

Let's look for a minute at similar regulatory/legislative developments beyond our shores in Europe, Asia and India.

First, Europe. The European Union has a carbon dioxide reduction target of 120 grams per kilometer for all new passenger cars by 2012. To reach this target, European automakers adopted a voluntary agreement to limit the amount of CO₂ emitted by cars sold in Europe. However, because they achieved only 160 grams per kilometer in 2005, they are under fire for likely failing to reach that goal.

Some environmental groups there are insisting on a longer-term target that doubles fuel efficiency of new cars over the next decade, reaching a goal of 80 grams of kilometer of CO₂ by 2020. In addition, they are working on measures to promote the purchase of fuel-efficient vehicles through such things as putting CO₂ emissions on car labels and encouraging member states to base road taxes on cars' CO₂ emissions.

The EC is inviting carmakers to develop a code of good practice on car marketing and advertising to promote sustainable consumption practices and to adopt it later this year. I should also note that average CO₂ emissions from new cars in Europe have been reduced by 12% since 1995 but over the same time period, the price of new cars has increased significantly less than inflation, showing that CO₂ emissions can be reduced in an affordable way.

Turning our attention to Asia, Japan requires a 23% reduction in vehicle CO₂ emissions from 1995 levels by 2010. To accomplish this goal, the Japanese government revised its fuel economy requirements to require a 22.8 % improvement in gasoline powered passenger cars by 2010 and a nearly 15% increase in diesel powered cars by 2005 – both of these from 1995 levels. Japan has already seen a substantial increase in fuel economy. The goal by 2010 is to be around 35 and a half miles per gallon.

On the emissions side, heavy duty emissions standards will be the most stringent diesel regulations in the world.

In China, vehicle fuel economy standards were introduced in 2004. They are weight-based fuel economy standards and basically parallel European standards. India's National Auto Fuel Policy is similar to China's.

Around the world, more stringent fuel economy and emissions standards are coming in the next few years, providing new opportunities for increased use of lighter weight materials. And making, once again, for interesting times.

Finally, I want to bring you up to date on a new World Auto Steel initiative. I mentioned earlier that the steel industry now covets aluminum's position as the leader in sustainable transportation materials. One of the disadvantages of being at the top of the pole is that someone is always trying to climb up and take your place. Our job, of course, is to put as much grease on that pole as we can.

I mentioned earlier that we welcome the steel industry to our long-held position that light weighting and sustainability are firmly linked. I also mentioned that close to 480 pounds of mild steel will be going away in the coming five or six years. Based on our 30-year growth of aluminum in automobiles, it's clear that we're going to be hard after many of these applications. Our competitors understand that.

Back in the days of the Partnership for a New Generation of Vehicles, the PNGV initiative, steel became concerned when aluminum emerged as the high-tech alternative to steel. In part, this led to a multi-year advertising and public relations campaign that they admit was designed to position steel as the "strong" alternative to aluminum. The undercurrent of their "Feel the Strength" campaign was that weight and strength were their key attributes while aluminum was light, weak, and, as they would have you believe, not as safe.

Clearly, aluminum's growth during the '90s proved that automakers understand the performance options that aluminum, in all its product forms, offers and realize that high-tech materials and good engineering – rather than weight – make cars even safer. Now that steel can offer lighter weight structures through down-gauging, they have come to the conclusion that weight and safety need not be mutually dependent. And that's good. Moreover, they appear to have realized that light weighting vehicles is one superb option available to automakers as they strive to make their cars more fuel efficient and environmentally friendly. That's even better.

Having said that, there's another side to their new initiative. Once again the steel industry isn't just promoting the advantages of their new high-strength steel. Once again, they are taking aim at their aluminum competition, dispatching their marketing people with carefully-selected and well-parsed talking points designed to create controversy where none need exist.

Not so subtly, last month they were quoted in *Aluminum International Today* making a direct challenge to our data on aluminum's weight and energy savings and environmental benefits, explicitly terming them "myths."

They challenge our credibility by saying that our data is based on comparing aluminum against mild steel instead of their new products. And you know, they are right. But up until the last year or so, we have not had any of their new products to compare ours against. That's changing and we are going to make these direct comparisons as soon as we can. We are not afraid of the data. As a matter of fact, one early study shows that the new steels offer only about 50% of the weight savings potential of aluminum structures. But there will be more to come.

I also need to point out that our data is based primarily on replacing not steel, but iron, in applications such as engine blocks and transmission housings. In North America, only about 10% of automotive aluminum penetration has been against steel sheet. And only about 20% of current steel applications are high-strength steels. So basically, the steel industry is challenging our industry's credibility based on data relevant to about 2% of our automotive applications. But you won't see that in their publicity.

In the same article, they say that aluminum-intensive vehicles carry a 66% price penalty. Based on that claim, Audi would sell a steel-intensive A8 for under \$30,000. I wonder if I need to say any more about their credibility.

You should also be aware of a new study sponsored by the steel industry. Conducted by a professor at the University of California, it apparently will claim that using aluminum in automobiles results in a net increase of CO₂ emissions, as opposed to what we have historically stated to be a significant lifecycle reduction in such emissions.

The reason I bring this up is to let you know that we have accepted an invitation to sit on the ISO review committee for the study to help ensure its results are based upon solid science. We have also made available our own data to those doing the steel industry's study to help contribute to the scientific knowledge base about sustainability. This is a risky place to be, but one that we felt was in the best interest of scientific fact and future generations.

We've already issued a press release welcoming the steel industry to our long-held position that lightweight materials play an important role in helping automakers produce cleaner, more fuel efficient and safer vehicles and reiterating aluminum's performance advantage in environmentally friendly and safe vehicles.

We welcome steel to the realization that our customers are going to need every tool, material, and technology available to them to build sustainable vehicles.

Interesting times? You bet! The future of personal mobility and transportation is on the cusp of big changes. Our job is to position ourselves as an important element of that change. We in the aluminum industry view interesting times as a proverb, not a curse and we hope to see them continue well into the future. We look forward to spirited competition for every new opportunity presented to us. And above all else, we look forward to the challenges that are sure to emerge as we assist our customers in meeting the automotive needs of future generations.