'There is direct co-relation between reduced friction and improved fuel efficiency'

Dr Selda Gunsel, Vice President - Shell Global Commercial Technology

Q. What is your perspective towards fuel efficiency in India with regards to commercial vehicles?

A. I think first of all, where fuel economy and CO_2 emissions are concerned, the initial focus were passenger cars but now we are seeing the focus being expanded to heavy duty transport and commercial vehicles. We see this not only in India but in other parts of the world too, including the US, so we see a trend towards lower viscosities in heavy duty engine oils. We have actually been working very closely with Tata on their commercial vehicles and next generation fuel efficient engines. Through our collaborative studies we were able to get one of their next generation engines into our lab - so we could look at different viscosities, different lubricant formulations, and see what kind of energy efficiency improvement we can get through lubricant design. We have been able to show improvements on the order of two per cent.

"India is adopting the latest challenging limits which will require technology investments to improve vehicle design."

Q. What do you think is the difference between the fuel efficiency initiatives taken up in US or Europe as compared to those being implemented in India?

A. Personally, I don't see very big differences, because of the new fuel economy regulations that are being introduced in India. They may be a couple of years behind because I think these rules will be effective as of 2016 and beyond. But the limits that are being suggested are equal to those in Europe and Japan which are the lowest in the world. So I think India is adopting the latest limits and targets which are quite challenging because in order to meet these targets a lot of technology investments are required to improve the vehicle design. I think because of the economic conditions, globally as well as locally, it is harder to find funding to invest in long term technologies. But I think it is absolutely needed to meet the new requirements.

Q. So in terms of solutions, what do you think should be implemented in India?

A. I can talk about our experience, again referring to our partnership with Tata Commercial Vehicles. Our approach is to look at engines which are being developed here and look at them under Indian driving conditions. In the past, when we developed our global products, we looked at urban driving conditions in Europe or US. Most of our products in the past have been based on our experience in Europe and US, which I believe, needs to change. That is why we are now really focusing a lot more on Asia Pacific. We have built a technology centre in Bangalore and are building another technology centre in Shanghai. Our purpose is to be close to our customers in this region, so we understand their needs and we can develop tailored products to meet their needs.

As I mentioned earlier, we got the new Tata engine into our labs and are doing technical tests, and using Indian driving cycles as opposed to looking at them under European and US cycles which are really not relevant to India. So we are trying to mimic the local conditions as closely as possible in the lab.

Q. Can you share a few words on lubricants for fuel efficiency?

A. Lubricants can help reduce friction loss in engines and by reducing friction loss, less fuel is used, so there is a direct co-relation between reduced friction and improved fuel efficiency or fuel economy. Today, in internal combustion engines, we can lose up to 20 per cent of the energy through frictional loss. So we lose 20 per cent of the energy generated from fuel consumption in internal friction which is a waste, so lubricants can actually remove this waste and improve energy efficiency by reducing friction.

This 20 per cent is based on a lot of research being done on internal combustion engines. It depends on the driving conditions but in general there is a lot of research being published in this field from which we know that 20 per cent accounts for frictional loss. ■

Shell is one of the most diversified international oil companies in India's energy sector with nearly $1 billion invested. It is a major private sector supplier of crude products and chemicals to India. The company also has a downstream business marketing fuels, lubricants and specialty products.

***Dr Selda Gunsel**, Vice President - Shell Global Commercial Technology, told Mitali Naik that India may be a couple of years behind in terms of fuel economy regulations.*