

How can you help drivers use their own cars as efficiently as possible? How can you persuade them to embrace a highly complex technology? BMW Group developers have achieved just that with the Driving Experience Control.

SHOWING THE EXTRA MILE

Fuel-efficient driving really pays off with the Driving Experience Control.

The first BMW Group vehicles to feature Efficient Dynamics as standard were launched several years ago. Since then, BMW Group developers have used brake energy to lower fuel consumption, devised technologies that activate electric loads only when needed, and, not least, continued to improve aerodynamics. In this way, they have created vehicles that are not only more dynamic, but also increasingly efficient to drive.

However, one factor that plays a key role in a car's fuel consumption is also the driver.

"We know that a vehicle with Efficient Dynamics can save even more fuel when the driver drives a certain way," says Norman Wiebking, head of Proactive Energy Management at the BMW Group. **"The only question is: How do we help drivers do that? How do we give them the tips they need without overloading them with information while they are driving?"** Another aspect, according to Silvia Patricia Ghella-Schröder, head of Energy Management, is that it is hard for drivers to grasp what the efficiency gained by driving a certain way really means. **"As a driver, the only thing that will motivate me to change my driving style is seeing for myself exactly how much fuel I am saving. Then, cruising becomes fun – especially when I can skip a fuel stop every now and again."**

The solution the BMW Group developers found is as technologically sophisticated as it is persuasive. At first glance, it is just a control in the centre console of the new BMW 3 Series that allows the driver to switch between a more dynamic SPORT mode and an ultra-efficient ECO PRO mode. In ECO PRO mode, the on-board computer displays tips on how to drive even more efficiently in current driving conditions – for instance, by optimising gear changes or accelerating more moderately. The driver sees how well he or she is doing from the "bonus range" displayed on the on-board computer. This shows how many extra miles have been accumulated by changing their driving style – and translates lower fuel consumption directly into even more driving pleasure.

1 — Five of more than 180 associates involved in developing the Driving Experience Control: Jürgen Geus, Driving Experience Control project manager; Jos van As, head of function design and integration of driving dynamics functions; Silvia Patricia Ghella-Schröder, head of energy management; Christian Popp, Driving Experience Control concept; and Dietrich Achilles, driving functions (from left to right).



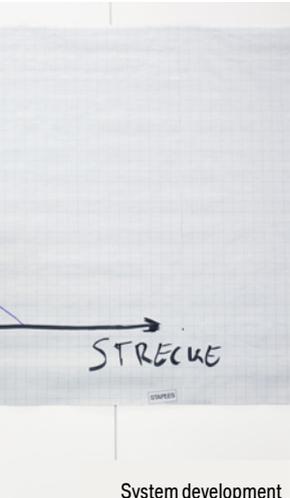
All planned out: defensive driving can lower fuel consumption by up to 20 per cent.

Efficient

ambitious

System development





System development



Driving experience

visionary

emotional

driving pleasure

transparent

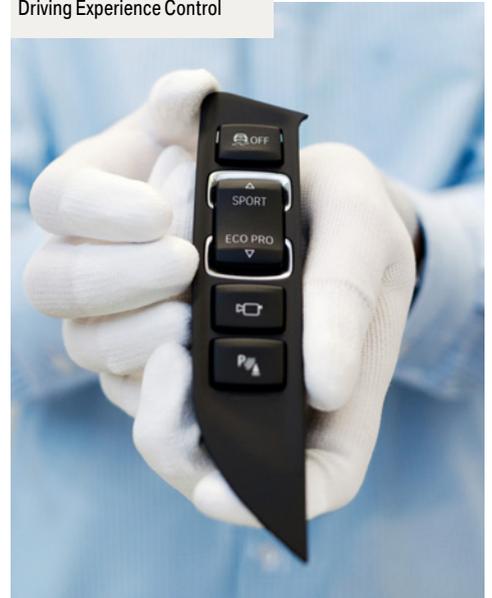
tangible



Fuel-consumption display

With the car's latest fuel consumption data always in view, the driver can adapt his or her driving style to achieve the desired level of consumption.

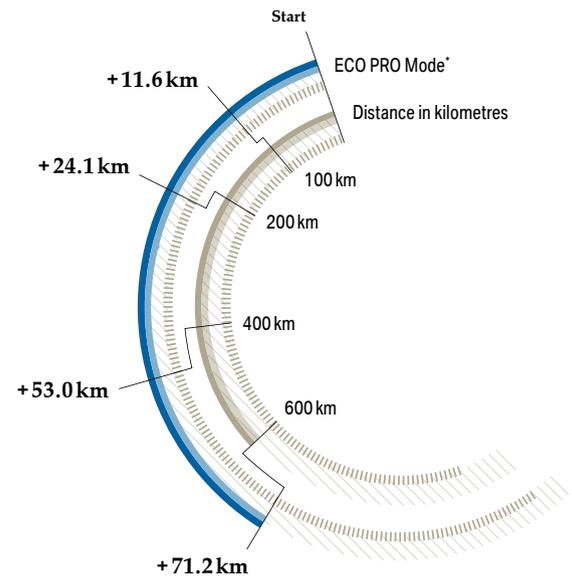
Driving Experience Control



The development team believes that this emotional experience is the key to fuel-efficient driving. **“Everyone wants to do something for the climate and the environment, especially when there is an instant reward – and you see that with the bonus range,”** explains Dr. Thomas Herpel, head of Display Control Concept Development. **“That’s why we don’t just call our innovation ‘driving mode’ but ‘Driving Control Experience’ – to ensure that saving fuel is associated with a positive and rewarding experience.”**

The experience is activated at the touch of a button on the Driving Experience Control. However, for the control’s developers this seemingly simple solution represents years of work, with more than 180 associates involved in the project at times. Every time the driver switches modes, several hundred parameters in the power train, chassis, assistance functions and on-board electronics have to be modified within a fraction of a second. **“What makes it even more complex, is that all of these parameters are interdependent,”** explains project manager Jürgen Geus. **“They all need to be perfectly in sync to ensure the vehicle retains its consistent character in each mode.”**

Drivers are aware of none of this, of course, as they effortlessly shift from one mode to another without noticing a thing. But they do appreciate the freedom to choose between three different modes in one car. The ECO PRO mode allows drivers to enhance their fuel economy by up to 20 per cent – which translates into considerably less fuel consumption and more driving pleasure. According to Jos van As, head of function design and integration of driving dynamics functions, the initial response from customers has been so positive that the project team is already working on the next steps for the Driving Experience Control. **“Now that we have the drivers on our side, we can use more data from their surroundings to lower fuel consumption,”** explains Norman Wiebking. **“Greater efficiency will mean even more driving pleasure in the future.”**



Every mile driven in ECO PRO mode is rewarded with additional range: for instance, 600 km earns an extra 71.2 km in range compared with COMFORT mode.

*Sample values



Looking ahead: the Efficient Dynamics display in the instrument cluster shows the driver how many extra miles have already been earned.