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DEEP DIVE SESSION 1: ELECTRIFICATION – SCRIPT

**BY KOJI TOYOSHIMA, DEPUTY CHIEF OFFICER OF TOYOTA ZEV FACTORY,
Toyota Motor Corporation**

In the plenary just now,

you heard how electrified cars are the future.

But they are also the past!

150 years ago,

batteries competed with the internal combustion engine -

and ICE won, because fossil fuels have better power density.

A global refuelling network was created from scratch –

and the age of petrol and diesel began.

But now, the story has changed.

As we worry about emissions,

we now have improved electrified technologies.

The ELECTRIFIED age has begun!

Even before electrification became the trend,

Toyota had planned for this future.

We launched Prius, our first hybrid, last century.

And since 1997,

we have sold more than 16 million hybrid cars around the world.

In 2014, we introduced the first fuel cell car – the Mirai.

A year later, we promised to reduce our Toyota emissions by 90%.

And by 2025

we expect to sell 5.5m electrified cars every year.

That means we will be able to offer our customers

more than 60 new electrified choices

By then, less than 10% of our sales will NOT be electrified.

But whatever happens between now and 2025,

we have hybrid NOW.

It reduces Toyota and Lexus emissions by more than 30% compared to petrol ...

and requires no special infrastructure.

It's also an affordable option, with a low cost of ownership.

Each year, we invest 40% of our R&D expense to new technologies, such as powertrains of the future.

To grow the market, we share many of our patents without charge,

and form partnerships which help us change,
from a car maker to a mobility company.

But to cover every mobility need and customer demand,
we need to deliver a huge variety of affordable models.

To address those need and demand, we created the ZEV factory, that I run in Japan,
where we plan and develop our zero emission vehicles,
from small mobility to larger vehicles.

In total, we are working on six models –
either pure Toyotas, or in partnership with others.

A world of electrified cars and trucks requires a new business model,
built on the idea of 'Vehicle Lifecycle Value'.

To stay profitable, car companies and their dealers
need to keep every vehicle within the brand,
providing service across the entire lifecycle.

Our job is to produce vehicles which support this new world.

We are building all our battery electric models on an electrified version of TNGA,
the modular production platform you heard about earlier.

e-TNGA ensures every vehicle has the same fixed layout for key components ...

This lets us create different combinations,
depending on the power control unit and motors required.

A front motor, for instance, allows front wheel drive,

A back motor supports rear wheel drive

And if we use both we enable all wheel driving.

This combination of consistency and flexibility

lets us produce many variants, efficiently.

Once the modules are developed, we can shorten the development of different variants and develop them in parallel!

We can create Toyotas for the mainstream,

but also Lexus, adding a distinctly premium identity and driving style, Lexus Electrified.

Our first eTNGA model has already been developed,

and is now being made ready for manufacture.

Now I do have a special surprise for you. It's a real privilege to be able to show you the first sketch of this car,

here today! [\[show first e-TNGA model\]](#)

This is all very exciting,

but I have not yet mentioned the most important part of electrification!

The batteries.

With hybrid, we use a small, light, compact battery –

which provides high efficiency at low cost.

But pure electric cars need bigger batteries,

so our challenge is to secure quality and durability

and minimise the cost.

Hybrid has taught us so much about charging and discharging.

Our plug ins produce longer range than our competitors,
using the same battery capacity.

So we are transferring this knowledge to battery electrics, to increase this range,
and reduce their impact on the planet.

That includes maintaining battery life when a car is resold,
or recycling it.

We are working with partners on new types of battery,

With the aim of increasing supply capacity and reducing cost.

In fact, our last joint venture with Panasonic aims to boost efficiency of development
and production processes by 10 times.

And we are also working on new battery technologies,
like solid state batteries, which generate more power from smaller, light packs.

These solid state batteries recharge much faster than liquid type batteries.

We expect to introduce the first mass-produced electrified vehicle
using a solid state battery in the first half of 2020's.

Now my colleague Andrea Carlucci will continue the electrifying story ...

[End]

**BY ANDREA CARLUCCI, DIRECTOR, PRODUCT & MARKETING
MANAGEMENT, Toyota Motor Europe**

Thank you, Toyoshima-san.

Earlier, Dr van Zyl talked about global demand for hybrids and plug in hybrids rising 600% in the next five years.

And we're starting from a high baseline.

Here in Europe, Electrified cars represent 11.9% of total car sales. Hybrid represents 36% of all electrified sales right now.

And if you look more widely, plug in is 29%

and pure battery electric 35

with 5 countries leading the charge, representing $\frac{3}{4}$ of the totals sales, driven by strong incentives.

So as of 2020,

Toyota has 21% per cent share of Europe increasingly electrified market.

In terms of our own brands, more than 50% of the cars we sell across the EU are hybrid and even more than 60% when we consider West and Central Europe so far in 2020. And that figures will grow to 68% next year, thanks to the full year of new Yaris sales and the introduction of Yaris cross and Highlander.

In fact, some Toyota models are almost exclusively hybrid sales, like the new Yaris with 87% of hybrid!

And as you heard from Dr van Zyl, 96% of Lexus sales are hybrid.

Customers do love our hybrid models for their accessibility, their affordability and also because of their driveability.

And because of this popularity,

excellent sales of electrified products have seen us strongly reduce CO2 year on year, and beat our targets.

Of course, we are not standing still.

We continue to improve our hybrid offer,
introducing new models,
adding extra engines to existing models
and offering all-wheel drive option.

Next year we will launch the Yaris Cross and Highlander,
combining hybrid with Toyota's long SUV heritage.

This means our customers will be able to choose a hybrid SUV of virtually any size,
across all the key market segments - B, C, D and E.

Alongside these pure hybrid innovations,
we're also expanding our plug-in hybrid range.

For instance , some of you may have already driven the new RAV4 plug in –
which earned extremely positive reviews.

A lot of this was down to its performance, allied to frugal fuel consumption.

Plus, CO2 emissions of less than 22 g/km.

Another talking point was the pure electric range of 75kms,
achievable in real life conditions.

After the successful launch in the Nordics, Iceland, France,
Germany and Switzerland,

we are now ready to roll out the RAV4 Plug-in Hybrid to other markets where PHEV technology is gaining more importance and strategic incentives are set in place.

This is the case of Italy, UK, Poland, Spain, Ukraine and Portugal.

Some people say Toyota is behind the curve on battery electrics, but we've always taken a considered, measured approach to alternative fuel vehicles.

Our strategy has been to lead with hybrid, and it's hard to argue with 16 million hybrid sales Worldwide – 3 millions of which are here in Europe.

That's allowed us to hit tough emissions targets without having to make a sudden, early move into battery electric powertrain.

However, hybrid success has given us the foundation we need, for other electrified powertrains – which will be introduced when the time, the market and the infrastructure are right. And that time is getting closer.

We're now seeing demand beginning to grow, in some markets, especially which explains why we are starting to roll out our own battery electric vehicles.

We started with Proace this year and will add Proace City battery electric in 2021.

Alongside it will be our first ever pure electric car developed specifically for Europe.

This will be a mid-size SUV –
around the RAV4 size
and built on an e-TNGA dedicated platform shared with Subaru.
Please stay tuned. You will know more in the course of next year.

This is the first Toyota to use the 'Vehicle Lifecycle Value' business model
That Toyoshima san has explained just now.
Value has been built into every stage of the lifecycle,
from sales to mobility services,
and resale to recycling.

But for now, I'd like to leave you with a simple thought.

Toyota led the way of electrification, through hybrid.

We have now promised to move Beyond Zero. Which is Illustrated by the new Mirai
that cleans the air when driven ...

This is true leadership.

The strategy we've laid out is how we will continue to lead –
electrifying the future of mobility across Europe.

Thank you. Very much!

END