

## Speed and Sustainability: Addressing Modern Challenges in NASCAR

### **Introduction**

NASCAR was founded in 1948 by Bill France Sr. and saw enormous success in the following decades. However, in recent years, the popularity of NASCAR has been on the decline especially with the growing interest in Formula One due to the immensely popular Netflix series, “Drive to Survive.” While this is a viable reason as to why NASCAR has seen a decline in viewership, the decline may also relate to a few current issues going on within the sport itself. First, the redesigned Next Gen Car has been plagued with notable safety concerns especially from drivers themselves. Second, global warming and climate change have become an increasing concern for many people, who would view NASCAR as one of the worst sports on the planet for the environment, which there may be some truth to that. This paper is going to examine these issues more in depth and discuss what solutions are being considered.

### **Safety Concerns with Next Gen**

The Next Gen car is completely different than previous stock cars in NASCAR with the Next Gen being compared to a “kit car” as it eliminates the need for teams to build a car themselves (Taranto, 2022b). One thing NASCAR officials surely did not anticipate with this redesigned car was all the backlash and safety concerns from drivers. With the death of racing star, Dale Earnhardt at the 2001 Daytona 500, NASCAR reinvented their safety rules and regulations which have proved efficient up until now (Taranto, 2022b). One of this year’s playoff races at Charlotte Roval marks the first time in 20 years where three full-time cup drivers were benched due to crash related injuries from previous races (Long, 2022). With the redesigned car, drivers are complaining that

what would be considered a low to normal impact during common crashes are now much harder. In part this is due to the Next Gen cars being strengthened to withstand severe crashes. Due to this, the impact of the crash is heavier on the driver during common crashes than in previous years. NASCAR officials have not tried to hide the outspoken claims from drivers on their distaste of the 2022 car. Instead, they have been trying to reassure drivers that safety is their top priority and they are researching options to fix the current issues. While research and development took longer than some drivers would prefer, as significant changes did not get made for the 2022 season, it should provide comfort to them that the issue will be solved in full for the 2023 season.

In September of 2022, NASCAR updated a rule to help lessen the chance of fire in places where rubber accumulates (Pearce, 2022). The Next Gen cars were a fire risk as “the fuel cell is situated in-between the rear clip and bumper structure – meaning a much greater risk of fire if those areas give too much” (Taranto, 2022a). Another amendment to the Next Gen car during the 2022 season were changes to the rear of the car to improve safety. Specifically, the center section, rear clip, and rear bumper supports were modified (Tatarevic, 2022). The design change stems from the idea that there needs to be an improved crumple zone so during a crash the energy is diverted away from the driver and to the rear of the car.

With the updates for the 2022 Next Gen car and the plan to carry and improve those updates for 2023, NASCAR is not shying away from spending a significant amount of money as they want to ensure the cars are safe on track. Although, and more importantly, NASCAR officials are comfortable spending more money as they want the drivers to feel safe and comfortable in the cars. To help with this, NASCAR officials have agreed to pay for initial updates which will give

teams an extended period of time to find an approved third party vendor to supply them the needed parts (Pearce, 2022). Eventually teams will need to pay for their own parts, in which teams will see a substantial cost increase. The cost increase is due to the design updates causing the parts to have a shortened lifespan due to the reduced structure of the car, which means parts may need to be refurbished or replaced more often. Another issue teams can expect to deal with is the shortened lifespan of chassis parts as well. Since the structure of the chassis now has less support due to the redesign which ensures energy from crashes goes to the car, this also means the chassis has less support. This makes it more likely to become damaged over the span of multiple races which could lead to the car failing inspection requirements if the damage is not dealt with properly and could lead to additional costs for teams (Tatarevic, 2022). However even with these cost increases, responses to these new updates from NASCAR officials and teams themselves are positive, as many are on board with spending additional money if it means improving driver safety.

### **Environmental Concerns within NASCAR**

NASCAR and environmentally friendly are not two things people would often say go together. Often when people think of the sport, they assume it's terrible for the environment and has detrimental effects on our planet with their non-EPA regulated engines and cars that "burn so much fuel that the U.S. government labeled NASCAR a waste of gas during the fuel shortage of the 1970s" (Layton, 2022). While NASCAR has definitely lived up to their earned reputation of being the least environmentally friendly sport, they have implemented a few programs over the years to help reduce their impact and better the environment.

Before we get into a few of NASCAR's environmental initiatives, let's discuss just how much impact the sport has on the environment. An average weekend in NASCAR sees the cars release 120,000 pounds of CO<sub>2</sub>. To put this number in perspective, in one year the average person adds about 45,000 pounds of CO<sub>2</sub> into the atmosphere (Giordano, 2022). Now, consider how many sets of tires are used by each team during one weekend. On average, eight to ten sets of tires are used in one weekend by each team competing. To make one tire it takes seven gallons of oil, if teams use thirty-two tires in one weekend that is 224 gallons of oil used by one team (Giordano, 2022). On top of all the CO<sub>2</sub> emissions that NASCAR produces in one weekend, the cars are also not required to have devices, like catalytic converters, to regulate and reduce the amount of pollution produced by the car which the EPA mandates all normal cars must have (Layton, 2022). Since the EPA does not require this for race cars, it is up to NASCAR to decide if they want their cars to regulate emissions to a safer level.

As for fuel consumption, up until 2017, NASCAR was using leaded fuel which hasn't been used in normal cars since the 1980s as it was deemed to release toxic lead into the atmosphere (Giordano, 2022). In NASCAR, the average race car earns about five miles per gallon which in one weekend equates to 6,000 gallons of fuel used by all the teams combined. To understand the environmental impact even more, one gallon of fuel emits an estimated 20 pounds of CO<sub>2</sub> (Layton, 2022). This proves what was stated previously, one weekend in NASCAR emits around 120,000 pounds of CO<sub>2</sub>. NASCAR had 36 races in 2022 which means if they emit an average of 120,000 pounds for one race that in one season we can estimate NASCAR emits close to 4.32 million pounds of CO<sub>2</sub> into the atmosphere. While NASCAR does see large numbers of fuel consumption and CO<sub>2</sub> emissions, the United States sees about 400 million gallons of fuel being consumed in

one day and “6 billion tons (5.4 billion metric tons) of CO2 emissions every year” (Layton, 2022) to help give some perspective on the numbers.

Now that we learned about NASCAR’s environmental impact, we can delve into some of the initiatives they introduced. One of the relatively large initiatives was introduced in 2008 called NASCAR Green. This initiative worked with “key stakeholders that care deeply about sustainability” (*NASCAR Green: Sustainability Efforts With Green Partners*, 2021). Within this program, NASCAR sought improvements through the use of Sunoco Green E15 biofuel, recycling expansion, solar power, organic farms, and a more energy efficient track sweeper. The NASCAR Green initiative also spread to some of the tracks, such as Roush Fenway, which now “recycles 96 percent of their cars from the racetrack in an effort to reuse their cars to help the environment” (Giordano, 2022). As mentioned previously, NASCAR implemented the use of Sunoco Green E15 which is “a 15 percent ethanol blend bio-fuel [that is] reducing greenhouse emissions by 20 percent per the EPA’s Renewable Fuel Standards” (Giordano, 2022). Along with that, it is estimated that 120,000 Goodyear racing tires are recycled annually across the top three NASCAR series.

As the above initiatives have been in place for around fifteen years now, it is not surprising that NASCAR has stalled on lessening their environmental impact. However, that might change soon since we have started to see other motorsport series such as, Formula One and IndyCar, establish new rules to help lower their environmental impact. Although NASCAR has recently added onto their previous initiatives as they have “partnered with the U.S. Environmental Protection Agency in a program to promote high-MPG vehicles at NASCAR races” (Layton, 2022). These cars are currently only features at NASCAR events, while it is a step forward, hopefully one day the cars

on track will be as eco-friendly as the ones NASCAR tries to promote to their spectators to get them to consume less fuel during their day-to-day.

## **Conclusion**

NASCAR is heading in the right direction in terms of fixing the issues with the Next Gen car and preparing for the 2023 season. However, they could implement new regulations that limit the amount of CO<sub>2</sub> emissions they produce in one weekend. While NASCAR has introduced biofuel and recycling to help limit their emission numbers, it would be nice to see them head down the same route as IndyCar and Formula One, with engine and fuel regulations for example. Especially since NASCAR is starting to preach to spectators about driving eco-friendly cars that consume less fuel. It would be nice to see the sport practice what they are preaching with their cars on the track. If they want their fans to be eco-friendly, then they need to make the large strides to become as eco-friendly as possible as well.

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