

# Progressive Insurance Automotive X PRIZE

## TECHNICAL BULLETIN July 16, 2010

### Rules Clarifications, Revisions, and Penalties for the Finals Stage

#### ADDENDUM 4

This technical bulletin is an amendment and addendum to the Competition Guidelines and is meant to augment the Competition Guidelines. Items in this document supplement and supersede statements regarding the same topic in previous documentation.

Items not addressed in this Addendum should be considered to still be governed by Competition Guidelines v1.3, the Vehicle Technical Specifications, and/or other previously published amendments and addendums to the Competition Guidelines.

As agreed to in Section 5.1 (a) of the Master Team Agreement, Teams must comply with this amendment to the Competition Guidelines.

#### **EFFICIENCY EVENT:**

##### **Clarification to the on-track requirements for the Efficiency Event:**

In the Supplemental Regulations v2.2 document that was delivered to all teams, in the description of the Finals Stage, the following statement appears:

“On-Road Fuel Economy Event – vehicles must achieve at least 100 MPGe in this test in order to continue in the Progressive Insurance Automotive X PRIZE.”

However, in order to be consistent with the requirements included in the Competition Guidelines v1.3, the statement is revised to read as follows:

“On-Road Fuel Economy Event – vehicles must achieve at least 100 MPGe and less than or equal to 200g/mile CO<sub>2</sub> in this test in order to continue in the Progressive Insurance Automotive X PRIZE.”

##### **Further Clarification for BEVs:**

The requirement of achieving less than or equal to 200g/mile CO<sub>2</sub> (as stated in the Competition Guidelines v1.3 and reinstated here in Addendum 4) for a Battery Electric Vehicle (BEV) during the Efficiency Event corresponds to an MPGe greater than 114 MPGe.

The actual calculation for minimum BEV MPGe to meet the GHG requirements is based from the Competition Guidelines v1.3:

“As a figure of merit for greenhouse gas (GHG) emissions, we use the total emissions expressed as equivalent grams of CO<sub>2</sub> per mile. This is a so-called “wells-to-wheels” (WTW) estimate, including all contributions from fuel extraction, production, distribution, and consumption. To compute the estimated GHG emissions, we use the DOE-Argonne GREET model from Argonne National Laboratory.”

Based on this GREET model, the minimum required MPGe to equal 200.0 g/mile CO<sub>2</sub> is 114 MPGe. Equally this corresponds to a measured 298.1 Wh/mile.

Following the clarification of Addendum 1, officially lowering the Finals Stage on-track Efficiency Event requirement to 90 MPGe, the resultant requirement for BEVs to meet an equivalent level of g/mile CO<sub>2</sub> is also adjusted for the Finals Stage.

**Therefore, BEVs that achieve 104 MPGe (219 g/mile CO<sub>2</sub>; 326 Wh/mile) or higher and pass all the other Finals events will be given the opportunity to proceed to the Validation Stage.**