

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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BAYERISCHE MOTOREN WERKE AKTIENGESELLSCHAFT and  
BMW OF NORTH AMERICA, LLC,  
Petitioners,

v.

PAICE LLC and THE ABELL FOUNDATION, INC.,  
Patent Owners.

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Case IPR2020-01386  
Patent 7,237,634

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**PATENT OWNERS'  
PRELIMINARY RESPONSE**

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### EXHIBIT LIST

<b>Exhibit No.</b>	<b>Description</b>
PAICE 2001	Patent Owners' Preliminary Response to Petition for IPR in IPR2015-0722 Dated August 10, 2015
PAICE 2002	Patent Owner's Preliminary Response to Petition in IPR2015-00787 dated August 10, 2015
PAICE 2003	Patent Owner's Preliminary Response to Petition in IPR2015-00791 dated August 10, 2015
PAICE 2004	Statutory Disclaimer
PAICE 2005	Reserved
PAICE 2006	Response to Interrogatory 27, BMW Responses to PAICE 1st Set of Interrogatories [1-28] dated May 6, 2020
PAICE 2007	Paice/Toyota Complaint dated June 8, 2004
PAICE 2008	Paice/Toyota Amended Complaint dated July 3, 2007
PAICE 2009	Scheduling Order [Docket No. 36] from 1:19-cv-03348-SAG (USDC-DMD) dated February 25, 2020
PAICE 2010	Docket Navigator Statistics – Top Patents by Number of IPRs
PAICE 2011	Ex. J to BMW Invalidity Contentions dated June 8, 2020
PAICE 2012	Reserved
PAICE 2013	IPR2017-00232 Petition dated November 14, 2016
PAICE 2014	UK Patent Application GB 2,318,105 Cover Page
PAICE 2015	Printout of <a href="http://www.paicehybrid.com/licensing-agreements/">http://www.paicehybrid.com/licensing-agreements/</a>

## I. Introduction

The Board should deny BMW's Petition because it is weak on the merits and is an abuse of the IPR process and Patent Owners Paice LLC and the Abell Foundation.

U.S. Patent No. 7,237,634 ("634 patent") describes and claims novel control strategies and architectures for hybrid electric vehicles. For example, challenged claims 33-44, 46, 49-50, and 52-55 are directed to an innovative control strategy that monitors patterns of vehicle operation in order to refine how the hybrid controller selects operating modes, *e.g.*, choosing whether to operate the electric motor or the gas engine. The Board has already carefully considered the validity of the '634 patent on multiple occasions and denied institution of three separate IPRs challenging independent claim 33 and its dependent claims. (BMW1060, 6-8, 16-17; BMW1061, 7-9, 14-15; BMW1062, 7-9, 15-16.)

Challenged claims 49, 105, and 188 are directed to a novel architecture that combines a gas engine and electric motor with a controllably coupled, "on-demand" turbocharger. Instead of using a turbocharger that operates mechanically as a function of engine output, the '634 patent provides a control system that controls the turbocharger to work alongside the electric motor. For example, the '634 patent's control system controls the electric motor and turbocharger to complement one another, by applying the instant torque of the electric motor to

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