INTISARI

Sektor transportasi berperan besar dalam kontribusi emisi nasional, dengan besaran 27% per 2019, yang ditengarai disebabkan oleh masifnya penggunaan kendaraan berbahan bakar fosil. Kendaraan listrik berbasis baterai telah diperkenalkan untuk menyikapi situasi tersebut, tetapi moda transportasi ini masih belum sepenuhnya bebas emisi, sehingga *Hydrogen Fuel Cell Vehicle* (HFCV) sebagai kendaraan ramah lingkungan alternatif direncanakan memasuki pasar pada 2030. Meski demikian, hingga saat ini, belum ada penelitian yang mengkaji niat perilaku masyarakat Indonesia untuk mengadopsi HFCV menggunakan pendekatan teori perilaku dan *end-user* sebagai sampel. Padahal, pemahaman akan faktor yang membentuk niat adopsi masyarakat dibutuhkan untuk merealisasikan target pemerintah mencapai tiga ribu unit HFCV pada 2031, terlebih karena penerimaan HFCV masih bersifat tidak pasti akibat rendahnya literasi terkait dan tingginya biaya investasi. Oleh karena itu, penelitian ini bertujuan mengidentifikasi faktor tersebut dengan menguji model konseptual yang dikembangkan dari *Theory of Planned Behavior* (TPB), *Norm Activation Model* (NAM), *Behavioral Reasoning Theory* (BRT), dan *Diffusion of Innovation* (DoI) dengan mempertimbangkan aspek sosio-demografis masyarakat.

Penelitian ini mengumpulkan respons dari 176 konsumen potensial menggunakan metode *purposive sampling* dengan instrumen kuesioner yang dikembangkan berdasarkan penelitian terdahulu. Berdasarkan data respons, model struktural faktor yang memengaruhi intensi adopsi HFCV diuji dengan metode *Partial Least Square Structural Equation Modelling* (PLS-SEM). Sementara itu, variabel sosio-demografis yang meliputi domisili, kepemilikan kendaraan listrik berbasis baterai, dan kondisi finansial diuji dengan statistika inferensial klasik (*t-test* dan *simple linear regression*) dan korelasi antara pengetahuan subjektif dan objektif diuji dengan *Pearson test* untuk mendukung hasil uji model struktural.

Hasil penelitian menunjukkan bahwa hanya konstruk *Attitude* dan *Financial Policy* yang berpengaruh secara langsung terhadap intensi adopsi, dengan kelompok berkemampuan finansial rendah lebih responsif terhadap kebijakan finansial, tetapi *Perceived Benefit* dan *Perceived Safety* turut berkontribusi secara tidak langsung melalui *Attitude* sebagai mediator. *Environmental Awareness* dan *Environmental Responsibility* terbukti mendorong terbentuknya *Personal Norm,* tetapi *Personal Norm* belum cukup kuat untuk menciptakan intensi adopsi. Hal ini mencerminkan bahwa pada tahap ini, niat adopsi HFCV masih lebih dipengaruhi oleh pertimbangan praktis dan ekonomi alih-alih persepsi sosial dan moral, sehingga pemerintah dan industri direkomendasikan memprioritaskan kebijakan finansial yang tertarget dan stabil serta strategi pemasaran dan edukasi yang menekankan manfaat, keamanan, dan dukungan finansial untuk mendukung tercapainya target adopsi HFCV dan transisi energi Indonesia menuju 31% EBT pada 2050.

Kata kunci: *Hydrogen Fuel Cell Vehicle,* Niat Adopsi, Teori Perilaku, *Partial Least Square Structural Equation Modelling*

ABSTRACT

The transportation sector plays a major role in national emissions, contributing 27% in 2019, mainly due to the extensive use of fossil-fuel vehicles. Battery electric vehicles (BEV) were introduced in response to this issue; however, as the transportation mode is yet to be emission-free, Hydrogen Fuel Cell Vehicles (HFCV) are planned to enter the market in 2030 as an environmentally-friendly alternative. Nevertheless, studies examining public adoption intention toward HFCVs in Indonesia, particularly those employing behavioral theory approaches and potential end-users, remain limited. This gap is important to address, as understanding the factors shaping public adoption intention is essential to achieve the government's target of deploying three thousand HFCV units by 2031, especially given the low public literacy level and high investment costs associated with HFCV. Therefore, this study aims to identify the determinants of HFCV adoption intention by testing a conceptual model developed from the Theory of Planned Behavior (TPB), Norm Activation Model (NAM), Behavioral Reasoning Theory (BRT), and Diffusion of Innovation (DoI) while also considering socio-demographic characteristics.

This study gathered responses from 176 potential consumers using the purposive sampling method, with a questionnaire as the instrument developed based on prior research. The structural model of factors influencing HFCV adoption intention was tested using Partial Least Square Structural Equation Modelling (PLS-SEM). Meanwhile, the socio-demographic variables encompassing domicile, BEV ownership, and financial capacity were examined using classic inferential statistics (t-test and simple linear regression) and the correlation between subjective and objective knowledge is evaluated through Pearson test to further complement the structural model test results.

The results show that Attitude and Financial Policy are the only constructs that directly affects adoption intention, with individuals possessing lower financial capacity showing greater responsiveness to financial policy, but Perceived Benefit and Perceived Safety also contribute indirectly through Attitude as a mediating variable. Environmental Awareness and Environmental Responsibility are found to support the formation of Personal Norm, yet the Personal Norm itself doesn't significantly influence adoption intention. These findings suggest that, at the current stage, HFCV adoption intention in Indonesia is driven more by practical and economic considerations than by social and moral factors. Accordingly, government and industry are recommended to prioritize targeted stable financial policy, as well as marketing and educational strategy that emphasize benefit, safety, and financial incentive to support HFCV adoption and Indonesia's broader energy transition target of achieving 31% renewable energy by 2050.

***Keywords**: Hydrogen Fuel Cell Vehicle, Adoption Intention, Behavioral Theory, Partial Least Square Structural Equation Modelling*