



Propulsion Investigation for Zero and Near-Zero Emissions Aircraft

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BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 34 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. As world emissions are further scrutinized to identify areas for improvement, aviation's contribution to the problem can no longer be ignored. Previous studies for zero or near-zero emissions aircraft suggest aircraft and propulsion system sizes that would perform propulsion system and subsystems layout and propellant tankage analyses to verify the weight-scaling relationships. These efforts could be used to identify and guide subsequent work on systems and subsystems to achieve viable aircraft system emissions goals. Previous work quickly focused these efforts on propulsion systems for 70- and 100-passenger aircraft. Propulsion systems modeled included hydrogen-fueled gas turbines and fuel cells; some preliminary estimates combined these two systems. Hydrogen gas-turbine engines, with advanced combustor technology, could realize significant reductions in nitrogen emissions. Hydrogen fuel cell propulsion systems were further laid out, and more detailed analysis identified systems needed and weight goals for a viable overall system weight. Results show significant, necessary reductions in overall weight, predominantly on the fuel cell stack, and power management and distribution subsystems to achieve reasonable overall aircraft sizes and weights. Preliminary conceptual analyses for a combination of gas-turbine...



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