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# First Drive: 2013 Honda Fit EV

## Electrical Fitness

**BY FRANK MARKUS**


At the Tokyo Motor Show, Honda CEO Takanobu Ito told the North American press that he wants Honda to reclaim the high ground in technology, environmental friendliness, and driving fun. The Fit EV represents solid evidence that his engineers are executing that command.

On the tech front, the Fit EV delivers an estimated 132-mile[1] city MPGe, an estimated 82 combined mile range rating (adjusted), and recharges in just 3 hours[2] on 240-volt power using the 6.6-kW 32-amp onboard charger (15 hours on 120 volts). Energy consumption is a claimed 116 mpg-e combined, or 29 kW-hr/100 miles, besting the Nissan Leaf's by 17 mpg-e or 5 kW-hr/100 miles, and a sophisticated brake-by-wire system maximizes potential regenerative braking while improving pedal feel.

On paper, the Fit EV adheres to the time-honored musclecar formula of putting the engine from a big sedan in a compact. Its front-mounted AC synchronous, permanent magnet coaxial traction motor and low-friction reduction gearbox are borrowed from the much larger FCX Clarity fuel-cell sedan producing 123-hp and 189 lb-ft. To deliver on that muscle promise, a three-mode electric drive system, adapted from the CR-Z Sport Hybrid, offers Econ, Normal, and Sport modes. Econ mode is said to extend realistic driving range by as much as 17 percent compared to driving in Normal mode. Select Sport, and the gauge surrounds turn red to warn of tire-shredding accelerative potential. Throttle response is about all there is to alter when switching modes in a 1-speed EV (there are no adaptive suspension elements), and Sport mode's map is super aggressive, delivering lusty wheelspin from rest and ample pressure on one's backside when accelerating to pass with a sudden stab at the pedal. By comparison, Normal and Econ seem to install rubber bands of different strengths between the pedal and its actuator.

The brake-by-wire system, designed in-house by Honda, separates the pedal from the hydraulic braking system, allowing a computer to determine the amount of braking the driver is requesting and meeting it with as much regenerative braking as possible before feathering in the hydraulic system. The computer generates artificial brake feel in proportion to braking g forces, and in the event of any sort of electrical fault, the solenoids that disconnect the direct hydraulic circuit fail to open and the pedal operates the brakes directly. Our brief drive around some access roads between the infield and outer grounds of Honda's Twin-Ring Motegi motorsports park suggest that Honda's pedal-effort generator is better at approximating normal hydraulic brake feel than any of the systems currently in use in EVs and hybrids. Honda hopes to propagate this system throughout its electrified vehicle range over time.

In order to accommodate the Fit's battery pack below the floor, the seats are raised slightly but retain their multiple configuration design. The torsion beam rear suspension was also replaced by a multilink system that afforded greater width farther aft. This may result in some ride comfort benefit, though our test loop of pristine pavement offered no opportunity to assess it, nor was a standard Fit on hand for back-to-back comparison. Had there been, we're confident the EV would have handled like a normal Fit that had its footwells filled with a few inches of concrete -- that is to say, less tippy thanks to the nice low center of gravity, but heavier. (By exactly how much Honda is not yet saying, but figure at least 220 pounds, assuming Li-ion's average energy density of 11 lb/kW-hr.)

Priced[3] at $36,625, it's $1425 more than a base Leaf, but $625 less than the quick-charge Leaf it truly closely compares with (exclusive of tax credits). Against Nissan's EV benchmark the range and recharge time appear potentially more appealing, as does the interior package efficiency. But as with the Prius/Civic hybrids, here again the styling is shared with the dinosaur-powered version, so green exhibitionists may gravitate toward the wonky-looking Nissan, though plug-in Fits are differentiated by their Reflection Blue Pearl paint, 5-spoke aluminum wheels, and a grille reminiscent of those on the FCX Clarity and Insight. Inside you'll sit on "Bio-fabric" seating surfaces and enjoy a standard nav system with a charging station locating function and smartphone monitoring and control of battery level, interior temperature preconditioning, etc.

Stay tuned for a better informed assessment of where the Honda's Fit EV stands in the EV pecking order as we approach Fit EV's Summer 2012 launch. Initially it will be sold in select California and Oregon markets, before expanding to six East Coast markets in early 2013.



*1 - 132/105/118 city/highway/combined miles per gallon of gasoline-equivalent (MPGe) rating; 82 mile combined (city/highway) driving range rating (adjusted). Ratings determined by EPA. Your MPGe and range will vary depending on driving conditions, how you drive and maintain your vehicle, battery age/condition, and other factors. For additional information about EPA ratings, visit http://www.fueleconomy.gov/feg/label/learn-more-electric-label.shtml.*

*2 - The Fit EV battery can be recharged in less than 3 hours from a low charge indicator illumination point when connected to a 240-volt circuit.*

*3 - Subject to limited availability through October 2014 in designated market regions on approved credit through American Honda Finance Corp. Closed end lease for 2013 Honda Fit EV for well-qualified lessees meeting specific use and operation requirements. Not all applicants will qualify. No purchase option at lease end. MSRP $37,415 (includes destination). Excludes tax, title, license, registration, options and insurance. Zero capitalized cost reduction due from Lessee; electric vehicle federal tax credit applied as capitalized cost reduction. Lessee responsible for tax on capitalized cost reduction where applicable. Total monthly payments $14,004.00. Lessee responsible for non-routine maintenance, excessive wear/tear and up to $0.20/mi. over 12,000 mi./yr. Lease includes collision coverage, routine maintenance, roadside assistance and navigation system updates. Please see your authorized Fit EV dealer for complete details.*