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# 2018 Honda Clarity Plug-In Hybrid



# **OVERVIEW**

The all-new 2018 Clarity Plug-in Hybrid completes Honda's first-ever vehicle series that offers customers an array of electrified powertrain choices in one sophisticated, spacious and comprehensively equipped 5-passenger sedan. The Clarity Plug-In Hybrid joins the Clarity Fuel Cell and Clarity Electric as the volume leader in the Clarity series, sold in all 50 states.

The Clarity series, led by the Clarity Plug-In, is at the forefront of Honda's initiative to bring electrified vehicle technology into the mainstream as the company aims for electrified vehicles to make up two-thirds of its global automobile sales by 2030. The Clarity Plug-In Hybrid is manufactured in Honda's Saitama factory in the Sayama prefecture, Japan.

A No-Compromise Electric Vehicle

The Clarity Plug-in Hybrid sedan delivers a highly refined, advanced-technology driving experience with no compromise to driving range, performance or comfort, making it well suited for a wide range of consumers and driving needs.

Its 47-mile all-electric EPA range rating<sup>1</sup> is the highest of any plug-in hybrid sedan. The Clarity Plug-In Hybrid enables comparatively inexpensive zero-emissions all-electric driving for most daily driving situations. Occasional, or even frequent long-distance travel is also possible with the hybrid powertrain, which helped the Clarity Plug-In Hybrid receive a 340-mile combined gas-electric EPA range rating<sup>1</sup>. This flexibility to drive wherever and whenever a customer wants frees them of the "range anxiety" or recharging concerns that can accompany even long-range electric-only vehicles.

The Clarity Plug-in Hybrid comes well equipped with a long list of standard convenience, connected-car, safety and driver-assistive technologies, including LED exterior lighting, Honda Sensing<sup>®</sup>, Smart Entry with push-button start, and an 8-inch Display Audio touchscreen interface with Apple CarPlay<sup>™</sup> and Android Auto<sup>™</sup> integration. The new Clarity Plug-in Hybrid is also available in a Touring trim that adds leather seating, a leather-wrapped steering wheel, an 8-way power driver's seat with two-position memory (upgraded from manual seat), a 4-way power front passenger's seat and Honda satellite-linked navigation system.

# **Elegantly Efficient Powertrain**

The Clarity Plug-In Hybrid utilizes Honda's innovative two-motor hybrid technology, which consists of (1) an ultra-efficient 1.5-liter DOHC i-VTEC® Atkinson-cycle in-line 4-cylinder engine coupled to a starter/generator motor; (2) an ultra-quiet 181-horsepower AC synchronous traction motor; and (3) a 17-kilowatt hour (kWh), 168-cell lithium-ion battery pack.

The Clarity Plug-In Hybrid runs primarily on its electric motor, using its Atkinson-cycle engine and starter/generator motor to generate electricity that is either supplied directly to the traction motor or used to recharge the 17 kWh lithium-ion battery pack. An electric-servo brake system is deployed for regenerative braking, further improving efficiency by using the energy from deceleration and braking to generate additional electricity. It all adds up to an all-electric 110 MPGe (miles per gallon equivalent) combined (city & highway)<sup>1</sup> EPA rating.

The Clarity Plug-In operates in three different driving modes, depending on the driving situation, and is able to shift instantly, automatically and seamlessly from one mode to another to optimize overall efficiency:

#### **EV** Drive

In EV Drive mode, the Clarity operates like an all-electric vehicle – the engine is off and is decoupled from the drivetrain to reduce friction. Motive power comes from the 181-horsepower traction motor, which draws electricity from the lithium-ion battery pack.

# **Hybrid Drive**

In Hybrid Drive mode, the Clarity functions as a series hybrid. Like EV Drive mode, motive power comes from the electric traction motor. The coupled gasoline engine and generator motor produce electricity, which is sent directly to the traction motor or to the battery pack, depending on the driving situation and the battery's state of charge.

# **Engine Drive**

In Engine Drive mode, which is typically engaged when cruising at medium to high speeds, the Clarity funtions as a parallel hybrid. A lock-up clutch connects the engine (always linked to the generator motor) and the traction motor to send power directly from the engine to the front wheels. Unlike most competing hybrid and plug-in hybrid vehicles, the Clarity does not use a conventional transmission which saves weight and minimizes complexity while improving efficiency.

The Clarity Plug-in Hybrid also features three driver-selectable operating modes – Normal, Econ and Sport – allowing users to customize their driving experience, maximizing efficiency or driving performance. A fourth mode – HV mode – is provided to preserve the battery's state of charge and can be selected in conjunction with Normal, Econ and Sport driving modes (see POWERTRAIN for more detail).

The Clarity Plug-in Hybrid's all-electric 110 MPGe combined (city & highway) EPA fuel economy rating<sup>1</sup> is among the top of its class, while its gasoline-only 44/40/42 mpg (city/highway/combined)<sup>1</sup> EPA fuel economy rating indicates the engine the engine alone is efficient, too.

### **Distinctive Design**

Unique exterior design elements that set the Clarity Plug-in Hybrid apart from other Clarity models include a model-exclusive Forest Blue Pearl exterior color, a distinctive chrome bar above the front grille, a chrome deck lid garnish and a unique color-coordinated 18-inch alloy wheel design.

### **Key Features:**

- 1.5-liter, 16-valve DOHC i-VTEC® Atkinson-cycle in-line 4-cylinder engine
- High-output electric motor with 181 peak horsepower and 232 lb.-ft. of torque
- 17kWh, 168-cell lithium-ion battery pack capacity
- Full charge in just 2.5 hours at 240 volts
- 110 MPGe all-electric combined (city& highway) EPA fuel economy rating<sup>1</sup>
- 44/40/42 MPG (city/highway/combined) EPA fuel economy rating (gasoline-only)
- 47 mile EPA electric-only range rating
- Roomy 5-passenger cabin
- 8-inch Display Audio with Android Auto<sup>™</sup> and Apple CarPlay<sup>™</sup> integration
- Highly efficient aerodynamics
- Standard Honda Sensing<sup>®</sup>

### **POWERTRAIN**

The 2018 Clarity Plug-In Hybrid's utilizes the second generation of Honda's Intelligent Multi-Mode Drive (i-MMD) two-motor hybrid system. This highly efficient powertrain selects the optimal drive operation under a wide range of driving conditions to combine fun-to-drive performance with outstanding efficiency.

Power comes from a 181-horsepower electric motor producing 232 lb.-ft. of torque and drawing power from both the gasoline engine and a 17-kilowatt hour (kWh) battery pack. A recharge time of just 2.5 hours using a Level 2, 240 volt (32 amp) charger allows for easy charging.

The Clarity Plug-In Hybrid powertrain utilizes a 1.5-liter Atkinson-cycle engine that is paired with two electric motors – a traction motor and a generator/starter motor.

Detailed energy management for each component, controlled by the Power Control Unit (PCU), enables the system to make the best use of both the electric propulsion motor and the gasoline engine to provide seamlessly smooth and responsive performance while garnering exceptional EPA fuel economy ratings.

To help maximize efficiency on the road, the Clarity Plug-In Hybrid seamlessly shifts between three distinct drive operations: EV Drive, Hybrid Drive and Engine Drive, utilizing power from the Atkinson-cycle *i*-VTEC® 4-cylinder engine and electric motors to actively adapt to current driving conditions.

# **Two-Motor Hybrid Powertrain**

- Peak total system output: 212 horsepower
- 1.5-liter, DOHC, i-VTEC® Atkinson-cycle inline-4 cylinder engine
  - Engine output: 103 peak horsepower (SAE net) at 5,500 rpm
  - Engine output: 99 lb.-ft. peak torque (SAE net) at 5,000 rpm
  - i-VTEC® (Variable Valve Timing and Lift Electronic Control) + Electric VTC
  - Computer-controlled port fuel injection with multi-hole fuel injectors
  - 13.5:1 compression ratio
  - AC synchronous electric traction motor
  - Propulsion motor peak output: 181 horsepower and 232 lb.-ft. of torque
  - Integrated starter/generator motor
  - Maintenance Minder™ system optimizes service intervals
  - 100,000+/- miles engine tune-up interval
- Regular Unleaded fuel recommended
- 17 kWh lithium-ion (Li-lon) battery
- Electric-servo regenerative braking system
- Full charge in 2.5 hours using a Level 2, 240 volt (32 amp) charger
  - Emission warranty: Eight-year/100,000-mile or ten-year/150,000-mile Lilon battery limited warranty, depending on the state of purchase/registration

# **Emissions/Fuel Economy/Range Ratings**

- 47 mile EPA all-electric range rating<sup>1</sup>
- 110 MPGe all-electric combined (city& highway) EPA fuel economy rating<sup>1</sup>
- 44/40/42 MPG (city/highway/combined) EPA fuel economy rating (gasoline-only)
- Meets LEVIII SULEV20 emission standards

# **Powertrain Layout**

The Clarity Plug-In Hybrid's key powertrain components are arranged for maximum packaging efficiency, affording the Clarity Plug-In Hybrid a roomy and accommodating 5-passenger interior. The lithium-Ion batteries are packaged beneath the passenger compartment to keep the center of gravity low for optimum handling without intruding on passenger or cargo space.



# 1.5-liter Inline 4-cylinder Atkinson-Cycle Engine

The 1.5-liter DOHC *i*-VTEC 4-cylinder Atkinson-cycle engine develops a peak 103 horsepower (SAE net) at 5,500 rpm and 99 lb.-ft. of torque (SAE net) at 5,000 rpm. Advances in engine control tuning together with other technologies combine to create excellent power characteristics, exceptional fuel efficiency and very low exhaust emissions. This clean-running engine meets LEVIII SULEV20 emission standards.

Since the gasoline engine can be decoupled from the rest of the hybrid powertrain, it only operates as needed. Depending on the battery's state of charge and other parameters, the engine will automatically shut off during deceleration, or when the vehicle is at a stop. When needed, the gasoline engine restarts automatically, without action from the driver.

However, when the driver desires extra power in situations such as highway passing, even higher performance can be invoked by depressing the throttle pedal through a resistance point, or "click point," toward the end of the pedal travel, bringing the full

power of the engine and electric motor together for maximum acceleration, regardless of driving mode.



# **Engine Block, Crankshaft and Pistons**

The engine has a displacement of 1,498 cubic centimeters. Cast-in iron cylinder liners provide long-lasting durability. Each journal on the forged-steel crankshaft is micropolished to reduce internal friction.

The 1.5-liter engine has cylinder bores are offset from the crankshaft to help reduce piston-sliding friction. This gives the connecting rods a more favorable angle during each power stroke, which reduces side loading on the pistons and, in turn, improves efficiency. The lightweight pistons have a carefully optimized skirt design to minimize reciprocating weight, and reduced weight minimizes vibration and increases operating efficiency.

### **Cylinder Head and Valvetrain**

The 1.5-liter engine has a lightweight cylinder head made from pressure-cast aluminum alloy. A silent chain drives dual overhead cams and four valves per cylinder. The cam drive is maintenance free throughout the life of the engine.

A high tumble-effect intake port design combined with a narrow valve angle decreasing the surface-to-volume ratio helps create a flatter, more compact combustion chamber that improves combustion efficiency while reducing unburned hydrocarbon emissions. This combustion chamber shape and the precise control enables a high compression ratio of 13.5:1, yet the engine still operates on regular unleaded fuel.

# i-VTEC Valve Control System

The engine uses an advanced valve-control system to combine high power output with high fuel efficiency and low emissions. The system combines E-VTC (Electronic Variable Timing Control), which continuously adjusts the intake camshaft phase, with Variable Valve Timing and Lift Electronic Control (VTEC), which changes the lift profile, timing and duration of the intake valves' operation.

# **High-Efficiency Dual Bed Catalytic Converter**

A key contributor to the Clarity Plug-In Hybrid's emission performance is the combining of a close-coupled catalytic converter with an under-floor catalytic converter. The close-coupled converter mounts directly to the rear of the cylinder head for fast activation after the engine is started. It is followed by a second catalytic converter located under the floor. They combine to help the Clarity Plug-In Hybrid meet stringent LEVIII SULEV20) emission standards.

### 100,000+/- Mile Tune-up Intervals

The Clarity Plug-In Hybrid's engine requires no scheduled maintenance for 100,000+/-miles or more, other than periodic inspections and normal fluid and filter replacements. The first tune-up includes water pump inspection, valve adjustment, and the installation of new spark plugs.

# **Maintenance Minder™ System**

To eliminate unnecessary service stops while ensuring that the vehicle is properly maintained, the Clarity Plug-In Hybrid has a Maintenance Minder™ system that continually monitors the vehicle's operating condition. When maintenance is required, the driver is alerted via a message on the Driver Information Interface (DII).

The Maintenance Minder™ system monitors operating conditions such as oil and coolant temperature along with engine speed to determine the proper service intervals. Depending on operating conditions, oil change intervals can be extended to a maximum of 12,000 miles, potentially sparing the owner considerable expense and inconvenience over the life of the vehicle. The owner-resettable system monitors all normal service parts and systems, including oil and filter, tire rotation, air-cleaner, transmission fluid, spark plugs, coolant, brake pads and more. To reduce the potential for driver distraction, maintenance alerts are presented only when the ignition is first turned on, not while driving.

#### **Electric Drive Motor**

A Honda-designed AC synchronous electric motor with 4-stage stator was developed to deliver powerful acceleration and high rpm capability along with exceptionally quiet operation. The motor has a maximum output of 181-horsepower and 232 lb.-ft. of torque.

# **Intelligent Power Unit (IPU)**

A high-capacity 17 kWh lithium-ion (Li-lon) battery pack in the Clarity Plug-In Hybrid offers long life expectancy, high power and is engineered for superior safety performance. The batteries are packaged under the passenger compartment floor.

Clarity Plug-In Hybrid adopts a water-cooled IPU (Honda/Acura-first). Water cooling offers significant improvement over air cooling in overall cooling performance. This in turn allows for significantly higher battery performance under heavy-load/high temperatures.

# Power Control Unit (PCU)/ Voltage Control Unit (VCU)

The Voltage Control Unit (VCU) built into the Power Control Unit (PCU) adopts an interleaved circuit configuration for high performance while a two-phase coupled inductor contributes to high density.

### **Powertrain Drive Modes**

The Clarity Plug-In Hybrid allows the driver to select between Sport, Normal and Econ driving modes to instantly change the driving experience. In Sport mode, more responsive acceleration feel adds to the Clarity Plug-In Hybrid's fun-to-drive nature. In Econ mode, changes made to the map governing system output promote full-electric driving. Once battery energy is depleted, changes made to the throttle map encourage drivers to use less of the available performance, thereby potentially extending the practical driving range compared to Normal mode. A fourth mode – HV mode – is provided to help maintain the battery's state of charge and can be selected in conjunction with Normal, Econ and Sport driving modes. Typically utilized during a long drive at highway speeds, a short press on the HV button sustains the battery's state of charge in the most efficient manner. A long press on the HV button will cause the battery to be recharged to approximately 58 percent before returning the 'short press' mode. In this long press mode, all-electric operation is not available.

### **Regenerative Brake System**

In the Clarity Plug-In Hybrid, kinetic energy from deceleration is turned into electrical energy via a regenerative braking system, and this captured energy is then stored in the Li-Ion batteries. The traction motor acts as a generator that can recharge the batteries during braking, gentle deceleration or coasting. The Clarity Plug-In Hybrid's regenerative braking system intelligently apportions braking power between the hydraulic brakes and the electric motor to optimize efficiency and braking performance.

# **Driver-Selectable Regenerative Braking**

Steering wheel-mounted Deceleration Selectors, similar to transmission shift paddles, allow the driver to select between four levels of regenerative braking performance. The right selector adds regenerative braking and the left selector reduces regenerative braking (displayed on the instrument panel). After a short time, the powertrain will automatically revert to the standard amount of regenerative braking. This can be

beneficial during downhill driving by reducing stress on the brake system while simultaneously increasing battery charging via regeneration.

When the drive mode is set to Sport, the selectors operate the same way, but the system will maintain the selected level of regeneration until the drive mode is changed or the START/STOP switch is cycled.

### **INTERIOR**

The Clarity Plug-In Hybrid offers new value in the plug-in hybrid vehicle universe with its spacious and premium 5-passenger sedan configuration. Bright, modern and sophisticated, the Clarity Plug-In Hybrid interior offers a premium feel coupled with exceptional comfort and refinement. It features an open, advanced feel with a sleek instrument panel, ivory white or black bio-fiber fabric (or leather-trimmed power seating in Touring trim) and accent panels with a natural-looking woodgrain finish. The interior is also outfitted with premium environmentally responsible materials and features advanced technologies including Display Audio with Android Auto™ and Apple CarPlay™ integration.



# **Key Interior Convenience and Connectivity Features**

- 8-inch Display Audio touchscreen
- Android Auto and Apple CarPlay integration
- Rearview camera with dynamic guidelines

- 7-inch TFT intelligent Multi-Information Display (i-MID) within the instrument cluster
- 180-watt 8-speaker audio system
- HD Radio™ and SiriusXM® Radio
- Pandora® interface
- SMS Text Message function
- 2 USB audio interface ports
- Push button start/stop
- Smart Entry
- Auto-dimming rearview mirror
- Dual-zone climate control
- Rear heat/air conditioning vents
- Walk Away Door Lock system
- Electric Parking Brake with Brake Hold
- 60/40 Split Fold Down Rear Seat
- Standard HondaLink<sup>®</sup>
- Available HondaLink Assist (when paired with compatible phone)
- Siri Eyes Free (when paired with compatible phone)
- Available Honda Satellite-Linked Navigation System<sup>™</sup> with Voice Recognition and Honda HD Digital Traffic

### Comfort/Convenience

A range of convenience features helps streamline daily commutes, including a roomy center console with a large storage compartment located under a padded center armrest. Also on the center console is a large dual cupholder and an open lower storage area large enough to accommodate a smartphone or tablet. The rear seating area features convenient fold-down center armrest, likewise with two cupholders, and cell phone pockets in the front seat backs. Storage bins with bottle holders in all four doors provide added utility.

#### Instrumentation

A graphical LCD meter panel offers a clean presentation of useful information for the driver. The display also clearly displays power consumption, regenerative braking and battery charge level, along with the hybrid drive system energy flow.

# Navigation/Connectivity

The 8-inch high-definition Display Audio touchscreen interface is easy to see and use. The system includes standard Honda Satellite-Linked navigation and supports Apple CarPlay™ and Android Auto™ allowing for compatible smartphones to be connected via a USB cable.

Drivers can stay in touch remotely with the many features of the car via the available HondaLink® app. This includes viewing the car's real-time charge level and remaining range, the ability to find the car and pre-condition cabin temperature from outside the vehicle, and more.

The HondaLink® app also includes StationFinder, which can help drivers locate the nearest approved EV station, and provides mapping directions to lead them right to it.

# **Environmentally Responsible Materials**

Like other Clarity models, the Clarity Plug-In Hybrid interior was developed to reduce carbon emissions by adopting plant-derived green materials and recycled materials. All plant-based materials are made of oils extracted from non-edible parts of plants, so as not to affect the food supply.

#### Trunk

The Clarity has a trunk capacity of 15.5 cubic feet, among the largest in the competitive class and made possible by locating the IPU (with battery pack), under the floor. Spacious enough to easily accommodate four large golf bags, the trunk area is easy to access and use. All models feature a 60/40-split and folding rear seatback. The trunk is carpeted and lined, and a tire repair kit is located in a well within the trunk's right side panel.

### **BODY & EXTERIOR**

Futuristic and functional, distinctive and efficient, the new 2018 Clarity Plug-In Hybrid is dimensionally similar to the all-new 2018 Accord sedan. Exterior features include advanced aerodynamic treatments, full LED lighting, high-efficiency Smart Clear Wipers (windshield wipers), and six available exterior colors including the new and exclusive Moonlit Forest Pearl.

Expressive, aerodynamic and advanced, the Clarity Plug-In Hybrid exterior design establishes a new standard for plug-in hybrid vehicles. The presentation begins with distinctive front-end styling, encompassing LED DRLs and LED headlamps, a blend of decisive angular shapes and flowing curves, and high-tech aerodynamic features, all wrapped around an unmistakable Honda grille. The body sides visually sculpt the airflow, enabling the Clarity Plug-In Hybrid to slip through the wind with minimal aerodynamic disturbance. Front air curtains, rear tire covers and rear air curtains – along with chrome garnishes and a unique exterior color palette – are signature elements of the Honda Clarity series.

# **Key Exterior and Body Features**

- LED headlights (hi-lo beam and DRL) and tail lamps
- Smart Clear Wipers (windshield wipers)
- Approximately 40 percent ultra-high-strength (980-1500 MPa) steel body structure
- Glass fiber reinforced plastic (GFRP) rear bumper beam
- Aluminum hood, front fenders, doors trunk lid, and rear parcel shelf
- Composite plastic steel and aluminum front bulkhead

- Advanced Compatibility Engineering<sup>™</sup> (ACE<sup>™</sup>) body with crash stroke design
- Acoustic glass, flush-mounted windshield
- Acoustic front door glass
- Triple door sealing

#### **Dimensions**

Measuring 192.7 inches long, 73.9 inches wide and 58.2 inches high, and riding on a 108.3-inch wheelbase, the Clarity Plug-In Hybrid is within an inch of the 2018 Honda Accord sedan in key dimensions. This generous sizing gives the Clarity Plug-In Hybrid a significant advantage in its segment compared to other comparably priced plug-in hybrid vehicles.

# **Aerodynamics**

A comprehensive aerodynamics package helps the Clarity Plug-In Hybrid fulfill its mission as a tech-savvy, energy-efficient and image-leading vehicle. With its sleek design, the Clarity Plug-In Hybrid adopts a low-drag basic form, together with numerous wind-tunnel tested details that further boost energy efficiency while simultaneously reducing wind noise.

Matching the size of the inlet openings on the front fascia to precisely suit engine cooling requirements reduces airflow under the hood, while special radiator ducting and a full underfloor cover further reduce aero disturbances. Special "air curtains" built into the front fenders and rear doors help air pass over the wheels with minimal disturbance, rather than tumble across the wheel openings; and partial tire covers integrated into the rear fenders further assist in moving airflow smoothly rearward. At the rear of the cabin, the C-pillars mimic the front A-pillars in shape and size, reducing energy-wasting vortexes coming off the rear of the body. Even the taillight lenses are optimized with a "washboard" surface that lets air flow smoothly across them.

### **Noise Reduction**

Acoustic laminated windshield and front door glass plus extensive use of noise insulators under the hood, instrument panel and floor, and within the wheelhouses, help reduce noise to endow the Clarity Plug-In Hybrid with a serene, high quality driving experience. Liquid-filled rear suspension bushings also help to reduce unwanted noise and vibration.

### Lightweighting

The Clarity platform utilizes advanced material applications to reduce body-in-white weight by approximately 15 percent compared to a conventional mid-size sedan. 55 percent of the body is constructed with advanced lightweight materials including ultra-high strength steel, aluminum and plastic. Approximately 40 percent of the body is constructed using ultra-high-strength (980-1500 MPa) steel. Aluminum is used extensively in the body as well, for the hood, front fenders, front bumper beam, front and rear doors, trunk lid and rear parcel shelf. A new glass fiber reinforced plastic (GFRP) is utilized for the rear bumper beam, and the front bulkhead is made with plastic, instead of steel, with an aluminum upper section, where the bulkhead is bolted

to the body. Aluminum is also applied extensively to the front and rear suspension and subframes (see CHASSIS for more detail).

# **LED Lighting**

The Clarity Plug-In Hybrid is equipped with a comprehensive range of LED exterior lighting. In front are large, bright LED DRLs, and high-low beams with nine LEDs per side. At the body corners are LED side marker lights, LED front turn signals and LED edge lights. Out back, LED taillights, turn signals and wing-shaped brake combination lights provide high illumination.

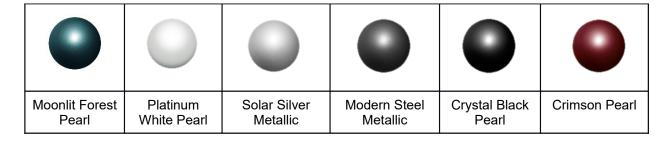
# **Smart Clear Wipers**

The Clarity Plug-in Hybrid uses new windshield wiper technology to deliver advances to improve the view from the driver's seat. The Clarity's Smart Clear Wipers deliver an 80-percent improvement in outward visibility during washing solution spraying, as well as a 50-percent reduction in washing solution usage for each operation, compared to traditional windshield wipers.

To improve driver visibility during washing solution spraying, the nozzle jets are located on the wiper blades themselves. The spraying pattern is thus reduced from a large surface to a line along the wiper blade and the time between spraying and wiping is also significantly reduced. For even greater efficiency, the jets adjust the amount of cleaning solution corresponding to the outside air temperature and vehicle speed.

#### **Exterior Colors**

The Clarity Plug-In Hybrid is available in six distinctive exterior colors (four pearl and two metallic) that match the vehicle's low-emissions operation and high-tech personality. Moonlit Forest Pearl is exclusive to the Clarity Plug-In Hybrid and highlights the car's surfaces in sunlight or shadow. Also available are Platinum White Pearl, Crystal Black Pearl, Crimson Pearl, Solar Silver Metallic and Modern Steel Metallic. All colors utilize a deep clear coat for a brilliant gloss.



### **CHASSIS**

The Clarity Plug-In Hybrid combines Honda's "fun to drive" DNA with a smooth, quiet and highly refined driving experience, aided by special engineering features including a low center of gravity and liquid-filled suspension bushings.

# **Low Center of Gravity**

In addition to its low body weight, the Clarity Plug-In Hybrid features a lower center of gravity than a typical internal-combustion engine sedan, resulting in a reduction in pitching motion while accelerating or braking, as well as a reduction in body roll when cornering. The resulting flat ride quality, combined with the seamless and immediate power of its electric motor elevates the Clarity Plug-In driving experience to near-luxury levels of refinement and response.



# Suspension

The Clarity Plug-In Hybrid's high-rigidity body structure provides a robust foundation for the suspension, which comprises lightweight front and rear subframes, a MacPherson front strut suspension and a five-link rear suspension. Special Frequency Response Dampers automatically tailor the damping force required to achieve smooth and nimble handling.

The lightweight front suspension utilizes forged aluminum lower arms and hollow cast iron steering knuckles that are 10 percent lighter than conventional solid cast iron knuckles and the lower arms use liquid-filled bushings to minimize unwanted noise, vibration and harshness. All of the rear suspension arms are made of forged aluminum, achieving a 40 percent weight reduction versus a conventional steel design.

The front subframe is a one-piece, hollow die cast aluminum component offering a 20 percent weight reduction versus conventional designs. The technique was developed though Honda's experience in the development of hollow aluminum motorcycle frame components.

#### Low NVH

Complementing the Clarity Plug-In Hybrid's sophisticated hybrid powertrain, the chassis is designed to provide a quiet and refined driving experience. The suspension and bushings deliver low harshness and a high level of smoothness compared to competitors, with the front suspension lower arms particularly engineered for high longitudinal and lateral rigidity, while liquid-filled bushings in the rear suspension provide

a high degree of longitudinal compliance and help block high-frequency noise, vibration and harshness.

# **Dual-Pinion Electric Power Steering**

Dual-pinion Electric Power Steering (EPS) provides quick, agile and smooth cornering response. Excellent steering linearity makes it easy for drivers to trace precise lines through corners, and the Clarity Plug-In Hybrid's low center of gravity and suspension geometry help keep body roll to a minimum.

### Wheels and Tires

The Clarity Plug-In Hybrid's 18-inch aluminum alloy wheels feature special outer aerodynamic covers that reduce drag and improve brake cooling. The lightweight wheels are painted silver and the aero covers are painted metallic gray for a dynamic and technologically advanced appearance. Specially designed 235/45R18 Michelin Energy Saver A/S tires provide an ideal combination of traction, low rolling resistance, and quiet and smooth driving characteristics.



# SAFETY AND DRIVER ASSISTIVE

The new Clarity Plug-in Hybrid shares its Advanced Compatibility Engineering<sup>™</sup> (ACE<sup>™</sup>) body structure and its suite of Honda Sensing<sup>®</sup> safety and driver-assistive technologies with the Clarity Fuel Cell and Clarity Electric.

### **Advanced Structural Safety**

A special steel unibody structure with a 2-system load path structure allows the Clarity Plug-In Hybrid to efficiently absorb front, side and rear crash energy, distributing crash

loads through the structure while helping to maintain the integrity of the passenger cabin. As in the Clarity Fuel Cell, the batteries are positioned in protective spaces under the floor to enhance collision safety performance.

Additional design highlights include:

- Frontal Crash Load Paths The front side frame, upper member and the front subframe are used to effectively disperse crash energy. In addition, the linkage
  - bracket located at the rear edge of the front subframe deforms to let the steering gearbox and other components slide back in a downward slope to protect the cabin in the event of frontal crash.
- Side Impact Load Paths The center pillar, floor cross-member and roof cross-member form a strong circular structure that effectively disperses and absorbs crash energy.
- Rear-end Crash Load Paths The impact absorbing member provided at the
  rear edge of the rear subframe is effectively crushed to absorb crash energy with
  a limited stroke.

# Advanced Compatibility Engineering™ (ACE™) Body Structure

The Advanced Compatibility Engineering<sup>™</sup> (ACE<sup>™</sup>) body-structure enhances occupant protection and crash compatibility in frontal collisions by distributing crash energy more evenly throughout the front of the vehicle.

# Honda Sensing®

The Clarity Plug-In Hybrid features the following suite of Honda Sensing® safety and driver assistive features:

- Collision Mitigation Braking System (CMBS) A millimeter wave radar unit and monocular camera scan traffic conditions ahead, and the system can alert the driver to take corrective actions to avoid a detected vehicle. CMBS can also apply automatic emergency braking action.
- Road Departure Mitigation (RDM) The system employs a monocular camera to identify lane lines and reflective markers, and then uses the Electric Power Steering (EPS) or Vehicle Stability Assist™ (VSA®) to help the Clarity Plug-In

Hybrid stay in a detected lane, or applies the brakes to help keep the vehicle from departing the roadway.

- Adaptive Cruise Control (ACC) with Low Speed Follow Allows the driver to set a desired speed and following interval from a vehicle detected ahead, allowing the use of cruise control in light traffic conditions.
- Lane Keeping Assist System (LKAS) Uses a camera to read lane markings and the Electric Power Steering (EPS) to assist the driver in maintaining position within a detected lane. This provides a less stressful driving experience by reducing steering correction movements.

In addition, standard Honda LaneWatch™ utilizes a camera located below the passenger-side exterior mirror to display a wide-angle view of the roadway on the touchscreen when either the right turn signal is activated or a button on the end of the turn signal stalk is pressed. And a multi-angle rearview camera, viewable on the touchscreen, can show a top view, normal or wide view when the transmission is in Reverse. To help the driver better judge distances, dynamic guidelines project the vehicle's future path based on the driver's steering inputs.

# **TRIMS**

The 2018 Clarity Plug-in Hybrid is available in two trims:

# Plug-In Hybrid – Key Features:

- 18" alloy wheels
- LED headlights, taillights & DRLs
- Auto on/off headlights
- Smart entry & start
- Honda Sensing<sup>®</sup>
- LaneWatch™
- Dual-zone automatic climate control
- Rear HVAC vents
- 60/40 folding rear seat
- 8" Display Audio
- 8-speaker 180W audio
- Bluetooth HandsFreeLink<sup>®</sup>
- Rearview camera
- Heated front seats

# <u>Touring Add the Following Features:</u>

- Satellite-based navigation
- Leather-trimmed seating
- Leather-wrapped steering wheel
- 8-way power driver seat

- 2-way memory driver seat
- 4-way power passenger seat

# **ACCESSORIES**

Available accessories for the 2018 Clarity Plug-In Hybrid include:

- 18" Alloy Wheel
- Decklid Spoiler
- Lower Chrome Door Garnish
- Illuminated Side Sills
- Ambient Lighting
- Back Up Sensors
- Splash Guard
- Body Side Molding
- Door Edge Film
- Rear Bumper Applique
- Wheel Locks
- Car Cover
- All-Season Mats
- Trunk Tray
- Rear Seat Cover
- Trunk Shelf Organizer
- Cargo Net
- Cargo Hook
- Center Console Mat
- Engine Block Heater
- Ash Tray

Based on 2018 model-year EPA ratings. Use for comparison purposes only. Your MPG/MPGe and range will vary depending on driving conditions, how you drive and maintain your vehicle, lithium-ion battery pack age/condition and other factors.

