

## ADDING ELECTRIC VEHICLE-READY PARKING SPACES TO NEW HOMES MEETS HOMEOWNER NEEDS, LOWERS ENERGY USE, AND REDUCES GREENHOUSE GAS EMISSIONS

**Transportation is the largest source of greenhouse gas emissions in the U.S.** Electric vehicles (EVs) are the most promising clean and energy-efficient solution to reducing energy use and carbon emissions from the sector.

**EV ownership is predicted to increase dramatically over the next decade and facilities to charge these vehicles at home need to match demand.** According to the Edison Electric Institute and the Institute for Electric Innovation, about seven million EVs could be on U.S. roads by 2025.<sup>1</sup> However, a key barrier to EV adoption is the high cost and hassle of retrofitting a home for EV charging equipment. We are building homes today that are almost certainly going to need retrofits in coming years to meet consumers' demand for EV charging capabilities.

**Making new homes EV-ready from the start is a cost-effective alternative to expensive retrofits.** About 80 percent of homeowners prefer to charge their EVs at home.<sup>2</sup> But it is far more expensive to retrofit a home to accommodate charging equipment than it is to include the necessary electrical panel capacity and EV-ready circuitry at the time of its construction.

- Research shows that *the incremental cost of making a new home EV-ready can be as low as \$40.*<sup>3</sup>
- EV-ready retrofits to existing homes, by contrast, can cost anywhere from \$1,500-\$4,000.<sup>4,5</sup>
- Moreover, retrofits in certain jurisdictions also require *permit fees which can cost up to \$50 and engineer-drawn plans which can cost up to \$200.*<sup>6</sup>

**EV-ready homes will help lower total monthly energy costs.** On average EVs are *more than three times more efficient* than conventional gasoline-fueled counterparts. When compared over the total lifecycle of fuel production and use, the average EV emits *less than half the greenhouse gas emissions* of a conventional vehicle.<sup>7</sup>

**The 2021 International Energy Conservation Code is the best opportunity to make new homes EV-ready.** To get ahead of the increase in EV ownership expected by 2025, the next version of the International Energy Conservation Code (IECC)—should be updated to include an EV-readiness requirement.

**A proposal from the Energy-Efficient Codes Coalition would add EV-readiness to the 2021 IECC.** The Energy-Efficient Codes Coalition, a project of the Alliance, has proposed RE146, which would add up-front installation of necessary electrical panel capacity and EV-ready circuitry to the 2021 IECC. Approval of RE146 would remove the technical and financial burden of EV-charger retrofits thereby encouraging more drivers to purchase EVs – helping state and local governments deliver on their climate goals by reducing total energy use and greenhouse gas emissions.

---

<sup>1</sup> Edison Electric Institute and Institute for Electrical Innovation, 2018, "Electric Vehicle Sales Forecast and the Charging Infrastructure Required Through 2030," [http://www.edisonfoundation.net/iei/publications/Documents/IEI\\_EEI%20EV%20Forecast%20Report\\_Nov2018.pdf](http://www.edisonfoundation.net/iei/publications/Documents/IEI_EEI%20EV%20Forecast%20Report_Nov2018.pdf).

<sup>2</sup> U.S. Department of Energy, "Charging at Home," <https://www.energy.gov/eere/electricvehicles/charging-home>.

<sup>3</sup> Morris, John, 2016, "Understanding Potential Implications of Electric Vehicle Charging on Residential New Home Construction in the Northwest," Northwest Energy Efficiency Alliance and Morris Energy Consulting.

<sup>4</sup> Electric Power Research Institute, 2013, "Electric Vehicle Supply Equipment Installed Cost Analysis," <https://www.epri.com/#/pages/product/000000003002000577/?lang=en-US>.

<sup>5</sup> Energy Solutions, 2016, "Plug-In Electric Vehicle Infrastructure Cost-Effectiveness Report for San Francisco," City and County of San Francisco, <http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf>.

<sup>6</sup> Realtor.com, November 2017, "Electric Car Charger Installation in Your Home: True Costs—and What You Need to Know," <https://www.realtor.com/advice/home-improvement/installing-electric-vehicle-charger/>.

<sup>7</sup> Nealer, R., David Reichmuth, and Don Anair, 2015, "Cleaner Cars from Cradle to Grave: How Electric Cars Beat Gasoline Cars on Lifetime Global Warming Emissions, Union of Concerned Scientists, <https://www.ucsusa.org/clean-vehicles/electric-vehicles/life-cycle-ev-emissions>.