



**10/30/2024**

## **Challenges Facing Installation and Infrastructure**

### **Agenda:**

- **Bulldog Energy Solutions**
- **Residential EV**
- **Commercial EV**
- **Questions**

**Who is Bulldog Energy?** Bulldog Energy Solutions is an Electrical Contractor specializing in Sustainable Energy Projects.

- **Commercial lighting**
- **Refrigeration**
- **Controls**
- **EV Charging**

### **Residential EV Charging**

So, we are here today because we have an agenda to promote driving electric vehicles to lower emissions. We speak a lot about the environmental reasons folks should trade in their ICE (Internal Combustion Engine) car for an electric car. But how can we really change behavior?

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I looked at several polls taken regarding why people switched to an Electric Vehicle (EV).

1. Tax Credits and Rebates
2. Save Money on Fuel and Maintenance
3. FUN...FUN...Fun and Style
4. Convenience
5. Eco -Friendly

We have installed over 500 Residential Chargers in a little over two years. When I ask folks if they like their new EV...it is a resounding “I love It”. Like a Smart Phone. No one ever says they want their old flip phone back.

When you buy an ICE car you don't have to consider how you are going to get fuel. It is on every corner. However, when you purchase an EV, you really need to prepare for “How will I Charge my EV”. 80% of EV charging occurs at the Home, but very few people have considered if their home is ready for an EV. Do I have the electrical capacity? They are sometimes shocked to discover that getting their EV ready to charge at home can be very expensive.

Panels range from 100 to 200 AMPS. From our experience, most panels are 150 AMPs. When we approach these jobs, we perform a “Load Calculation. We are looking for existing usage.

- ✓ Electric Dryer 50 amps
- ✓ Electric Range 40 amps
- ✓ AC, varies, between 30 and 40 amps
- ✓ Hot Tub 50 amps
- ✓ Swimming Pool (15 to 50 amps with pool heater)
- ✓ Lights and receptacles, 15 and 20 amp circuits

A Level II Charger will need 50 amps. So, you can see space is a consideration. Both physical and amperage. Just because you have blank checks doesn't mean there is any money in the account. Below are some pics of different scenarios.



Our mission is to find the most efficient and economical way to get the Homeowner a Level II Charge at a reasonable cost. How?

- ✓ Relocate breakers in the panel if necessary.
- ✓ Combine circuits and install “Quad “breakers
- ✓ Add a Load Controller
- ✓ Convince the Homeowner to “derate” the Charger
- ✓ Panel upgrade (bummer)



## **Panel Upgrades are Costly starting at around \$5,000**

The standard upgrade is for a 200 AMP panel. Electrical CODE drives up the cost of upgrades. Anything higher than a 200 amp panel will require engineering and will be very costly. It may require a transformer upgrade.



## FUTURE

- + A second Household EV will be very problematic
- + New technology is on the way
- + Smart Panels
- + Load Controllers
- + Battery Backup
- + Other New Technologies
- + Massive Energy Opportunities on the
- + Road
- + Tesla Cybertrucks



## Challenges:

1. Qualified Electricians (Massive Shortage)
2. Training for New Hires
3. Supply Chain Shortages (Panels, gear, etc)
4. Incentives for Hardware (Exist with PNM)
5. Incentives for Installation (Exist with PNM)
6. **NO INCENTIVE FOR COMMERCIAL CHARGERS**



# Commercial

## We Dig Big Holes



**We currently have three Commercial Projects underway. A Car Dealership and two Multi-Family properties.**

**Multi-Family Homes are SO Important as 30% of New Mexicans call them Home. We really need to focus on Multifamily Housing to serve our communities.**

**The Challenge for Multifamily Communities is the Capital Outlay needed to fund these Projects. It is difficult to show a Revenue Stream and so early adopters are viewing these Projects as Amenities, much like a swimming pool.**

**The Best Way...**





We have found the best way to power EV's at multi-family communities is to pick a Transformer and set a meter and panel next to it.



It is then a relatively short distance to the EV Chargers.

These are images from a recent Completion.





Installing Chargers in a Commercial setting is a daunting task.

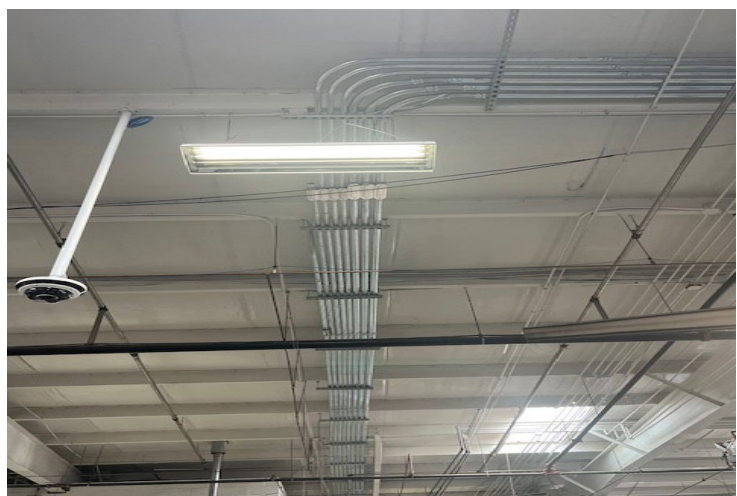
- ❖ Utility Applications
- ❖ Permitting
- ❖ Engineering
- ❖ Long Material Lead Times
- ❖ Very Expensive

Our current Car Dealership Project has over 120 material line items. An item of piece of metal \$138. We have 18 panels and Project has a 45 utility is installing a the pad and poured the concrete. There are a lot of moving parts.



note is a 4” 90 Degree conduit. Each piece is on this Project. The transformer on this day lead time at best. The new transformer. We built

The point is that these Projects are long and expensive.





## BES Capabilities:

- PNM Authorized Program Partner
- General Contracting Capabilities and Site Planning
- Electrical Contracting and Engineering
- Permitting
- Qmerit Certified Solutions Provider
- Tesla, GM and Ford Certified
- Equipment (Chargers, Panels, Batteries, ETC...)
- Turnket (Concrete, Asphalt, Signage, Stenciling, Lighting, Fencing, Bollards, Parking Stops)
- Site Management, Partnering, and Revenue Sharing
- Rebate Management
- Investor

**Questions?**