# NAVIGANT RESEARCH INTRODUCTION

## NAVIGANT RESEARCH PROVIDES IN-DEPTH ANALYSIS OF GLOBAL CLEAN TECHNOLOGY MARKETS.

The team's research methodology combines supply-side industry analysis, end-user primary research and demand assessment, and deep examination of technology trends to provide a comprehensive view of the Energy Ecosystem.

### RESEARCH PROGRAMS:

**Energy Technologies**
**Utility Transformations**
**Transportation Efficiencies**
**Building Innovations**

### RESEARCH OFFERINGS:

**Research Reports**

**Subscription Research Services**

**Custom Market Research**

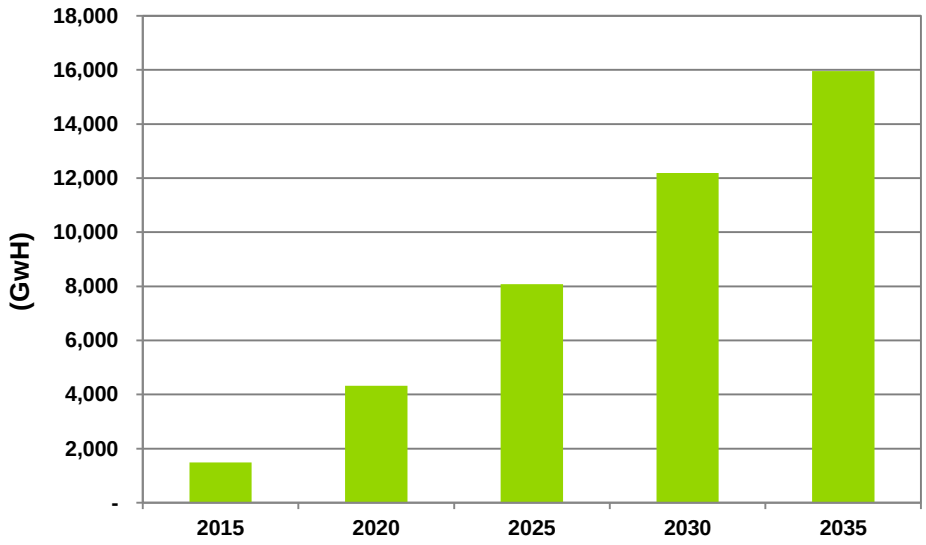
- Custom Market Analysis
- Market Sizing and Forecasting
- Primary Research
- Go-to-Market Services
- Strategic Advisory Sessions
- Commercial Due Diligence
- Technology Evaluation

# LOAD GROWTH – TEN FOLD BY 2035

- With appropriate management and incentives, PEVs are the largest opportunity to add load without expanding or extending peak

**Road Transportation Electricity Consumption, United States: 2015-2035**




*(Source: Navigant Research)*

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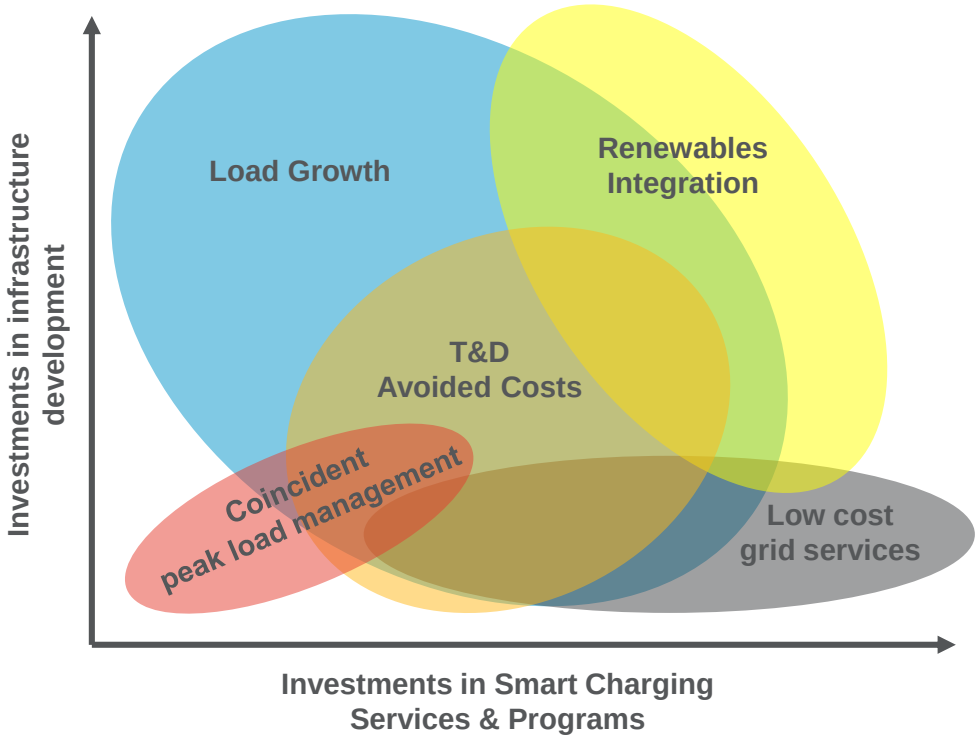
# EVALUATING PEV IMPACTS ON CUSTOMERS

- PEV owners can lower monthly bills by signing up for TOU rates for PEV and other energy needs
  - Demand charges can more than offset all other savings
- Residential solar can be synched to EV charging with greater value than net metering
- Greater utilization of fixed assets and baseline generation can lower cost per kWh of operations
  - KCP&L was successful in getting EV charging investment rate-based because of broader customer benefits

*(Source: Navigant Research)*

# PEV LOAD HAS POTENTIAL FOR MANY USES




## GRID SERVICE USES

- Real-time energy balancing
- Peak-shaving load shift
- Distribution peak capacity support
- Time-of-use (TOU) energy management
- Power quality
- Backup power
- Supply firming
- Frequency regulation

## SECONDARY BENEFITS

- Reduced fossil fuel use
- Power factor correction
- Over-generation management
- Faster regulation
- Faster build time
- Locational flexibility
- Multisite aggregation
- Grid/communications reliability

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# PEV CHALLENGES FOR UTILITIES

| Considerations | | Key Challenges | |
|---|---|---|---|
| Market | Customers | **Expectations and Economics.** Increasingly sophisticated, early adopter energy customers expect increased self-service for new programs and services as falling equipment costs incent them to organically adopt PEVs |
| Physical | Assets | **Asset Impacts.** Existing infrastructure was not designed for load impacts of organic PEV adoption, impacting grid reliability and affordability |
| Physical | Systems | **Systems Impacts**. Organic PEV adoption affects front- and back-office customer operations that are not designed for distribution side, behind-the-meter generation, impacting customer service and affordability |
| Financial | Finance | **Ownership.** Unclear whether regulated or unregulated business models for PEV programs and services offer best ratepayer and shareholder returns. |
| Financial | Policies & Regulations | **Rigid Regulatory Environment.** New policy goals aim to drive adoption, but existing regulatory structures constrain utility flexibility to adapt programs, services, systems, and assets to organic PEV adoption, threatening grid reliability and affordability |

 

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