About Center for Climate and Energy Solutions

• Independent, nonpartisan, nonprofit organization

• Working to advance strong policy and action to address the twin challenges of energy and climate change

• Founded in 1998 as the Pew Center on Global Climate Change

• Became C2ES in 2011
NASEO and C2ES, with funding from U.S. Department of Energy’s Clean Cities Program, began this project in early 2013.

Transportation Energy Partners (TEP), New York State Energy Research and Development Authority (NYSERDA), and Colorado Energy Office are partners on this project.

Goal: Develop strategies to demonstrate and advance new business models for AFVs and fueling infrastructure.

Apply lessons learned from use of financial mechanisms in other sectors to accelerate AFV deployment.

Convening the AFV Finance Advisory Group, a diverse group of finance professionals, automakers, infrastructure providers, and public officials.

Producing original research and conducting stakeholder engagement and advising.
Explores how energy service providers (ESPs) could offer ESCO-like services to help advance fleet natural gas vehicles (NGVs) and refueling infrastructure deployment

Identifies opportunities and challenges for both ESPs and fleets

Analyzes case studies of companies offering these services

Summarizes business opportunities and provide recommendations for businesses and policymakers
Case Studies of Application for NGV Fleets

• Private fleet fueling services
  • Trillium CNG fueling infrastructure contract with a major retail food chain

• Private fleet NGV and fueling services
  • GE Capital and Clean Energy natural gas truck agreement

• Public fleet contracting
  • Johnson Controls CNG school bus performance contract with the Rose Tree Media School District
• NGV fleet projects share opportunities and barriers with building EERE projects and NGV services could be a new business opportunity for ESPs to offer to new and existing customers

• While ESCO-like services are not a perfect fit for NGV projects, they could be adapted to be beneficial

  1. Identification and evaluation of project opportunities
  2. Performance guarantees
  3. Management of technology transition
  4. Alternatives to equipment ownership
  5. Bundling projects into a portfolio
  6. Partnership facilitation

• Public and institutional sector fleets more likely than commercial fleets to demand more ESCO-like services built around performance contracting

• In some states, policy changes may be needed to apply ESCO models to fleet NGV projects in the public sector
• Explores how public-private finance programs could help reduce the barriers to EV charging infrastructure

• Identifies the short term and long term opportunities and challenges for EV infrastructure and financing solutions

• Provides an overview of existing and proposed clean energy banks (CEBs) and other government financing programs that could be applicable to AFVs

• Summarizes available financial program options and provides recommendations for policymakers
Financial Tools for EV Charging

• **Short and medium term**
  
  • Sharing upfront costs and risk with project developers
    – Grants and rebates
    – Public private partnerships
  
  • Expanding EV charging developers’ access to attractive financing options
    – Direct lending
    – Interest rate buydowns
    – Credit enhancements
    – Alternative collateralization and repayment mechanisms

• **Long term**

  • Increasing capital flows by fostering the development of secondary markets for EV charging loans and leases
• Public-private finance programs could help EV markets overcome the limitation currently posed by insufficient access to EV charging infrastructure

• No CEBs have yet focused on the deployment of EV infrastructure, but many of their tools could be applicable

• States could gain experience applying financial tools to increase private investment in EV charging infrastructure by using existing funding sources and authorities to launch pilot programs

• It is valuable for CEBs and other clean energy financing programs to be empowered with a range of tools and to retain flexibility
Designing public programs to increase private sector investment in EV charging infrastructure

• Funding pools from private stakeholders for public EV charging
• Public-private partnerships for public EV charging
• Community-based marketing for EVs (and coordinated EV charging station deployment)

Implementing NGV fleet projects using the energy service company model

• Public school district school bus fleets
• Public fleets of light- and medium- duty service vans and trucks
• Private tractor-trailer fleets