EVICC - Second Assessment - Working Outline

I. Executive Summary[1]

- A. Summary Background (i.e., summary of Sections II and III)
  1. EVICC and Second Assessment context
  2. EV charging policy and program context
- B. Summary of Current EV Charging Progress and Deployment
  1. Key stats on:
     a) The number of publicly available charging stations
     b) The geographic dispersion of public chargers
     c) The deployment rate of public chargers
- C. Summary of EV Charging Needs through 2035
  1. Summary EV charger needs projections in 2030 and 2035
  2. Takeaways on high priority areas for deployment
  3. Takeaways on gaps between current deployment and 2030/2035 needs
- D. Summary Recommendations to Meet 2030 / 2035 EV Charger Needs[2],[3]

II. Purpose and Context

- A. EVICC Background
  1. First EVICC assessment
     a) Progress on recommendations from first EVICC assessment
  2. New EVICC responsibilities
- B. Policy Background
  1. 2025/2030 Clean Energy and Climate Plan (CECP) electric vehicle (EV) and charger targets
     a) Update to CECP EV charger targets
  2. Regulatory context
     a) Advanced Clean Cars II
     b) Advanced Clean Trucks
        (1) Recent waivers
- C. Development of Second Assessment

[1] The Executive Summary will be developed as both a standalone product and as the introduction to the broader EVICC Assessment.

[2] Clear and concise articulation of EVICC's plan to ensure an equitable, interconnected, accessible, and reliable EV charging network in 2030 and 2035.

[3] Each recommendation needs to include: which state agency or agencies will support / lead implementation (as appropriate) and the role of EVICC, local/regional governments, private companies, and electric utilities.

III. Current EV Charging Programs and Initiatives

A. State and utility EV charging incentive programs[4]
    1. MassDEP EVIP
    2. Utility make-ready programs[5]
    3. State fleet charging programs
        a) Overview
        b) Details on ARPA funds disbursement
    4. Summary Matrix of Programs
B. State work on federal programs
    1. National Electric Vehicle Infrastructure (NEVI) Formula Program
        a) Deerfield (CFI reclassified as NEVI)
    2. Charging and Fueling Infrastructure (CFI) Grant Program
        a) Brief summaries of each project (DCR, MBTA, Boston)
C. Massachusetts Clean Energy Center Innovative Programs
    1. Curbside charging
        a) Summary
        b) Lessons learned (to date)
    2. Transportation Network Company charging hubs
        a) Summary
        b) Lessons learned (to date)
    3. Vehicle-to-grid
        a) Summary
        b) Lessons learned (to date)
    4. Mobile charging for medium- and heavy-duty
        a) Summary
        b) Lessons learned (to date)
D. Other efforts
    1. Advanced Energy Group medium- and heavy-duty working groups
    2. MassCEC and EDC Fleet Advisory Services
    3. Other notable EV charging efforts in Massachusetts
        a) Boston curbside charging program
        b) Concord multi-unit dwelling pilot

IV. EV Charger Deployment

A. Current State of Deployment
    1. Total number and location of public EV chargers as of June 30, 2025
        a) Public charger data from U.S. Department of Energy Alternative Fuel Data Center

[4] The introduction to this section will need to note that it only covers EV charging programs and that information on vehicle-specific programs is included in the Appendix.
[5] This section will need to note that utility managed charging programs are addressed in a later section.

b) Supplemental charger data from state incentive programs and other state initiatives:
    (1) MassEVIP program
    (2) Leading by Example program
    (3) Utility programs (e.g., make-ready) and connection process
    (4) MassDOT and MBTA
    (5) DCAMM
    (6) Other data sources

2. Total number and location of workplace, fleet EV, and other commercial chargers as of June 30, 2025
    a) Charger data from U.S. Department of Energy Alternative Fuel Data Center
    b) Supplemental charger data from state incentive programs and other state initiatives:
        (1) MassEVIP program
        (2) Leading by Example program
        (3) Utility programs (e.g., make-ready) and connection process
        (4) MassDOT and MBTA
        (5) Division of Capital Asset Management and Maintenance
        (6) Other data sources
3. Total number and location of residential chargers as of June 30, 2025
    a) Charger and vehicle data from state incentive programs and other state initiatives:
        (1) Utility programs (e.g., managed charging) and connection process
        (2) MOR-EV program
        (3) Massachusetts Vehicle Census
        (4) Other data sources
4. Additional EV charger deployment data (as time allows / possible)
    a) Charger deployment data by state, utility, federal program
    b) Public versus private ownership
    c) Charger utilization data

B. Key Access Considerations
1. Environmental Justice (EJ) populations
    a) Overview of EJ community siting resource (full resource in Appendix)
2. Rural communities
3. Multi-family w/o off-street parking
4. Medium- and heavy-duty vehicles
    a) Vehicle duty cycle differences
    b) Fleet depots versus major corridor charging

C. Analysis of Necessary Types and Geographic Dispersion of EV Chargers to Meet Climate Goals in 2030 and 2035
    1. Overview of methodology (detailed methodology in Appendix)
        a) Overview of how other work was incorporated, including NFCCP, fleet locations identified by utilities, MBTA, others, and NEVI sites, alternative fuel corridors, and other major thoroughfares not prioritized by federal funding opportunities
    2. Detailed Results for 2030 and 2035
        a) Relevant information from the CECP
    3. Summary takeaways of key areas for EV chargers in 2030 and 2035
    4. Results for key access consideration areas (EJ communities, rural communities, multi-family w/o off-street parking, and medium- and heavy-duty vehicles)
D. Identification of Areas for Improvement in Deployments
    1. Analysis of total deployment trends
    2. Analysis by charger type, vehicle type, customer segment, geographic segment, etc.
E. Analysis of the Effectiveness of Existing Programs in Addressing Identified Gaps
F. Recommendations to Address Areas for Improvements
    1. Recommendations related to existing programs / initiatives (e.g., how could existing programs be better leveraged to address gaps)
    2. Recommendations for new programs / initiatives
        a) For example: establish EV-truck accessible charging hubs near existing industrial parks/fleet depots in MA?
        b) For example: City-wide curbside charging reservation program pilots?
    3. Recommendations for additional process / analysis / data collection
        a) For example: develop guidance for municipalities on the types of chargers best suited for their town (e.g., what types of chargers do urban, suburban, rural, etc. areas need)

V. Electric Grid Impacts and Managed Charging

A. Summary of transmission and distribution (T&D) impacts, challenges, alternatives
    1. Impacts and challenges
        a) Highlight fleet depot and highway corridor considerations
    2. Alternative solutions (e.g., managed charging, non-wires solutions, etc.)
B. Overview of relevant T&D infrastructure upgrade processes
    1. Customer Focused Processes
        a) Customer connection process (e.g., load letter process)
        b) Utility load forecasting and customer engagement efforts
    2. Regulatory Processes
        a) Electric Sector Modernization Plans
        b) Section 103 of the 2024 Climate Law

(1) Details of the process after the issuance of the Second Assessment

c) Long-Term System Planning Process

C. Managed charging and load shifting programs
   1. Current EDC and MLP program overview
   2. Best practices overview
   3. Necessary program development, approval, and implementation (e.g., internal utility processes, stakeholdering, regulatory approval processes, and program execution)
   4. Identification of areas for improvement in existing programs

D. Identification of areas likely requiring grid updates
   1. Likely upgrades broken down by:
      a) Major corridor charging
      b) Fleet depots
      c) Residential
      d) Commercial

E. Recommendations (including minimizing costs to ratepayers)
   1. Cost-related recommendations
      a) EDC managed charging programs
   2. Grid upgrade related recommendations

VI. Consumer Charging Experience

A. User experience objectives
   1. **Drivers:** A seamless and intuitive charging process enhances satisfaction and encourages EV adoption. Complicated interfaces or unreliable services can deter potential users.
   2. **Station Owners:** Positive user experiences attract repeat customers and build brand loyalty, potentially increasing revenue.
   3. **Policy Makers:** Ensuring accessible and user-friendly charging supports adoption goals by promoting EV usage.

B. Overview of key consumer experience considerations and why they matter, including the current (real and perceived) state of each
   1. Reliability
   2. Data sharing
   3. Charger registration
   4. Consumer disclosure and payment, including ease of payment and roaming agreements
   5. Operational standards
   6. Amenities at charging locations
   7. Other consumer protections
      a) ADA compliance
      b) Parking spacing
      c) Charge fee types
      d) Signage

C. Summary of current and proposed charger reliability, registration, data sharing, and operational standards
    1. Overview of best practices
        a) Summary of best practices
        b) Industry examples
    2. Summary of current legislative and regulatory requirements
        a) State
            (1) EV Charger Utilization, Reliability, and Data Sharing Regulations (Sections 5 and 110 of Chapter 239 of the Acts of 2024)
                (a) Overview of draft regulations or status of regulatory process
            (2) EV Charger Inventory and Accuracy Standards (Sections 42 and 110 of Chapter 239 of the Acts of 2024)
                (a) Overview of draft regulations or status of regulatory process
            (3) Public charger disclosure requirement (M.G.L. Chapter 25A § 16)
        b) Federal
            (1) National Electric Vehicle Infrastructure Program (NEVI) Formulate Grant Program
    3. State program requirements
        a) Massachusetts Electric Vehicle Infrastructure Program (EVIP)
        b) Requirements for chargers at state facilities
        c) Utilities
    4. Other states
        a) California regulations on reporting, utilization, and reliability requirements
        b) New York Level 3 incentive program reliability requirements
D. Background on EVICC Technical Committee
    1. Purpose of committee; membership
    2. Summary of discussions and resulting proposals
E. Summary of existing consumer resources
    1. Charger apps and website resources for consumers
        a) Charging Network Apps (e.g., PlugShare, ChargePoint): Provide real-time information on charger locations, availability, and user reviews.
        b) Navigation System Integration (e.g., Tesla, Google Maps): Enables seamless route planning with charging stops.
        c) Subscription Services (e.g., Electrify America Pass): Offer discounted rates and exclusive access to networks.
        d) Customer Support Lines: Provide assistance for technical issues or billing questions.

e) Educational Materials (e.g., how-to guides, tutorials): Help new EV drivers understand charging processes and options.
f) Government Resources and Incentives Information
(1) EV pages on MassCEC's Clean Energy Lives Here website and call center
(2) EV Charging Station Owner-Operator Resources developed by EVICC Technical Committee

F. Recommendations
1. Reliability standards recommendations (if any)
2. Data sharing recommendations (if any)
a) For example: working with Google and others to provide clear pathways (e.g., template APIs) for EV charging data to be made available on common map apps
3. EV charger registration and/or inventory recommendations (if any)
4. Consumer disclosure and payment recommendations (if any)
5. Operational recommendations
a) For example: develop guidance for site owners on the types of chargers best suited for different applications

VII. EV Charging Technology and Business Model Innovation
A. Overview of Current Charging Business Models
1. Summary of model types
a) Host-Owned
b) Public Ownership
c) Utility-Owned
d) Charge Point Operator (CPO)
e) Franchising, Advertising & Sponsorship
f) Charging as a Service (CaaS)
2. Benefits and barriers of current models
B. Overview of Novel Business Models
1. Examples of novel models and the challenges they address
a) Turnkey Solutions
b) Dynamic Pricing Strategies
c) Mobile Charging Services
d) Energy-as-a-Service
2. Benefits and barriers of new models
C. Overview of Emerging EV Charging Technologies
1. Battery innovations
a) Longer-lasting, faster-charging batteries with greater energy density.
2. Charging technology advances
a) Ultra-fast chargers, bidirectional and wireless charging.
3. Customer experience enhancements

        a) User-friendly apps, real-time availability tracking, and reservation systems.
    4. Smart charging solutions
        a) Load balancing, demand response systems, and AI-driven optimization.
    5. Storage integration
    6. Renewable energy integration
        a) Solar-powered charging stations
D. Concerns and Potential Solutions for EV Charging Business Models
    1. Infrastructure Costs
        a) Challenge: Expensive equipment and installation for high-capacity stations.
        b) Solutions: Government grants, public-private partnerships, and scalable modular designs.
    2. Local permitting / site host identification
        a) Challenge: The local permitting process can be difficult and time consuming, and is different in all 351 Massachusetts municipalities. This can make it even more difficult to secure willing site hosts.
        b) Solutions: Provide municipalities with model local EV charging permitting processes.
    3. Energy Pricing
        a) Challenge: Variable electricity rates affecting profitability.
        b) Solutions: Dynamic pricing, time-of-use tariffs, and renewable energy integration.
    4. Utilization Rates
        a) Challenge: Low usage can deter investments.
        b) Solutions: Target high-demand areas; incentivize off-peak usage.
    5. Revenue Streams
        a) Challenge: Reliance on charging fees; limited diversification.
        b) Solutions: Subscriptions, advertising, retail partnerships, and ancillary services.
    6. Consumer Convenience
        a) Challenge 1: Long charging times and limited station availability.
        b) Solutions: Deploy faster chargers and better station coverage.
        c) Challenge 2: Multiple apps and difficult payment processes.
        d) Solutions: Allowing NFC payments and roaming agreements between charging networks.
    7. Interoperability
        a) Challenge: Compatibility issues across networks and vehicles.
        b) Solutions: Use open standards and prioritize cross-network compatibility.
    8. Grid Dependency
        a) Challenge: Strains on local grids due to high-energy demand.

b) Solutions: Deploy energy storage, solar power, and microgrids.

9. Government Incentives
    a) Challenge: Uncertain long-term policy and funding.
    b) Solutions: Proactively align projects with government priorities and funding opportunities.
10. Technology Evolution
    a) Challenge: Rapid obsolescence of charging infrastructure.
    b) Solutions: Modular designs to accommodate evolving technology.
11. Battery Advancements
    a) Challenge: Reduced charging frequency due to longer EV ranges.
    b) Solutions: Diversify with ultra-fast chargers and portable charging units.
12. Sustainability
    a) Challenge: Increasing demand for renewable energy and carbon-neutral solutions.
    b) Solutions: Integrate renewable energy and carbon offset programs.
13. Cybersecurity
    a) Challenge: Vulnerabilities in networked charging systems.
    b) Solutions: Implement robust security measures and regular updates.
14. Supply Chains
    a) Challenge: Limited availability of critical components like semiconductors.
    b) Solutions:Diversify suppliers and invest in local manufacturing capacity.

E. Recommendations
1. Potential partnership recommendations (if any)
    a) Develop public-private partnerships to share costs and risks.
    b) Help facilitate the development of roaming agreements with other charging networks.
2. Potential pricing recommendations (if any)
    a) Establish flexible pricing models, such as time-of-use and demand-based pricing.
3. Potential data management recommendations (if any)
    a) Invest in real-time data systems for monitoring and performance optimization.
4. Potential siting recommendations (if any)
    a) Explore co-location with retail, dining, and entertainment to drive utilization and economic development.
    b) Aid municipalities in establishing streamlined and consistent EV charging permitting processes
5. Standards and policy alignment

        a) Standardize policies across states to reduce regulatory inconsistencies.
    6. Financing
        a) Encourage innovative options, such as green bonds and community funding.

VIII. Summary/Conclusion

IX. Appendices

A. Detailed 2030 and 2035 EV Charger Needs Projections Methodology
B. One-Page Summary Existing State EV-Related Programs by Program Type (e.g., Make-Ready, Vehicle, and Charger Incentive Programs)
C. Charging Fee Principles, Inclusive of Common Fee Structures and Level of Fess, and Other Educational Materials for EV Charging Customers and EV Charger Site Hosts
D. EJ Community Siting Guide
E. Summary Status of Recommendations from First Assessment
F. Information on EV programs and initiatives (e.g., MOR-EV, Accelerating Clean Transportation (ACT) School Bus, state employee domicile EV policy, etc.)