MARYLAND ZERO EMISSION

Electric Vehicle Infrastructure Council

May 15, 2025

Agenda

- Welcome and Public Comments
- Maryland By the Numbers
- 2025 Maryland General Assembly Legislative Session Recap
- Electricity Distribution System Planning – Implications for EV Charging Infrastructure Deployment
- State Agency Announcements and Updates
- EV Phase 2 Program – Milestones Update
- Closing Remarks

Welcome and Public Comments

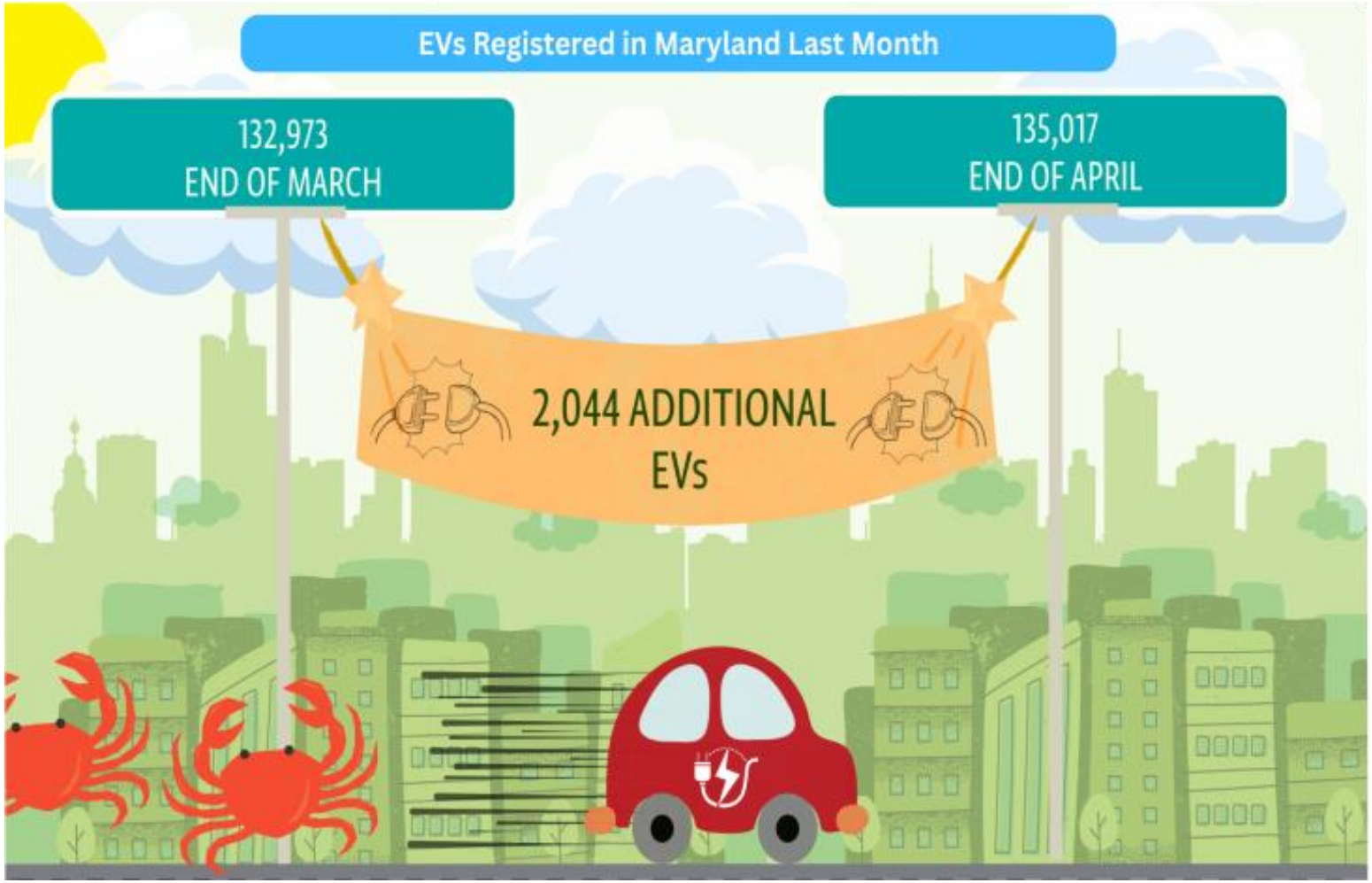
Deron Lovaas, ZEEVIC Chair & MDOT Chief of Environment and Sustainable Transportation

Public Comments

Maryland By the Numbers

Rebecca Bankard, MDOT/MBI

Maryland By the Numbers



Maryland By the Numbers*:

- **135,017** Registered EVs
- **21.9** EVs per 1,000 people
- **1,495** Charging Stations
- **4,373** Ports
- **0.71** Ports per 1,000 people

*As of April 30, 2025

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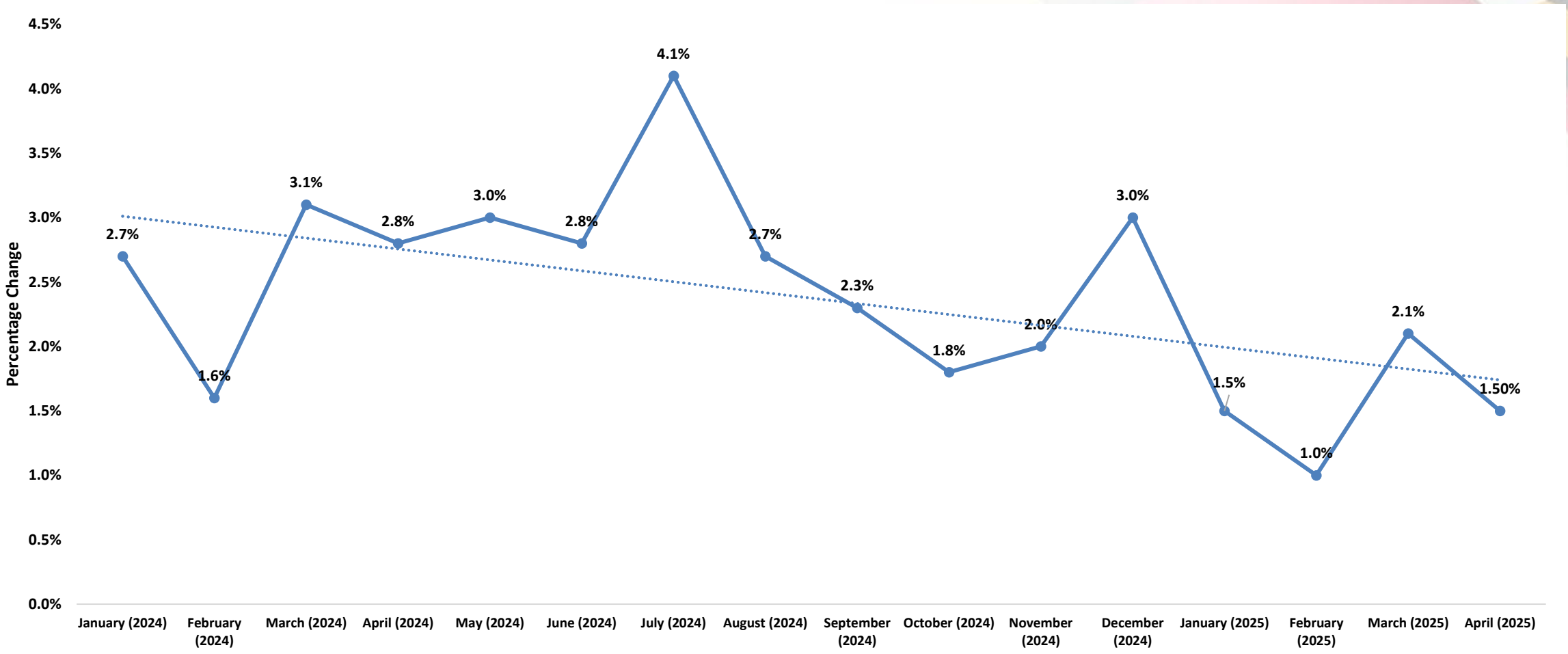
Electric Vehicle Infrastructure Council

Percentage Monthly Change in Electric Vehicle Growth (January 2024 to April 2025)



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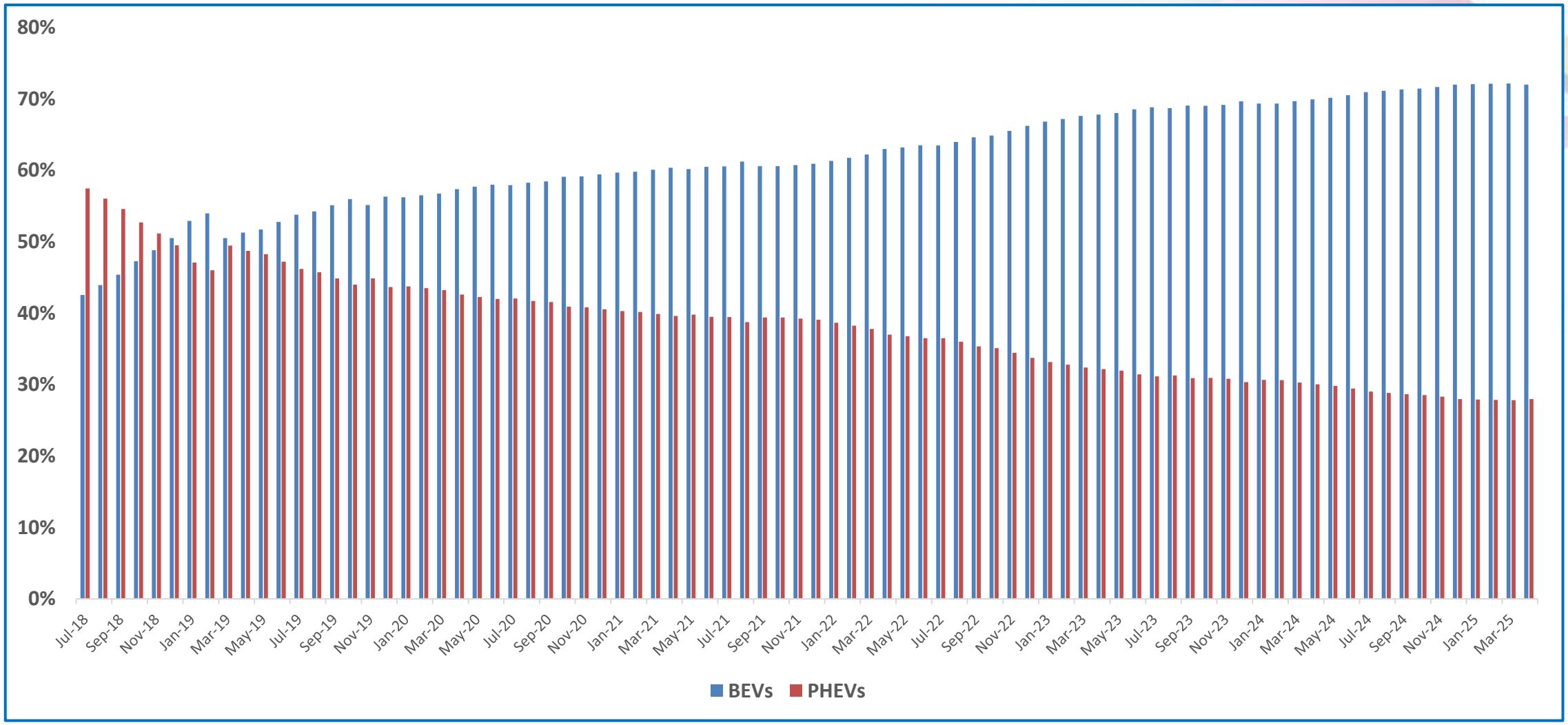
Monthly BEV and PHEV Percentage Comparisons (July 2018 to April 2025)



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2025 MGA Legislative Session Recap

Sophia Cortazzo, MDOT

2025 MGA Passed ZEV Legislation

Bill #	Bill Title and Synopsis	ZEEVIC Position
HB 0128 SB 0149	**Originally Proposed:** Responding to Emergency Needs from Extreme Weather (RENEW) Act of 2025 Establishing the Climate Change Adaptation and Mitigation Payment Program in the Department of the Environment to secure payments from certain businesses that extract fossil fuels or refine petroleum products in order to provide a source of revenue for State efforts to adapt to and mitigate the effects of climate change and to address the health impacts of climate change on vulnerable populations; establishing the Climate Change Adaptation and Mitigation Fund to support efforts to mitigate the effects of climate change; etc. **As Passed (NEW TITLE):** Climate Change Adaptation and Mitigation - Total Assessed Cost of Greenhouse Gas Emissions - Study and Reports **(NEW SYNOPSIS):** Requiring the Comptroller, in coordination with the Department of the Environment and the Department of Commerce, to conduct a study to assess the total cost of greenhouse gas emissions in the State and report certain findings to certain committees by December 1, 2026, on the total assessed cost of greenhouse gas emissions in the State based on the findings of the study; authorizing the Comptroller to hire a consultant to conduct the study; and requiring the report to include certain information and calculations.	Support

2025 Failed ZEV Legislative Proposals

Bill #	Bill Title	ZEEVIC Position
HB 0897	Maryland Department of Transportation – Electric Vehicle Charging Infrastructure Expansion – Plans and Programs.	Support
HB 1088 SB 0882	Coal Transportation Fee and Fossil Fuel Mitigation Fund (Coal Dust Cleanup and Asthma Remediation Act)	Support
HB 1176	Motor Vehicles – Plug-In Electric Drive Vehicles in HOV Lane – Termination Date	Support
HB 1457	Alternative Fuel, Fuel-Efficient, and Electric Vehicles – Highway Use Fees	Support
HB 1496	Building Code – Construction and Significant Renovation of Housing Units – Electric Vehicle Parking Spaces.	Support
HB 0216	Electric Vehicles – Repeal of Excise Tax Credit and Establishment of Rebate Program.	Support
HB 0673	Condominiums and HOAs – Governing Documents – EV Recharging Equipment	Support

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2025 Failed ZEV Legislative Proposals

Bill #	Bill Title	ZEEVIC Position
HB 1273	Maryland Strategic Energy Investment Fund and Customer-Sited Solar Program – Alterations.	Support
HB 1008 SB 0557	Vehicle-Miles-Traveled Tax and Associated Mandated Devices - Prohibition (Transportation Freedom Act of 2025)	Oppose
SB 1020	Environment – Advanced Clean Cars II Program – Application and Enforcement.	Oppose
HB 1039 SB 0913	Department of Agriculture - Public Electric Vehicle Supply Equipment - Registration, Regulation, and Oversight	Did Not Comment
HB 1225 SB 0908	Public Utilities - Electric Distribution System Plans - Establishment (Affordable Grid Act)	Did Not Comment
HB 1427	Maryland Zero Emission Electric Vehicle Infrastructure Council - Revisions	Did Not Comment
HB 1556	Environment - Advanced Clean Cars II Program and Advanced Clean Trucks Regulation - Application and Enforcement	Did Not Comment

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2025 Legislative Session Recap

- Multiple bills were proposed surrounding ACC II and ACT, none of which passed. On April 4, the Governor signed an executive order delaying enforcement of ACT and ACC II penalties by two model years and establishing a Maryland ACC II and ACT Working Group. (Executive Order 01.01.2025.10 Ensuring Success with Advanced Clean Cars II and Advanced Clean Trucks in Maryland)

- HB 1039/SB 913 regarding EVSE reliability/oversight did not pass. Though not tasked to oversee uptime requirements, the Department of Agriculture is dispatching weights and measures inspectors to visit EV charging stations across the state.

- HB 1496 did not pass for the second consecutive year. This bill would have established EV-ready standards in building code for multi-family properties.

- HB 1225/SB 908 (Affordable Grid Act) did not pass.

Electricity Distribution System Planning – Implications for EV Charging Infrastructure Deployment

Distribution System Planning and EV Charging Infrastructure Deployment

Catherine Reed and Kirsten Verclas, National Association of State Energy Officials (NASEO)

NASEO
National Association of State Energy Officials

Electricity Distribution System Planning and EV Charging Infrastructure Deployment

Presentation to the Maryland Zero Emission Electric Vehicle Infrastructure Council (ZEEVIC)

Catherine Reed and Kirsten Verclas, NASEO | May 15, 2025

Photo Courtesy of NASEO Staff

About NASEO

- The only national non-profit association for the governor-designated energy officials from each of the 56 states and territories
- Serves as a resource for and about the State Energy Offices through topical committees, regional dialogues, and informational events that facilitate peer learning, best practice sharing, and consensus building
- Advances the interests of the State and Territory Energy Offices before Congress and the Administration
- Learn more at www.naseo.org

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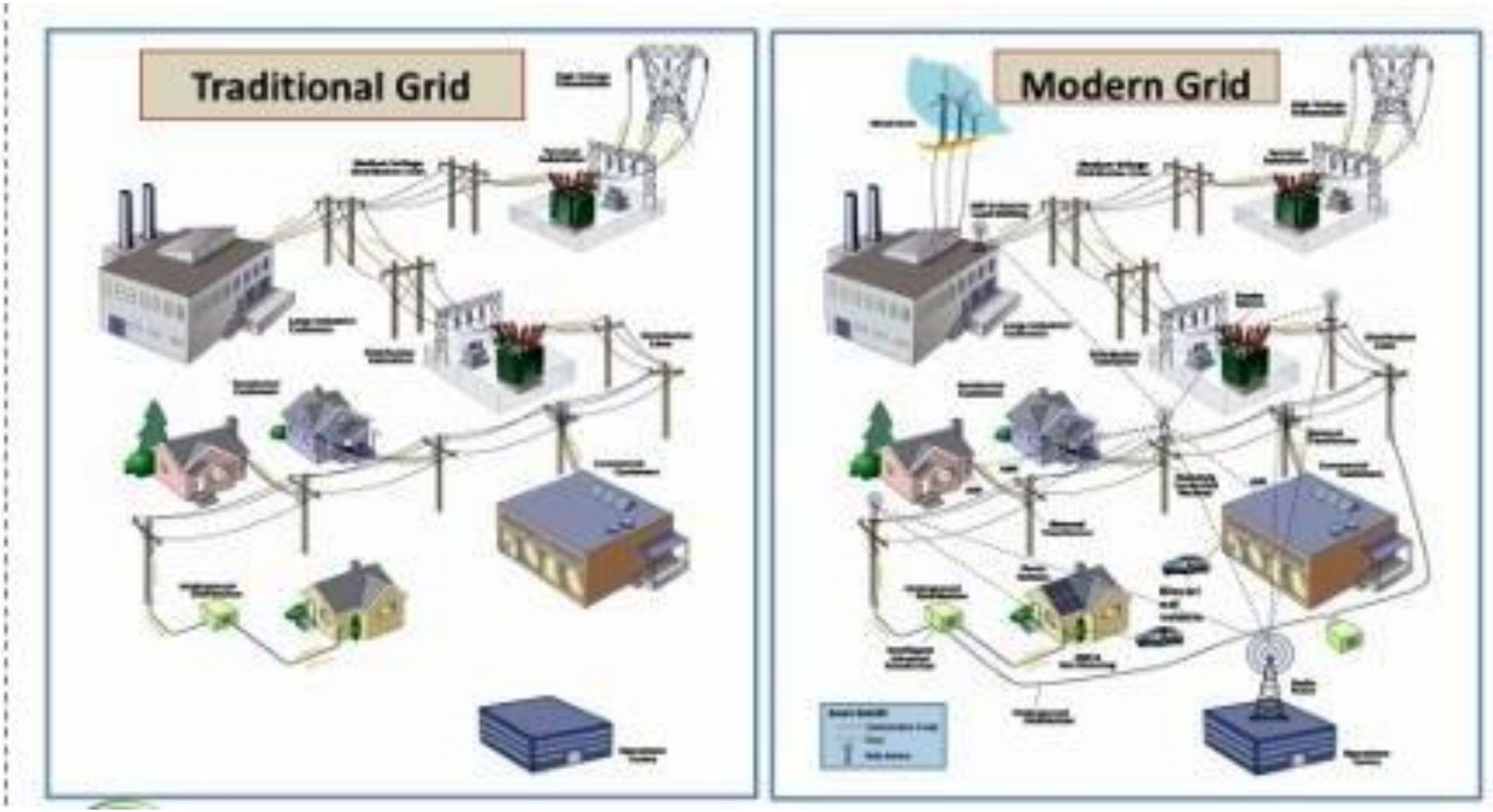
Agenda

- A Changing Distribution System
- Distribution System Planning
  - Requirements
  - Main Components (Objectives, Load Forecasting, Modeling)
  - Hosting Capacity Analysis and Maps
- Rate Design
- Resources

A Changing Distribution System

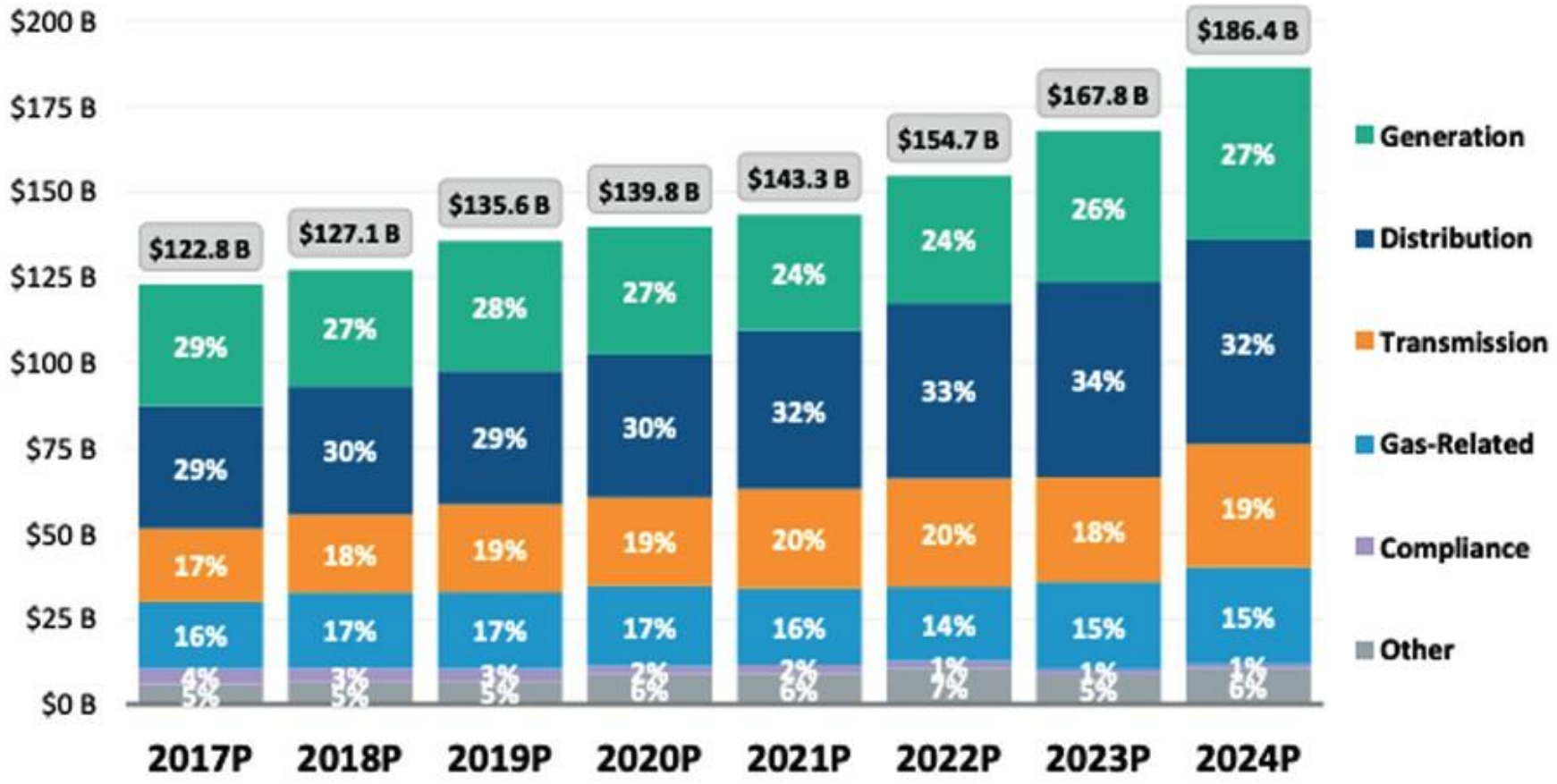
Key Additional Points

A Changing Distribution System



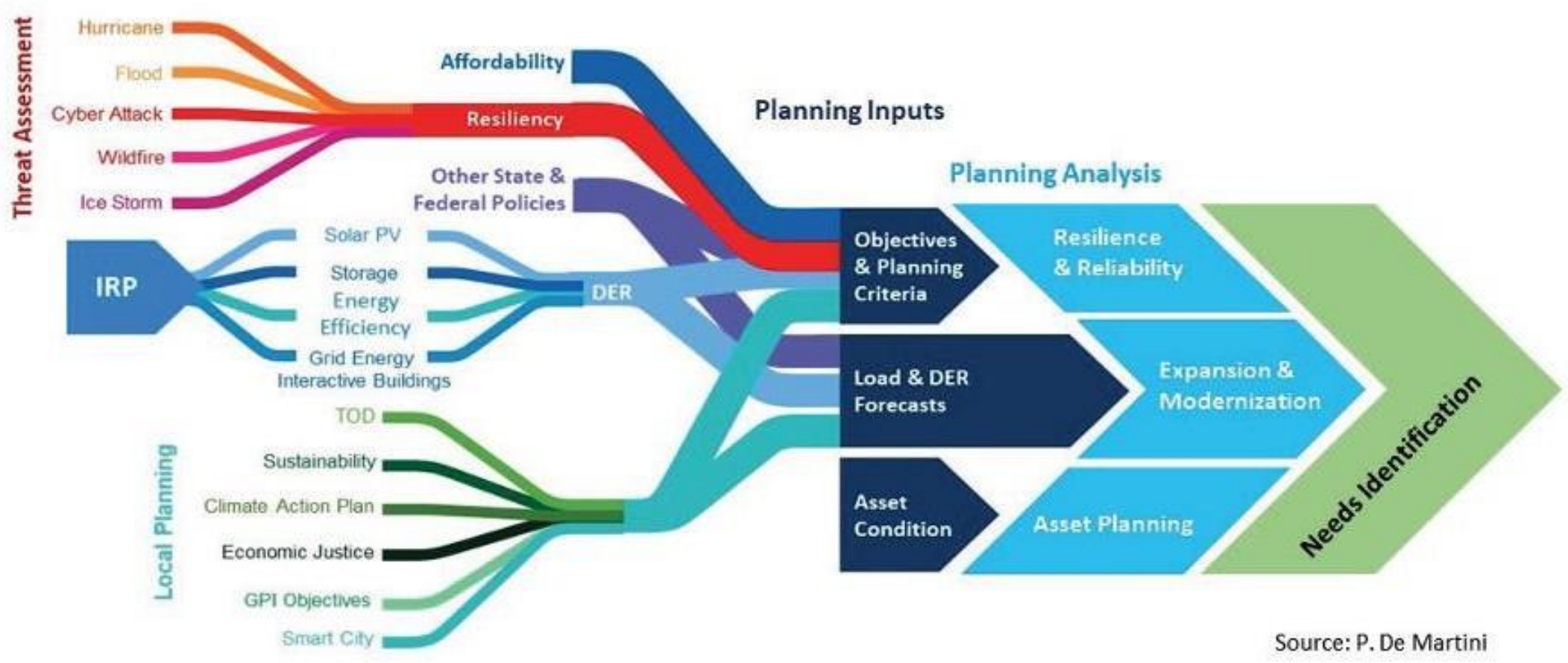
Source: IEEE, https://www.ieee.org/content/dam/ieee-org/ieee/web/org/about/corporate/ieee-industry-advisory-board/electric-power-grid-modernization.pdf

Increasing Investment in Distribution System



Source: EEI 2024

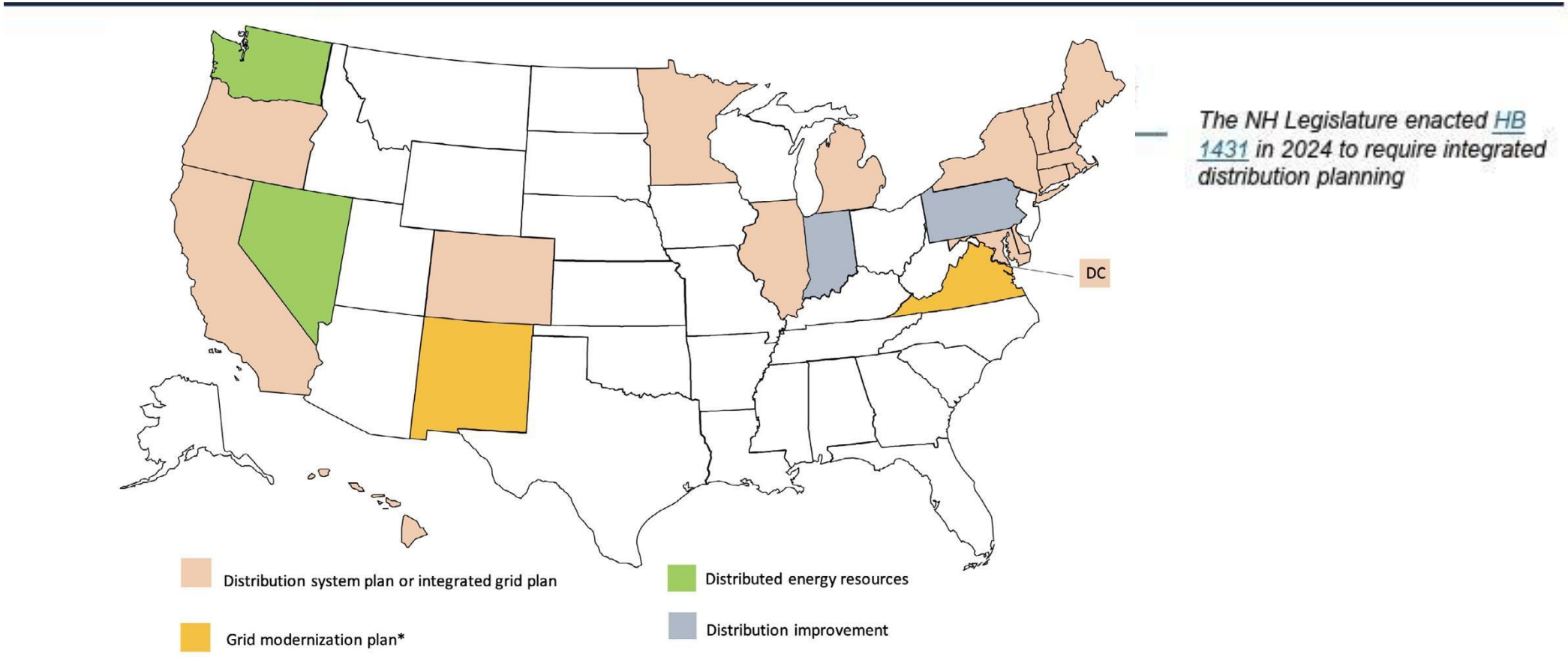
Changing Distribution Planning Considerations



Source: LBNL, https://eta-publications.lbl.gov/sites/default/files/2024-11/schwartz_idsp_overview_ceif_training_20241114.pdf

Distribution Planning

What States Require Regulated Utilities to File Distribution Plans



*Some states that require distribution system plans also require grid modernization plans (e.g., Minnesota and California).

Source: NASEO and Berkeley Lab (2023), State Energy Offices' Engagement in Electric Distribution Planning to Meet State Policy Goals

Maryland Distribution Plan Requirements

- Climate Solutions Now Act (SB 528) (2022):

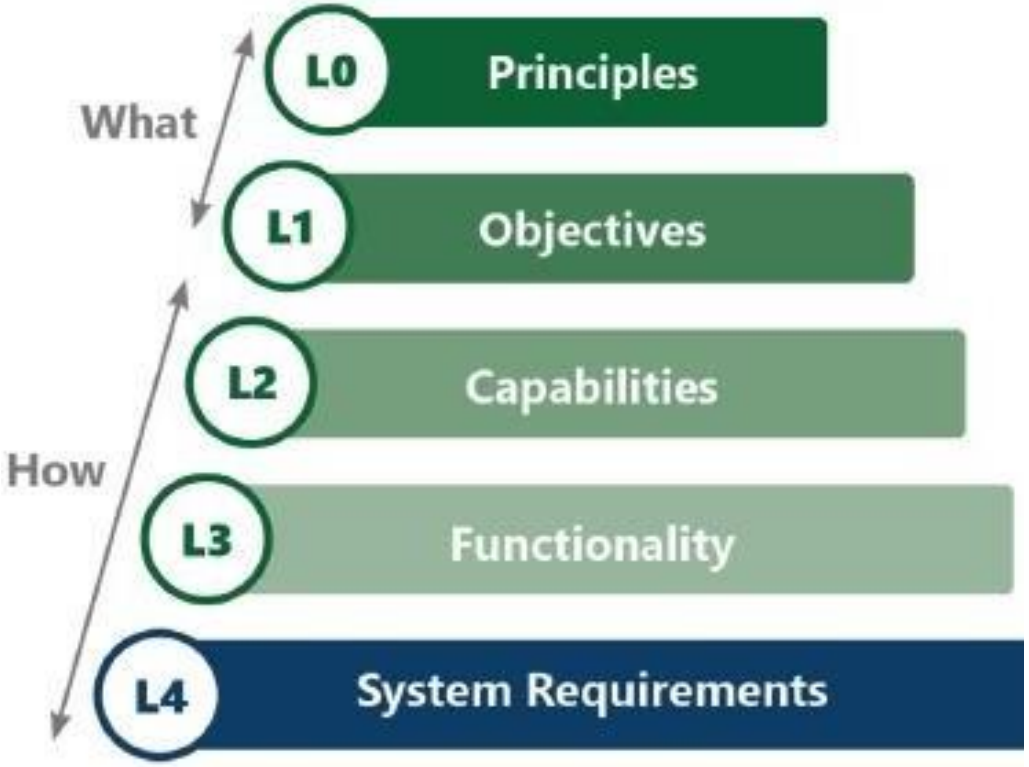
  The Climate Solutions Now Act of 2022 includes Electric Distribution System

  Planning requirements for public utilities (PUA 7-801, 802, 803, and 804).

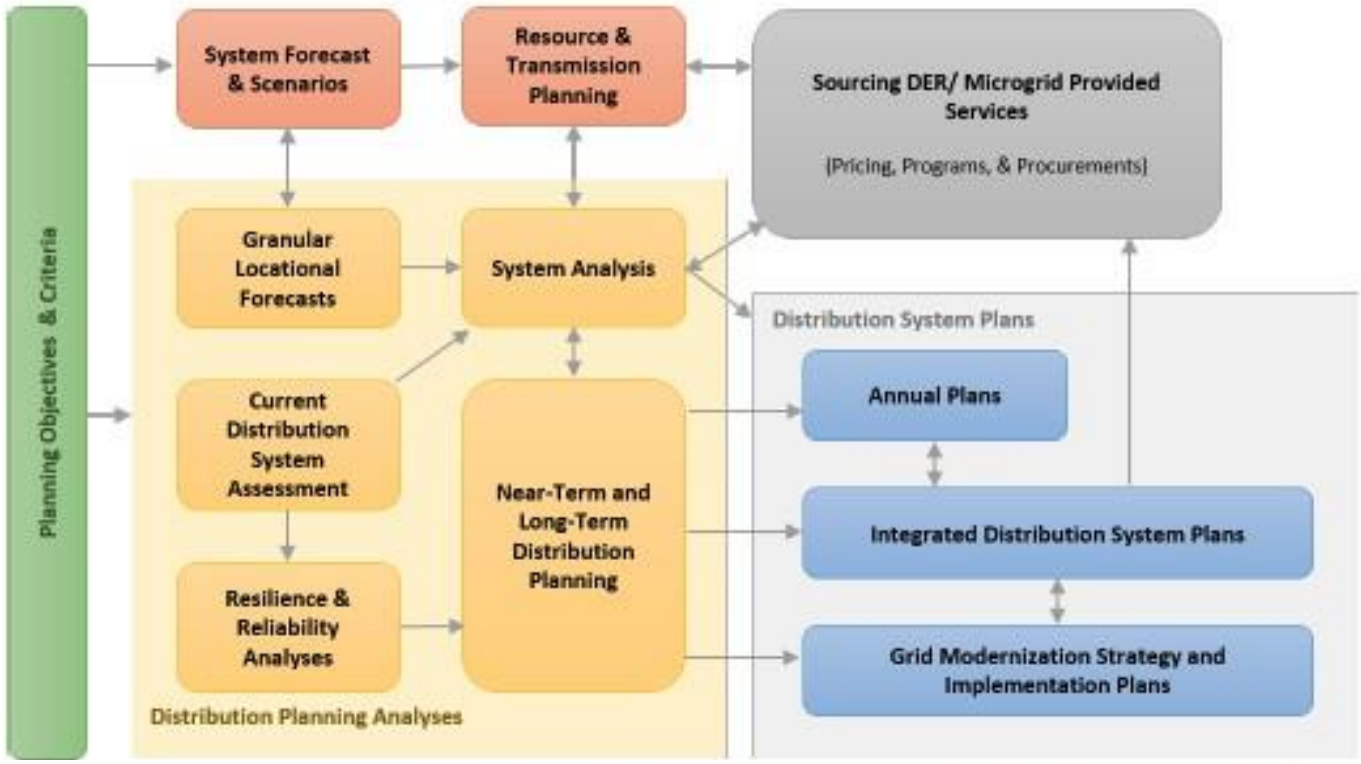
- HB 1393 - the Electric System Planning - Scope and Funding Act (2024)

  Requires the Commission to submit an annual report to the General Assembly regarding the current status of projects designed to promoted the 12 policy, including information on the planning process. It also requires the Commission to adopt regulations for electric system planning requiring consideration of cost- effective demand-side methods, including VPPs.

Planning Goals and Objectives in Distribution Planning



Source: U.S. Department of Energy 2020



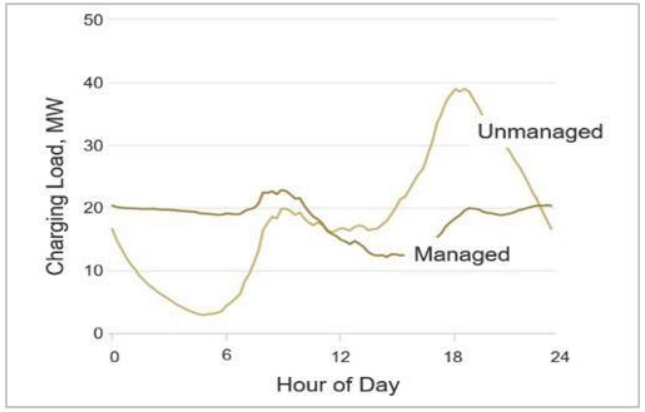
Source: NASEO and Berkeley Lab (2023), *State Energy Offices' Engagement in Electric Distribution Planning to Meet State Policy Goals*

Load Forecasting

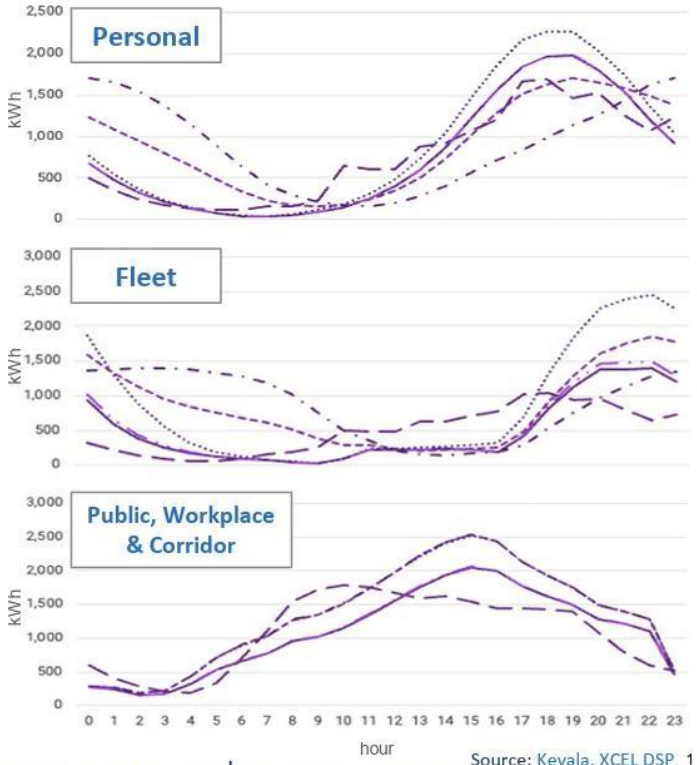
Use Cases	Research Organizations	State Energy Offices	ISOs	Utilities (regulatory affairs)	Utilities (grid planning)
	Forecasters				
National & State Studies	✔	✔		✔	
IRP / RPS		✔	✔	✔	
Resource Adequacy		✔	✔		
Transmission Planning		✔	✔	✔	
Rate Design				✔	
Corporate Forecasts				✔	
Procurement				✔	
Distribution Planning					✔

Source: https://eta-publications.lbl.gov/sites/default/files/2025-04/2_forecasting_loads_and_distributed_energy_resources.pdf

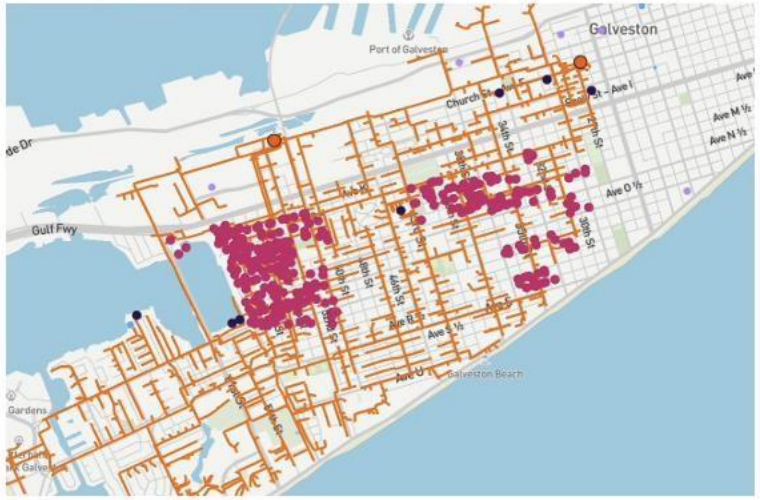
EV and Load Forecasting



EV load shapes vary significantly by **use case, policies** & **incentives** (e.g., TOU rates, managed charging)

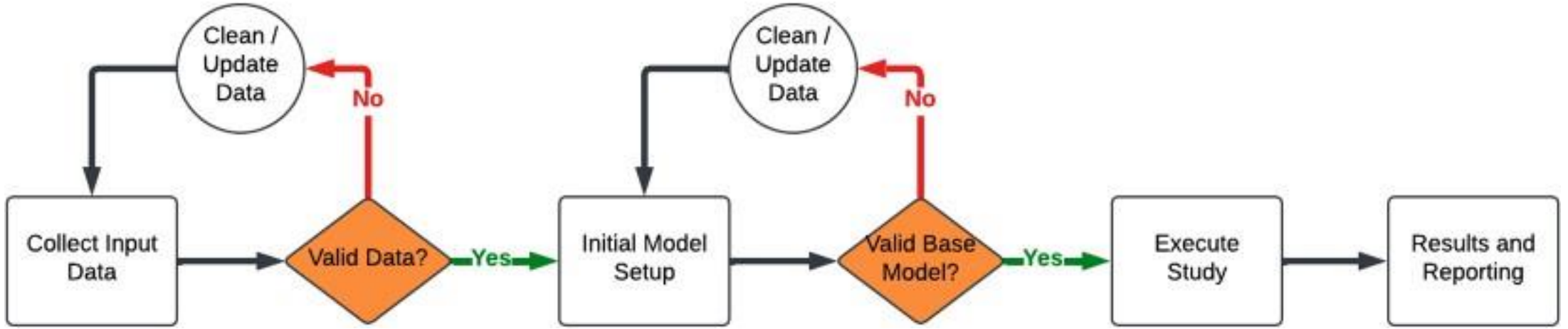


Source: Kevala, XCEL DSP



Source: https://eta-publications.lbl.gov/sites/default/files/2025-04/2_forecasting_loads_and_distributed_energy_resources.pdf

Modeling



Source: https://eta-publications.lbl.gov/sites/default/files/2025-04/3_distribution_planning_modeling.pdf

Hosting Capacity Analysis and Maps

Hosting Capacity (HCA) Map Elements	Benefits to DER Developer
Substation location and HCA data	• Determine substation level constraints (e.g., size and voltage of transformer) • Identify equipment that may impact hosting capacity (e.g., load tap changer or regulator) • Determine approximate distance from circuit to substation
Feeder location and HCA data	• Determine feeder HCA constraints for DER load and generation • Assess if costly system upgrades are likely at a location given constraints • Identify equipment that may impact HCA (e.g., voltage supervisory reclosing)
HCA criteria violations	• Determine which violation criteria (e.g., thermal, voltage) is causing the limit, identify appropriate technical solutions to overcome constraint(s), and estimate associated costs (e.g., for system upgrade)
Substation/feeder load profiles	• Screening tool for locating DER load interconnections (e.g., storage, EV chargers) • Assess if costly system upgrades are likely at a location given constraints
DER connected and in queue	• Determine if hosting capacity is likely available to new projects

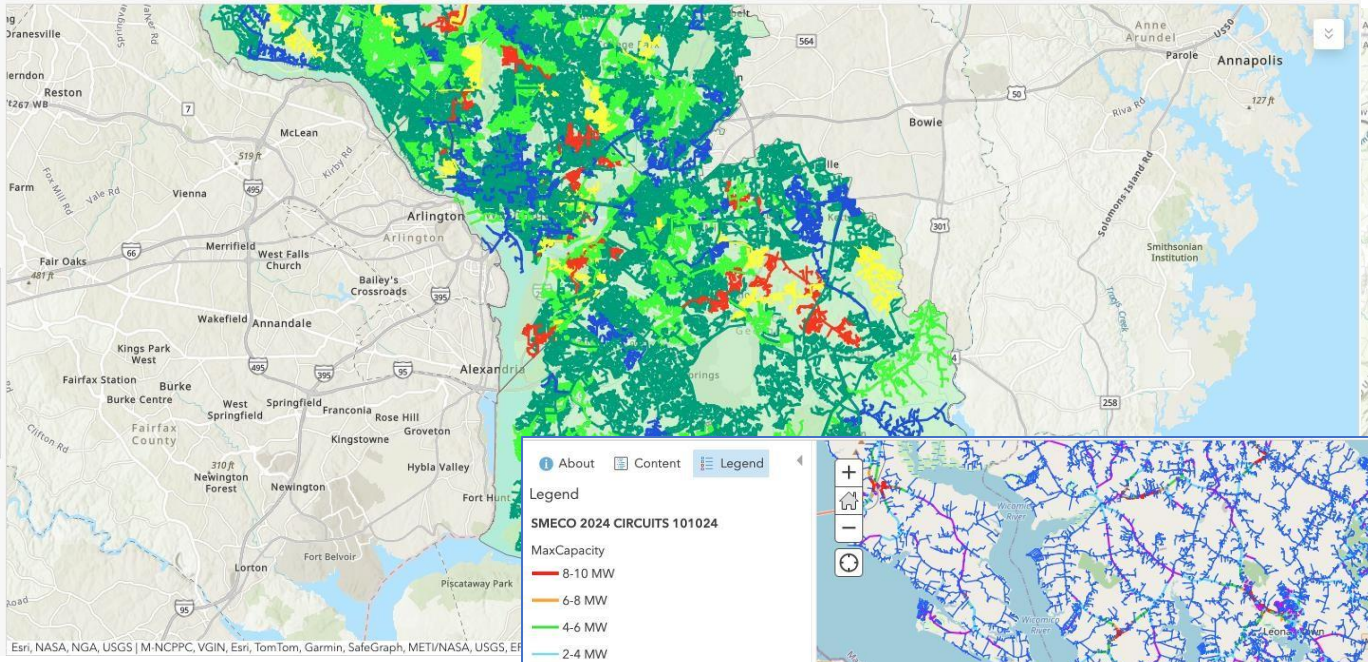
Synapse Report on Hosting Capacity Map Benefits to Developers

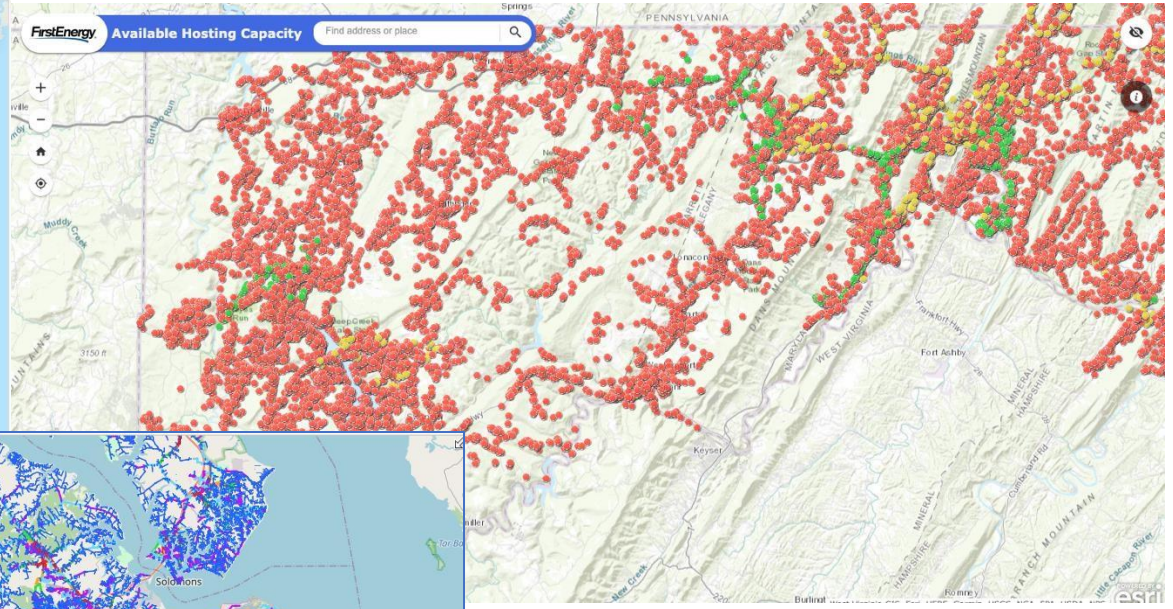
Source: Synapse Energy Economics, Inc. in Comments to Minnesota PUC

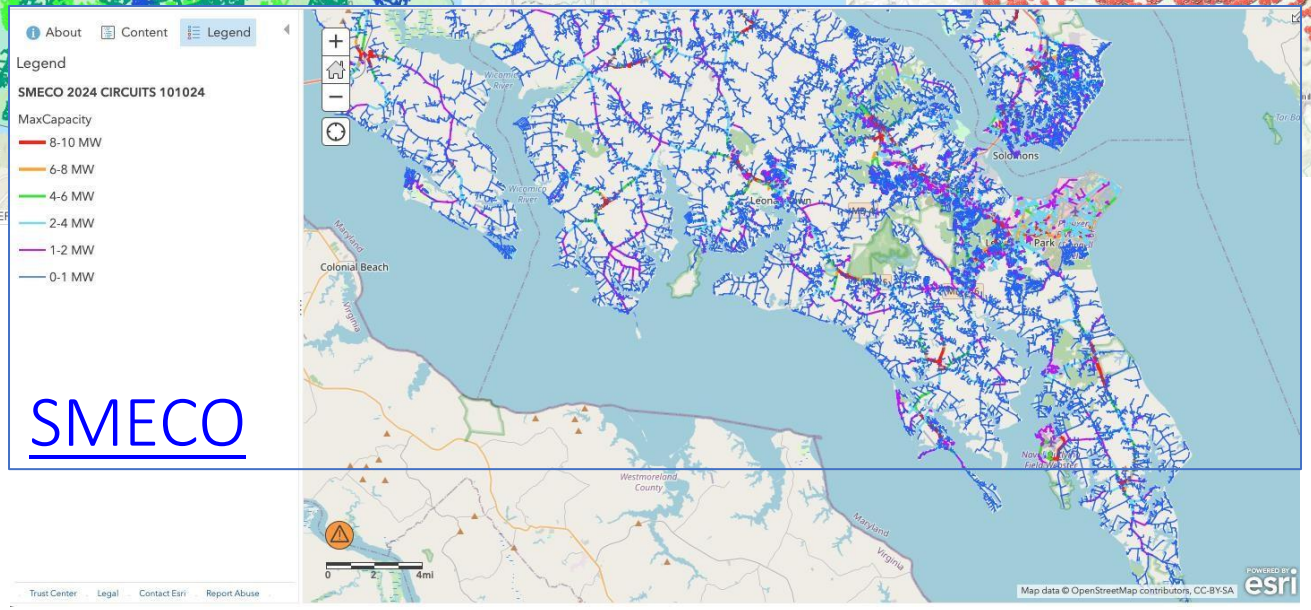
Hosting Capacity Maps in Maryland

PEPCO

First Energy/Potomac Edison





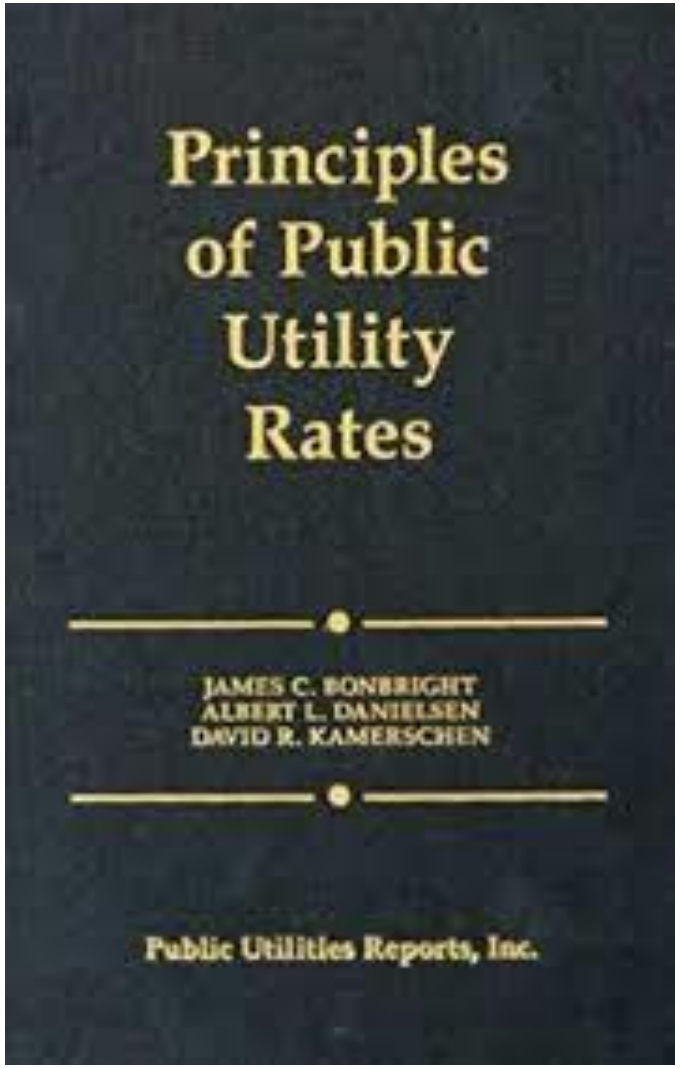


SMECO

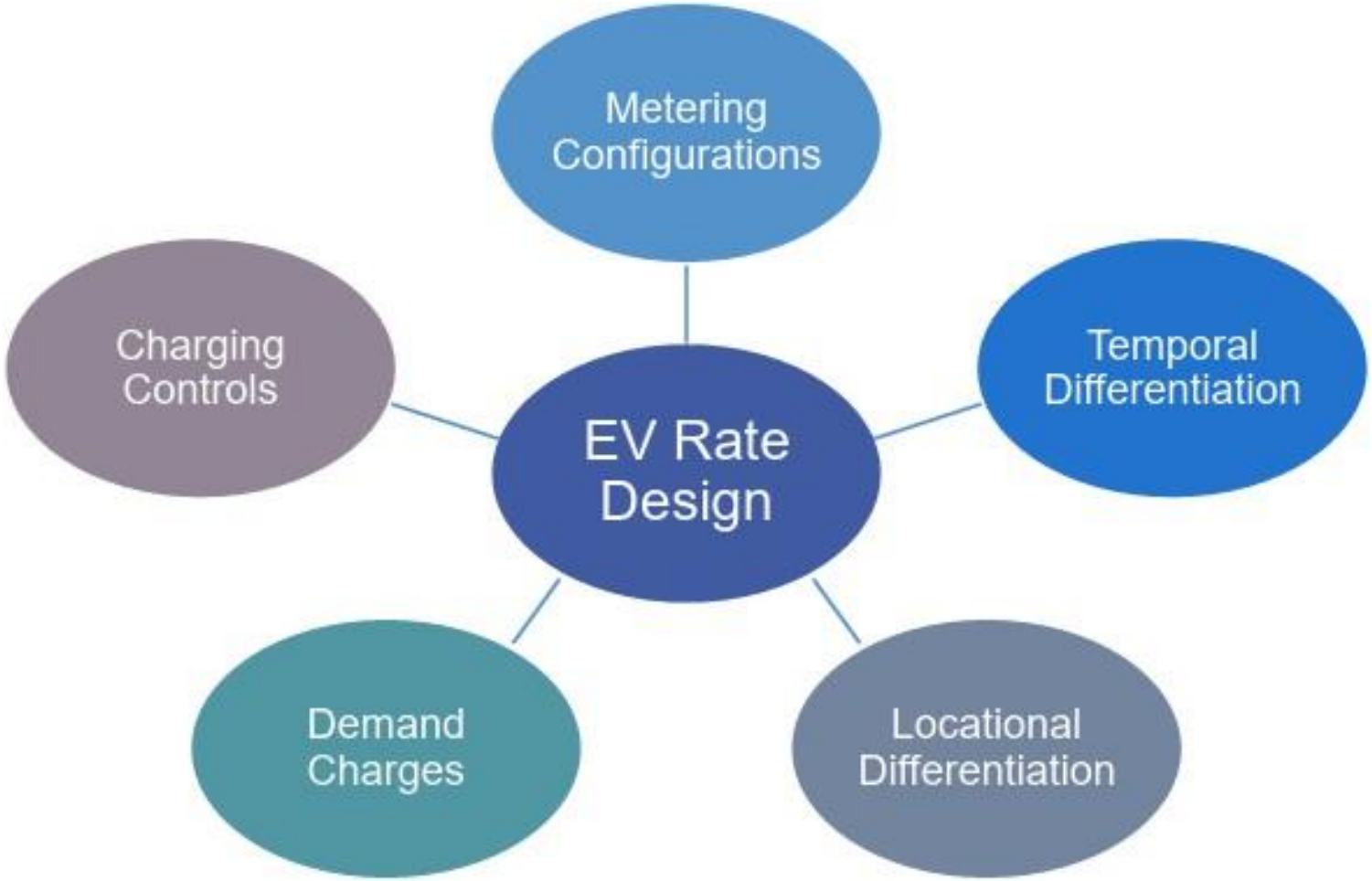
Rate Design

Common rate design principles include the following:

- Sufficiency (ability to recover utility requirements)
- Fairness
  - Between utility and customer
  - Among customers
- Economical Efficiency
- Customer Acceptability
- Bill Stability



EV Rate Components



Source: https://eta-publications.lbl.gov/sites/default/files/2025-04/9_rate_design.pdf

Resources

- NASEO, NARUC, LBNL Distribution Planning Training: https://emp.lbl.gov/publications/denver-training-states-integrated
- NASEO and LBNL, State Energy Offices' Engagement in Electric Distribution Planning Report: https://www.naseo.org/Data/Sites/1/documents/tk-news/naseo_electric-distribution-planning-final.pdf
- LBNL, State Distribution Planning Requirements: https://emp.lbl.gov/state-distribution-planning-requirements
- LBNL, Integrated Distribution System Planning: https://emp.lbl.gov/projects/integrated-distribution-system-planning
- EPRI Tool Ev2 Scale: https://eroadmap.epri.com/
- LBNL, EV Retail Rate Design 101, https://eta-publications.lbl.gov/sites/default/files/ev_tariff_design_101_final.pdf
- US DOE, U.S. Atlas of Electric Distribution System Hosting Capacity Maps: https://www.energy.gov/eere/us-atlas-electric-distribution-system-hosting-capacity-maps

Thank you and Contact

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Catherine Reed
Program Director, NASEO
creed@naseo.org

Outcomes of the Distribution System Planning Work Group

John Borkoski, Public Service Commission (PSC)

Maryland Public Service Commission

John Borkoski, Senior Commission Advisor

Electric System Planning Regulation Status

Presentation to Maryland Zero Emission Electric Vehicle Infrastructure Council (ZEEVIC)

May 15, 2025

Commissioners

Kumar P. Barve
(Montgomery County)

Odogwu Obi Linton
(Baltimore County)

Chair
Frederick H. Hoover
(Anne Arundel County)

Michael T. Richard
(Baltimore City)

Bonnie A. Suchman
(Montgomery County)

Electric System Planning Regulation Background

- The mission of the Public Service Commission (PSC) is to ensure safe, reliable, and economic public utility and transportation service to the citizens of Maryland.
  - The Commission follows the requirements directed by the legislature through the Public Utilities Article (PUA), Annotated Code of Maryland.
- The Maryland Climate Solutions Now Act (CSNA) of 2022 added Subtitle 8 (Electric Distribution System Planning, or DSP) to Title 7 of the Public Utilities Article.
- Subsequently House Bill 1393 for Electric System Planning – Scope and Funding (HB1393) was enacted in 2024 which requires that on or before December 31, 2025, the Commission shall adopt regulations or issue orders to implement specific policies for electric system planning, among other things.
- This presentation includes a high-level overview of the PSC DSP Workgroup's (Case No. 9665) regulation proposal filed on May 1, 2025.
  - The Commission will accept comments by June 4, 2025 on the proposed regulations.
  - A RM89 rulemaking hearing has been scheduled on June 18, 2025.

Overview of Regulations

- Regulation .01 describes the applicability of the electric system planning process.
  - Regulations become effective for investor-owned utilities by December 31, 2025
  - Regulations become effective for electric cooperatives and municipal electric companies on January 1, 2028
- Regulation .02 describes definitions used in the proposed regulations.
- Regulation .03 describes the Electric System Planning process that is organized based on the NARUC/NASEO Jade Process Map
- Regulation .04 describes the development, reporting, and stakeholder engagement processes associated with Electric Company (EC) Electric System Plans, Annual Electric System Plan Updates and Preliminary Electric System Plans.
  - A multi-day hearing will be held annually to consider these plans
- Regulation .05 describes Planning Metrics
- Regulation .06 describes legislative reporting requirements for Electric System Plans by December 1 annually associated with PUA § 7-802

Regulation .03 - Plan Process

- Considerations Feeding into Types of Projections;
  - Forecasting time horizons, level of granularity, scenarios, data sources, etc.
- Goals/ Objectives;
  - State policy goals in PUA and other goals/ targets as determined by Commission
- DER Forecast;
  - Distributed Generation, Demand Response, Storage, VPPs and EVs etc.
- Load Forecast;
  - Consider building and transportation electrification among other things
- Hosting Capacity Assessment;
- Grid Needs and Locational Value Assessment;
- Identify Possible Solutions to Grid Needs;
- Screen and Evaluate Possible Solutions;
- Choose Solutions and Publish Plan;
- Program and Project Design; and
- Assess Results

Regulation .04 - Plans & Plan Updates

1. Electric System Plan (Minimum of every three years);
2. Annual Electric System Plan Update;
   - Address EC planning improvements, planning criteria, new conditions affecting planning, metrics and current status of projects that promote state policy goals
3. Data Collection;
   - ECs provide a discrete opportunity to collect stakeholder inputs
4. Align Inputs & Assumptions
   - ECs provide a discrete opportunity to collect stakeholder inputs
5. ECs Run Analyses
6. ECs Publish Preliminary Electric System Plan;
7. Comments filed by Stakeholders;
8. Annual Technical Conference (Multi-day hearing envisioned annually in August)
9. Electric Companies' Consideration of Feedback;
10. Electric System Plan Publishing;
    - Filed by ECs after considering feedback

Regulation .05 - Metrics

Note: This regulation is non-consensus and an Excel spreadsheet has been developed with more specific metrics proposals to be considered by the Commission.

- Planning Metrics determined by ECs that will allow monitoring of progress at minimum the following plan areas:
  a. State goals and targets;
  b. Reliability;
  c. Resilience;
  d. DER integration, by DER category;
  e. Load and demand management;
  f. Hosting Capacity;
  g. System Constraint resolution including:
  h. Non-Wires Solutions incorporation; and
  i. Stakeholder engagement.
- Other Planning Metrics as determined by the Commission

Questions?

www.psc.state.md.us

State Agency Announcements and Updates

Announcement - MDOT

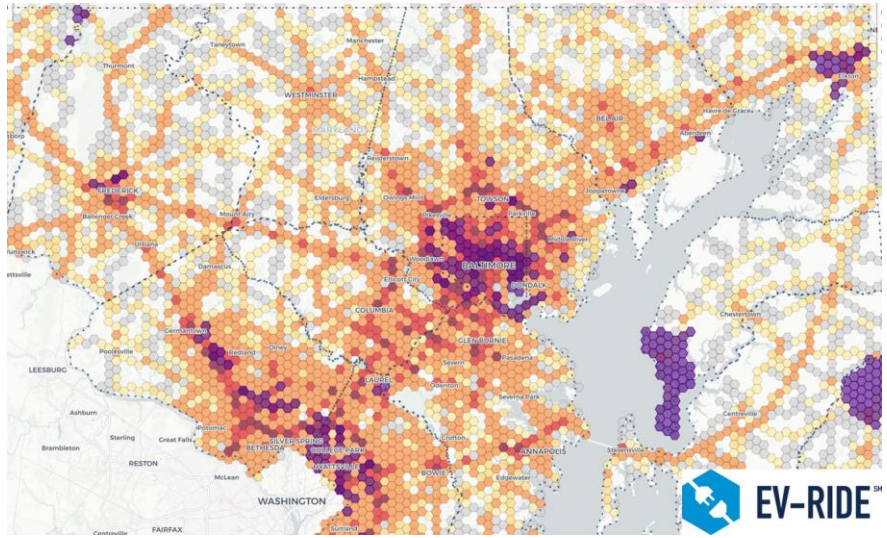
Zero Emission Vehicle Infrastructure Plan (ZEVIP)

Statewide Plan that will support the expected growth of light-, medium-, and heavy-duty ZEVs expected under:

- Climate Solutions Now Act (CSNA)
- Advanced Clean Cars II (ACC II)
- Advanced Clean Trucks (ACT)

It will identify:

- Suitability for deploying publicly available corridor and community infrastructure through 2035
- Additional state, federal, and private funding to leverage
- Roles of state and local agencies to accelerate adoption



Expected release in September 2025

MARYLAND ZERO EMISSION
Electric Vehicle Infrastructure Council

Announcement - MDOT

NEW ZEVIP Community & Stakeholder Survey

- **Who:** Current or future personal EV owners, fleet owners/operators, and EV industry professionals
- **Purpose:** To understand Marylanders' charging preferences and needs and inform the Zero Emission Vehicle Infrastructure Plan (ZEVIP)
- **When:** Now through **June 13th**

Visit EVplan.mdot.Maryland.gov or scan the QR code

Please share the survey widely with your networks!

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Electric Vehicle Infrastructure Council

Announcements - MEA

- **EVSE Rebate Program**
  - **FY25 Closed: All funds fully depleted.**
  - FY26 Preparation Underway: New automated system and rebate submission site launching.
  - Expected to significantly reduce processing times and streamline applicant experience.
- **Medium & Heavy-Duty EV Grant Program**
  - Evaluation Complete: Final award list confirmed.
  - Total Funding Awarded: $8,981,514.09.
  - **Next Round: Program reopens in July 2025**
- **School Bus Grant Program**
  - Award List Finalized: This week.
  - Total Requested: $13 million.
  - Undersubscribed: ~$4 million unallocated.
  - **Next Round: Reopens September 2025** — program design to be reassessed and revised
- **Community EVSE Grant Program**
  - Current Phase: Processing and evaluation ongoing.
  - **Next Steps: Final award list expected in 2 weeks.**

MARYLAND ZERO EMISSION
Electric Vehicle Infrastructure Council

Update - MDE

Volkswagen Settlement Updates

- **EVSE Infrastructure Programs**
  - **Phase III**
    - MDE received **131 proposals (107 ECGP, 24 CAGP)**
    - Approx. $35 million in total requested funds
    - Approx. $4 to5 million available in funding
    - Under ECGP: Approx. $34.49 million funds requested
    - Under CAGP: Approx. $528,288 funds requested
    - MDE has begun review process, goal to complete end of summer
  - **Phase I**
    - MDE received **56 proposals (35 ECGP, 25 CAGP)**
    - Approx. $11.36 million in total requested funds
    - Approx. $3.7 million available in funding
    - **Under ECGP: 13 new Level 3 stations, 36 charging ports**
    - **Under CAGP: 24 new workplace Level 2 charging sites, 145 charging ports**
  - **Phase II**
    - MDE received **77 proposals (47 ECGP, 30 CAGP)**
    - Approx. $12.6 million in total requested funds
    - Approx. $3.7 million available in funding
    - **Under ECGP: 13 new Level 3 stations, 35 charging ports**
    - **Under CAGP: 26 new workplace Level 2 charging sites, 170 charging ports**

Announcements – DGS

- EVIP progress to date: **234 ports (excluding utility) across 37 projects, 126 L2 chargers, 5 DCFC**.
- Hosted successful Earth Day event April 30 with Ride and Drive

EV Phase 2 Program – Milestones Update

Virginia Burke, MDOT

EV Phase II Programs – Milestones Recap

Milestones - December 2024 to May 2025

- By Dec 20, 2024 – Utility Phase 2 Proposal filings
- By March 28, 2025 – Public Comments on Phase 2 filings
- April 9, 2025 – PSC Administrative Hearing
- By April 24, 2025 - Post Hearing Comments
- By May 1, 2025 - EV Workgroup Reports
  - Barriers to Managed Charging at Multi-Unit Dwellings
  - Efficacy of Load Management Options and Incentives (status update)
  - EV Submetering /Metering Accuracy (Workgroup Leader status update)
  - Time of Use Data (OPC and Utilities Agreement)

EV Phase II Programs – Program Types

Program Types and Proposals

- Managed Charging
  - Smart Charge Management (SCM)
- Charging as a Service (CaaS)
- Make-ready Incentives
  - Customer-side & Utility-side
- Multifamily Charging
- Public Chargers
- Fleet Incentives
- Rate structure & design

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EV Phase II Programs – Public Comment

29 Filings responded to the Utility Phase 2 Proposals

- 20 Comments filed by March 28
- 9 additional Post-Hearing Comments filed by April 24
- Included ZEEVIC Member Written Comments –
  - Sierra Club/Amiel
  - SWTCH/Cohen
  - Verchinsky
  - EVADC/Wilson
  - State agencies

EV Phase II Programs – Themes

Themes

- Ensuring reliability
- Meeting GHG reduction goals
- Consistency in program offerings across Utility service territories
- Utility's role in EV adoption and EVSE deployment
- Utility core competencies
- Investment, cost effectiveness, and cost recovery
- Distribution system planning

ZEEVIC Role

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Closing Remarks

Next ZEEVIC quarterly meeting: **Wednesday, July 23, 2025**

To receive ZEEVIC Meeting Notices, email: ZEEVIC@mdot.maryland.gov

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