

DPU 20-75 Tech Session

DER Cost Allocation

Eversource Proposal

June 3rd, 2021

DER Growth has far exceeded T&D infrastructure capacity – necessitating urgent action

| Dist. Station Group | Existing DER | | Group Study DER and Post Applications | | DER Projections | | Total DG and Minimum Load | |
|--------------------------------|--------------------------|--|--|--|--|---|-----------------------------------|--|
| | Existing Large DER (MVA) | Existing Small DER Less than 200kW (MVA) | Active DER Group Study June 2020 (MVA) | Post June 2020 Group Study DER Application (MVA) | Incremental Near-Term Trend Based on Historical Large DER Interconnections (MVA) | 10 -Year Projection Small DER Less than 200kw (MVA) | Existing Minimum Gross Load (MVA) | Total Projected DG (Including Existing, Group, Post Group and Incremental Near-Term) (MVA) |
| Group 1 - Marion-Fairhaven | 6 | 3 | 2 | 3 | 3 | 3 | 4 | 19 |
| Group 1 - Marion-Fairhaven | 5 | 3 | 7 | 16 | 13 | 3 | 3 | 45 |
| Group 1 - Marion-Fairhaven | 7 | 1 | 19 | 1 | 11 | 2 | 5 | 42 |
| Group 1 - Marion-Fairhaven | 5 | 3 | 21 | 10 | 8 | 4 | 4 | 51 |
| Group 2 - Plymouth | 11 | 1 | 2 | 2 | 5 | 1 | 2 | 22 |
| Group 2 - Plymouth | 15 | 4 | 34 | 3 | 21 | 4 | 10 | 81 |
| Group 2 - Plymouth | 14 | 5 | 6 | 1 | 6 | 5 | 11 | 36 |
| Group 2 - Plymouth | 23 | 4 | 47 | 2 | 28 | 4 | 12 | 107 |
| Group 2 - Plymouth | 29 | 6 | 34 | 13 | 26 | 6 | 25 | 113 |
| Group 2 - Plymouth | 17 | 1 | 1 | 0 | 1 | 1 | 13 | 21 |
| Group 2 - Plymouth | 5 | 2 | 3 | 2 | 3 | 1 | 9 | 16 |
| Group 4 - Freetown | 2 | 2 | 22 | 5 | 13 | 2 | 4 | 46 |
| Group 5 - Darnmouth-Westport | 14 | 7 | 3 | 5 | 8 | 7 | 8 | 43 |
| Group 5 - Darnmouth-Westport | 13 | 6 | 13 | 1 | 7 | 6 | 10 | 46 |
| Group 6 - New Bedford | 38 | 7 | 48 | 2 | 33 | 7 | 12 | 136 |
| Group 3 - Cape | 16 | 13 | 15 | 0 | 13 | 12 | 36 | 69 |
| Group 3 - Cape | 9 | 10 | 15 | 0 | 8 | 9 | 27 | 51 |
| Group 3 - Cape | 2 | 6 | 9 | 21 | 14 | 5 | 16 | 57 |
| Group 3 - Cape | 16 | 10 | 4 | 0 | 3 | 9 | 37 | 41 |
| Group 3 - Cape | 10 | 2 | 0 | 6 | 4 | 2 | 10 | 25 |
| Group 3 - Cape | 5 | 5 | 30 | 0 | 16 | 4 | 12 | 61 |
| Group 7 - Plainfield-Blandford | 25 | 3 | 13 | 24 | 24 | 3 | 16 | 91 |
| Total | 286 | 104 | 348 | 117 | 267 | 98 | 286 MVA | 1,221 MVA |
| | | | | | | | DER as a percentage of Light Load | 427% |



| T&D Infrastructure Category | Projected Cost \$M |
|-----------------------------|--------------------|
| Distribution Station | 542 |
| Distribution Line | 403 |
| Transmission Station | 232 |
| Transmission Line | 462 |
| Total | 1,639 |




Interconnection Costs
\$1.4K to \$6.6K/kW

DER Cost Allocation Journey

April
2020

Align DG interconnection with long-term system planning

Allocate costs to full range of beneficiaries

- Maintain Efficient price signals 
- Mitigate DER cost barriers
- Build long-term least cost solutions

December
2020

Response to Departments Straw Proposal

- DER Planning Requirements
- Capital Investment Project and Common System Modification Fees
- Proposals for implementation in the Short Term
- Stakeholder Process

February
2021

Reply to comments on the DPU Straw Proposal

- Introduction
- Need for Revised Cost Allocation Policy
- Distributed Energy Planning & Resource Requirements
- Dynamic Curtailment, Power Control, and Exporting Pricing Alternatives
- Cost Recovery

March
2021

Response to DPU IRs

- Comprehensive solution for each substation that requires upgrades
- High-level Estimates of costs for T&D upgrades
- Estimated bill impacts and recovery provisions

April
2021

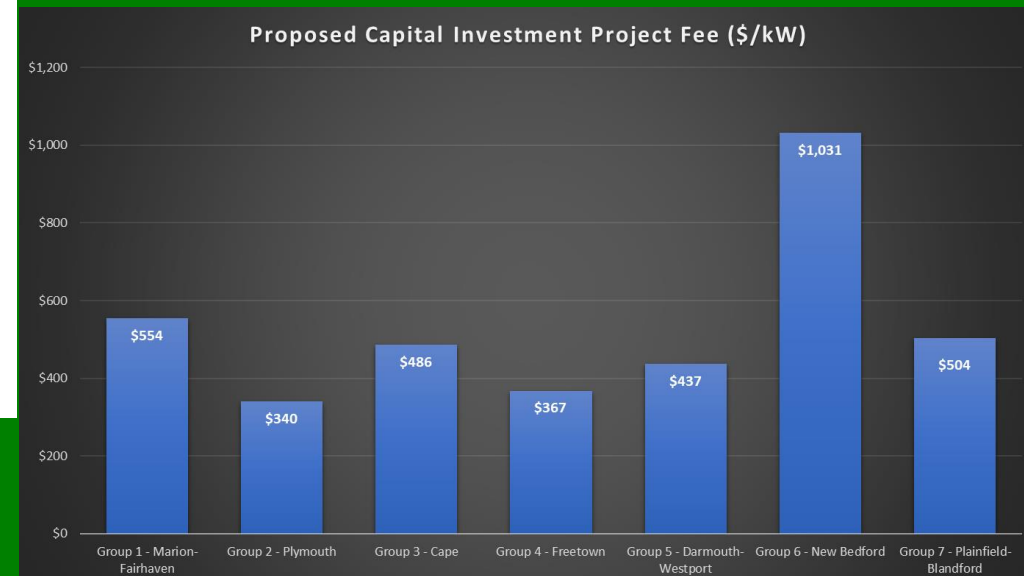
Eversource System Planning Memorandum

- Scope of Analysis
- System Analysis
- Implementation Proposal
- Consideration of the Commonwealth's Policy Objectives
- Stakeholder Participation
- Timeline for Implementation
- Eversource Distribution System Planning Guide
- Non-Wires Alternative Framework















Eversource Cost Allocation Proposal

1. Distribution Station Costs
 - 27% to 60% range - proposed allocation to all customers
 - 42% of aggregate proposed allocation to all customers
2. Distribution Line Costs
 - Feeders deployed for physical connection of DERs
 - Split benefits may occur where feeders designed for dual use – load and DER customers
3. Transmission Station, Equipment and Line Costs
 - Upgrading the interconnected Bulk electric transmission system is key to transporting DER energy to load centers to the benefit of all customers within the Commonwealth

| T&D Infrastructure Category | Cost \$M | Rate Base | CIP Fee allocated to DER Customers |
|-----------------------------|--------------|------------------|------------------------------------|
| Distribution Station | 542 | 42% (\$228M) | 58% (\$314M) |
| Distribution Line | 403 | | 100% (\$403M) |
| Transmission Station | 232 | 100% (\$232M) | |
| Transmission Line | 462 | 100% (\$462M) | |
| Total | 1,639 | | |



T&D upgrades enable 1.5 GWs of DER hosting capacity

| Objectives | Status Quo | Eversource Balanced Approach Parallel Planning & Allocation |
|--|--|--|
| 1. Enable DERs in the current queue |  Yes – upgrade sized to current DER queue |  Upgrades tested in DER Interconnection Planning Studies to mitigate all identified system constraints from Loadflow and Dynamic analyses |
| 2. Mitigate DER Cost Barriers |  Requires first movers to front Capital. Likely favors large developers |  Where the upgrades are aligned with long-term planning needs, that portion of EDC benefits and associated cost (allowed rate recovery) are carved out – resulting in reduction to DER allocation: Mitigating ‘first mover’ cost barrier |
| 3. Minimize Free-Rider Opportunities |  2 nd mover partially incentivized to wait for upgrade costs funded by 1 st mover |  A unique \$/kW rate established in each study area for all current and future interconnections downstream of that station ensures future DER customers pay exactly the same Interconnection cost as the current customers |
| 4. Maintain efficient price signals |  Inefficient because prices surge after short-sighted upgrade out of capacity |  <p><u>Pre-Upgrade</u>: DER allocation reduced only in stations where system benefits and DER interconnections align</p> <p><u>Post-Upgrade</u>: \$/MW rate + MWs Enabled ensures that future DERs migrate to stations with increased capacity not locations where \$/MW is high</p> |
| 5. Avoid wasteful expenditure |  EDC would be placed in reactive mode replacing long-life assets |  If upgrades are sized to be short-sighted, DER development would stall. Because upgrades would be sized to future grid needs EDC would NOT need to go back into station replacing assets that otherwise are 30-40 yr. life |
| 6. Support MA Clean Energy Goals |  Upgrade reactive to prevailing DER queue. Queue backlog with new incentives |  Eversource Balanced approach ensures the tactical solutions to address near term DER queue interconnection & allows MA Clean Energy Goals |
| 7. Ensure upgrades built in-synch with future grid reliability needs |  Upgrade reactive to prevailing DER queue |  Scenario Planning incorporating growth in EV, EE, Rooftop Solar in addition to DER PV and Storage conducted on an annual basis ensures infrastructure needs are identified, planned and constructed proactively |