



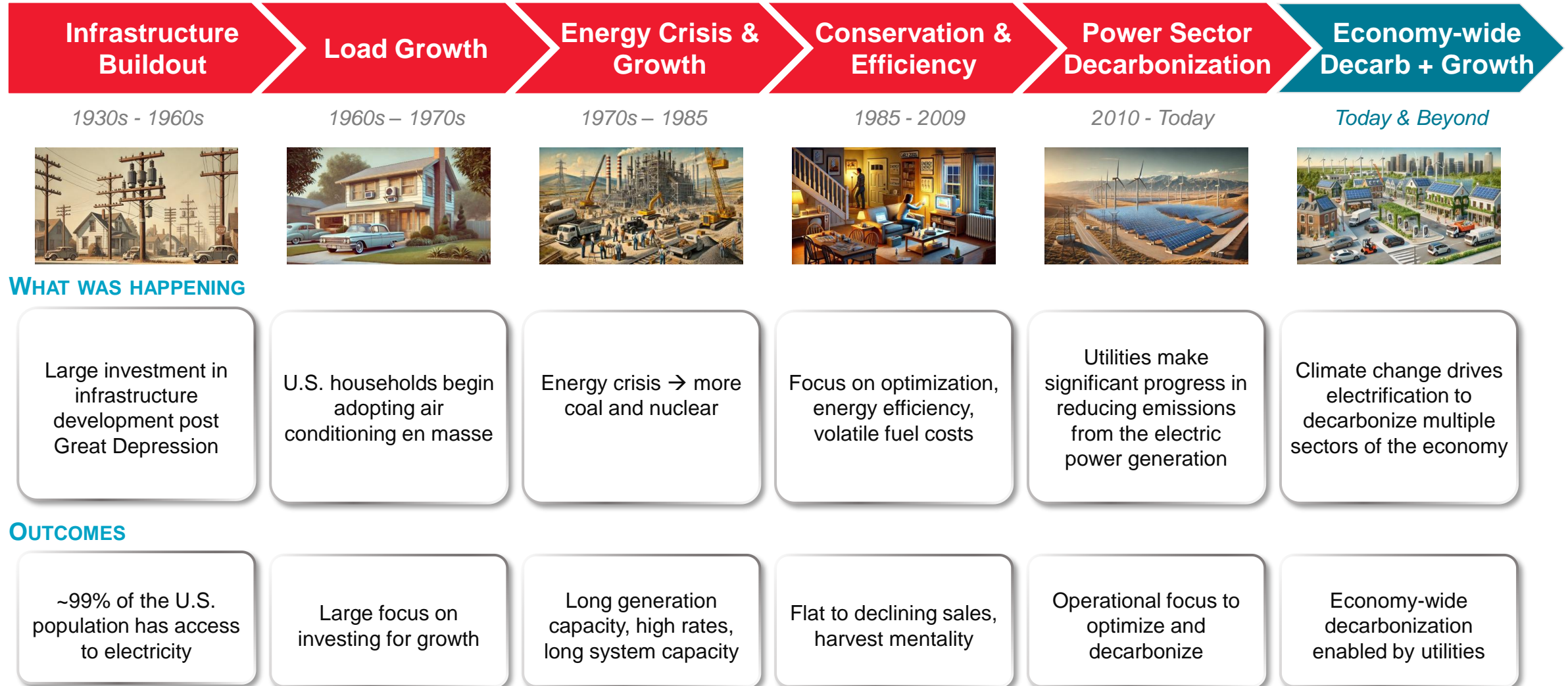
GRID OF THE FUTURE

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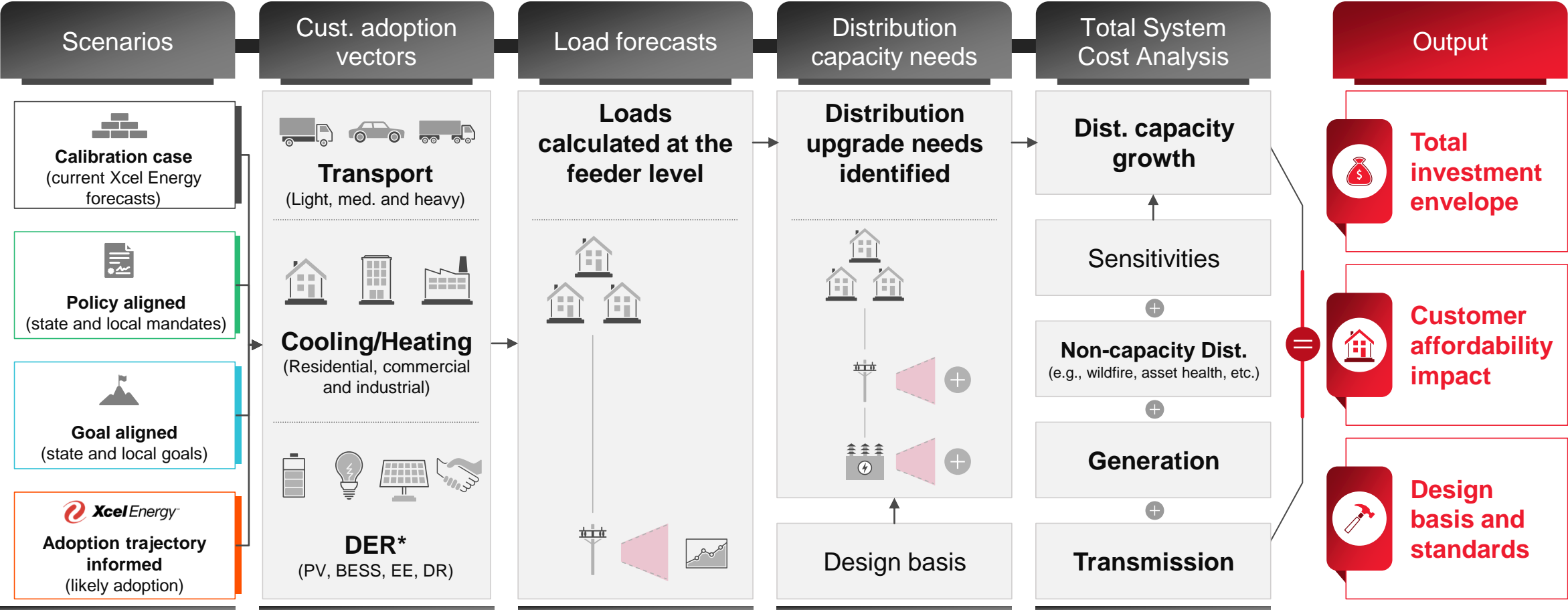
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A Brief History: System Transitions

The electric system has been built out over the last century in tranches in response to various drivers



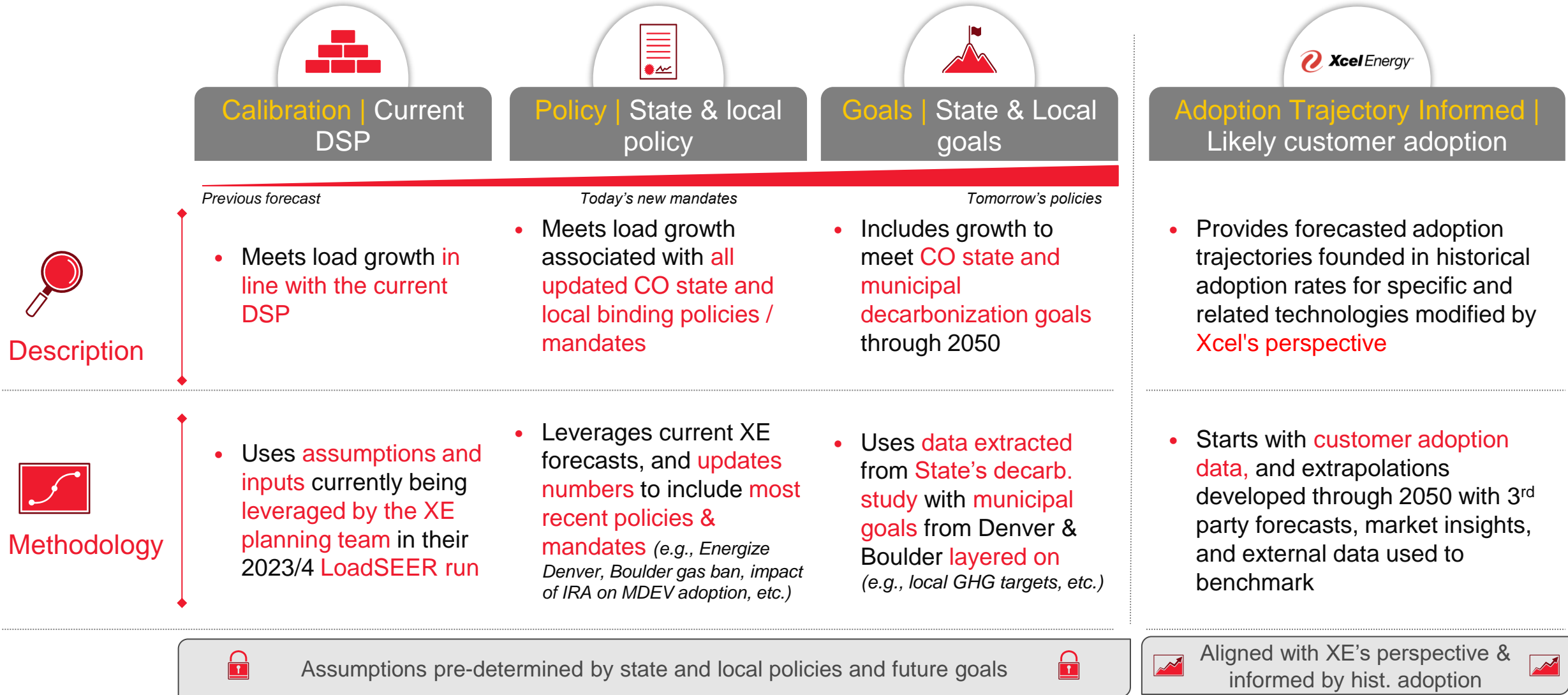
Overall Modeling approach for the Grid of the Future



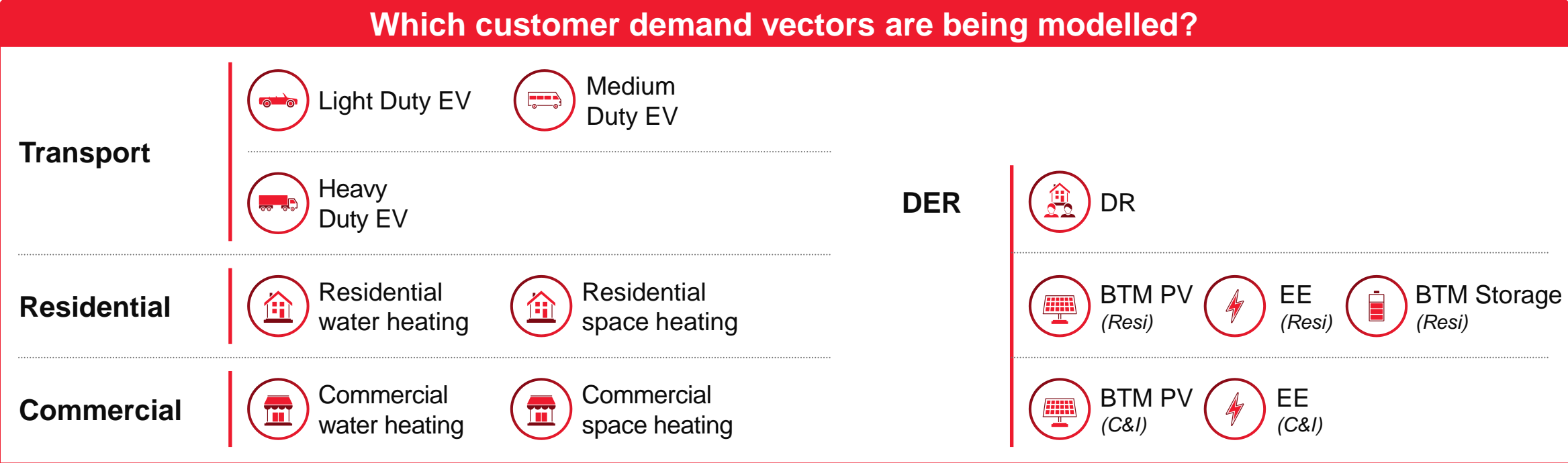
*DER (Distributed Energy Resources) – includes any customer choice actions behind the meter such as rooftop solar (PV), battery energy storage systems (BESS), etc.

Grid of the Future uses four scenarios to frame the range of possible futures

Assumptions for first 3 scenarios dictated by state & local policy / goals while 4th scenario paints future “as seen by Xcel Energy”



Scenarios are based on forecasted penetration across 13 customer demand vectors that impact overall load growth



- ### Additional modeling assumptions
- Scenarios focus on core set of demand modifiers above, and as such the base load growth across all scenarios are the same
 - Specific customer loads not incorporated in scenario demand modifiers (e.g., transmission connected data centers, oil and gas electrification, etc.). These add-ons will be incorporated in other aspects of the modeling approach
 - Considerations for design basis of the grid are the same across all scenarios (e.g., sub-station design standards, UH vs. OH guidance, etc.). These variables will be incorporated in another modeling element to be discussed at a later date with this group

The Customer of the Future | Electrification impacts on peak and usage

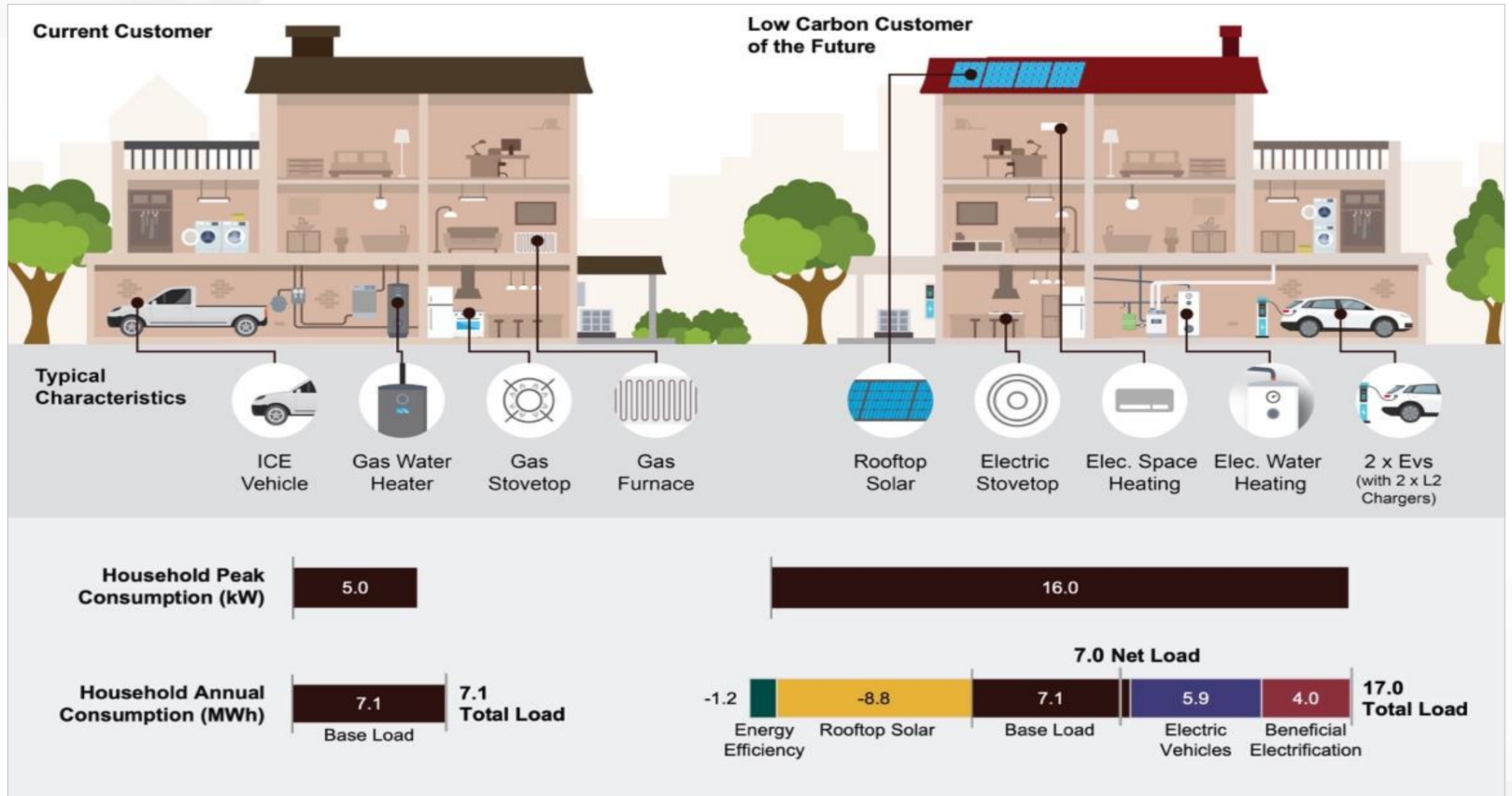






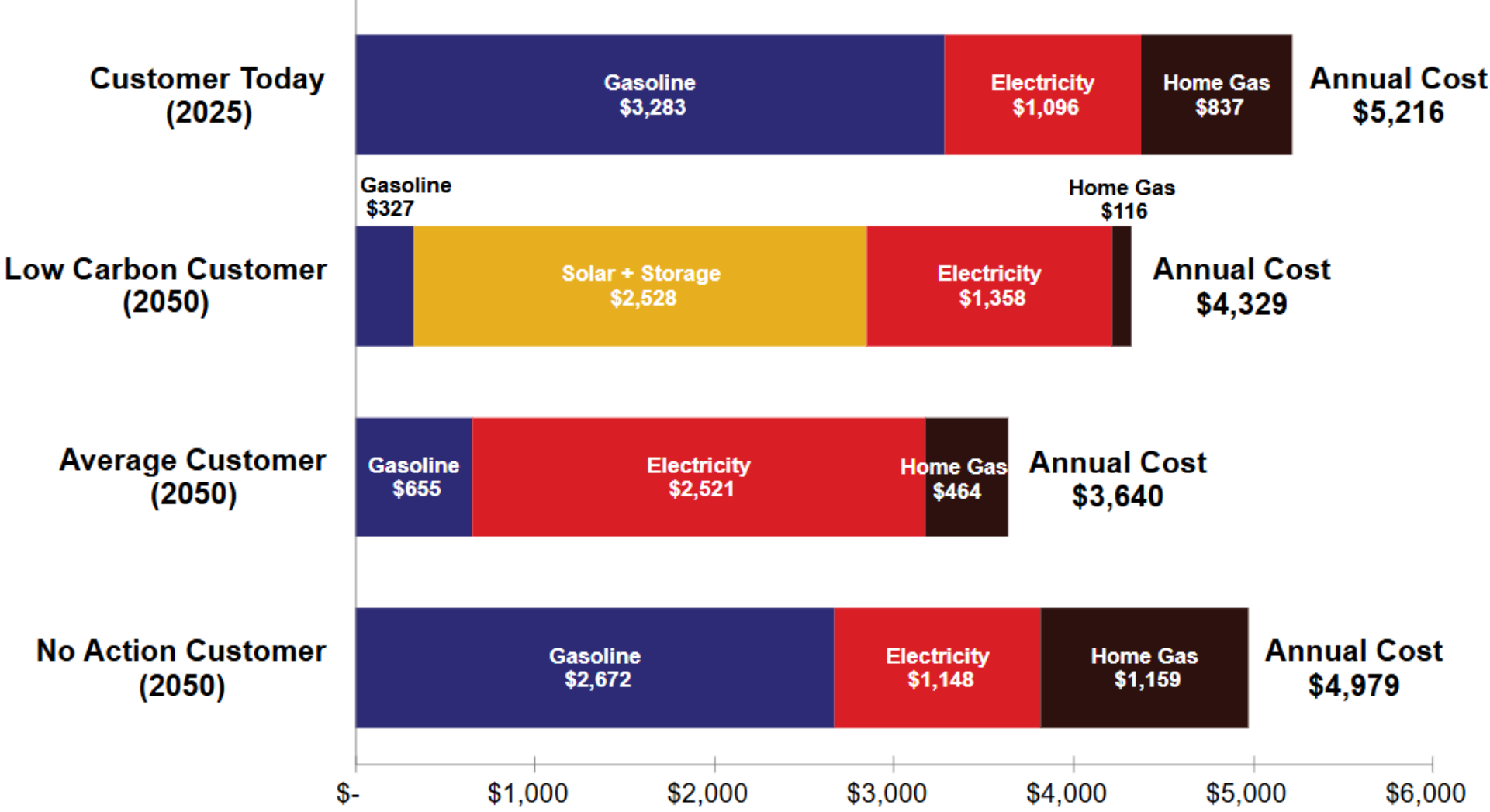


Figure 1. Average Public Service Company of Colorado (PSCo) Household Annual Electricity Consumption and Projected Future Customer Consumption by 2050

GotF – By the Numbers

| | | TODAY | 2030 | 2050 |
|---|--|------------------|---------------------|----------------------|
| Modernize and expand the grid for safety and resilience while meeting growing demand |  Strengthening And Enhancing Our Network | 152 Substations | 187 Substations | 259 Substations |
| | | 278 Banks | 386 Banks | 509 Banks |
| | | 809 Feeders | 1,115 Feeders | 2,193 Feeders |
| To support new sources of electric demand and Colorado's growing economy |  Heat Pumps & Water Heating | 5,000 Heat Pumps | 300,000+ Heat Pumps | 2,000,000 Heat Pumps |
| |  Electric Vehicles | 100,000 Vehicles | 400,000+ Vehicles | 3,000,000 Vehicles |
| |  Commercial Demand | 3,400 Megawatts | 5,400 Megawatts | 8,500 Megawatts |
| And integrate new sources of clean power |  Behind the Meter Solar | 700 Megawatts | 1,500 Megawatts | 5,000 Megawatts |
| |  Community Solar Gardens | 200 Megawatts | 700 Megawatts | 2,500 Megawatts |

Customer Choices & Cost Impacts



Customer Choices & Carbon Impacts

