Aligning the Cost of Service Study with the "Governors' Accord"

Nevada Energy Industry Task Force

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Agenda

1. Accord Commitments and Principles
2. Pathways toward fulfilling the Accord vision
3. The COSS: Allocating costs
4. The COSS: From COSS to Rate Design
5. The COSS: Mitigating cost
6. Aligning the COSS with Accord Principles:
   Achieving the Accord cost effectively

Accord Commitments and Principles

Diversify with Renewables

"Technologies that capture solar, wind, hydroelectric and geothermal power have become viable and cost-effective to integrate into our states' energy portfolios."

Diversify with Energy Efficiency and Conservation

"Promoting energy savings through efficiency and conservation programs is the fastest, most reliable and often cheapest way to meet our energy needs."

Modernize the Infrastructure

"Modern distribution and transmission grids are required to give consumers more control over their own energy use, increase electricity reliability, and integrate more renewable energy and energy efficiency technologies into our energy systems."

Encourage Clean Transportation

"Supporting automakers' and fueling companies' market expansion for these new vehicles and fuels expands consumer choice, lessens dependence on petroleum and reduces pollution."

Plan for the Transition

"These state-by-state approaches enable each state to meet benchmarks it sets for itself in areas such as energy diversification, reduced energy waste, improved air and water, and economic performance."

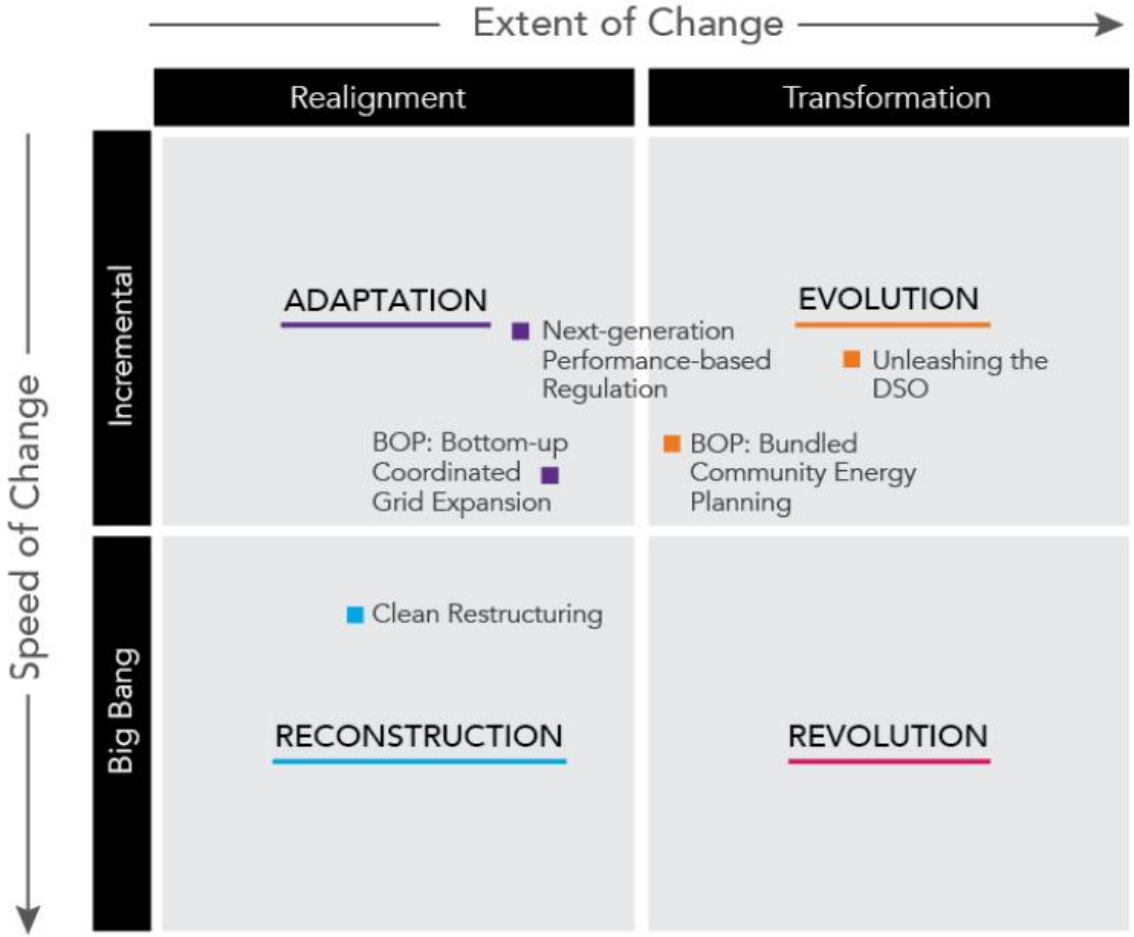
Principles

1. Diversify into clean energy and efficiency
2. Promote cost effectiveness
3. Promote reliability and resilience
4. Support innovative American Companies
5. Empower and engage customers
6. Encourage American Energy Independence and Competitiveness
7. Work with other States

Pathways toward fulfilling the Governors' Accord vision

Transition toward Transformation

- Aligning COSS approach with the Accord is one first step
- The transformation contemplated in the Accord requires more
- There are different pathways toward transformation
- For example,



"Power Systems of the Future," Zinaman, Miller, et al., May 2015 (NREL)

The Cost of Service Study (COSS)

Breaking down the COSS

- What costs are included?
- Embedded costs are backward looking
- What does allocation entail?
- Some sources of DG cost and value may be left out in COSS?
- Some sources of DG value are left out of the COSS but are consistent with the Accord
- Billing Determinants

What costs are included?

The cost recovered is targeted to cover revenue requirements

- Revenue Requirement is the total burden
- Components of the burden (includes profit for rate based items)
  - Production
  - Transmission
  - Distribution
  - Administrative costs, Fuel costs and Taxes

Marginal costs should be used

- Embedded costs are backward looking
- Marginal costs are forward looking

What does cost allocation entail?

In a nutshell

Cost allocation is the process of assigning costs to classes of customer for the purpose of setting rates

The burden is allocated to classes of customers

Classes broadly include:

- Residential
- Commercial
- Industrial

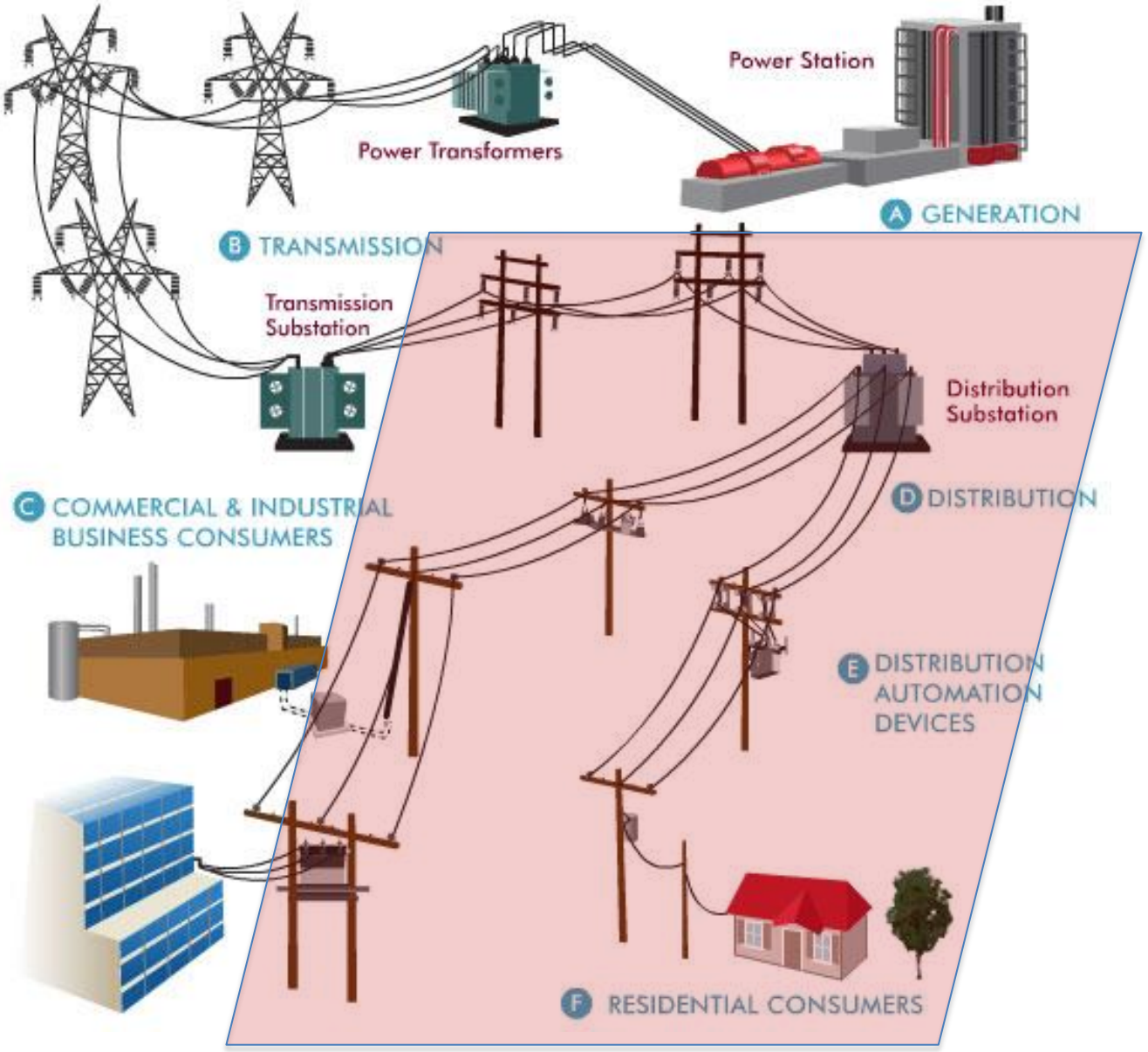
In NV:

- Multi-family is its own category
- PV DG is its own category

Categories of allocated costs

- Demand Related Costs
- Energy Related Costs
- Distribution System
- Customer Costs
- Other Costs

Transmission and large scale generation are sized to serve all customers in aggregate



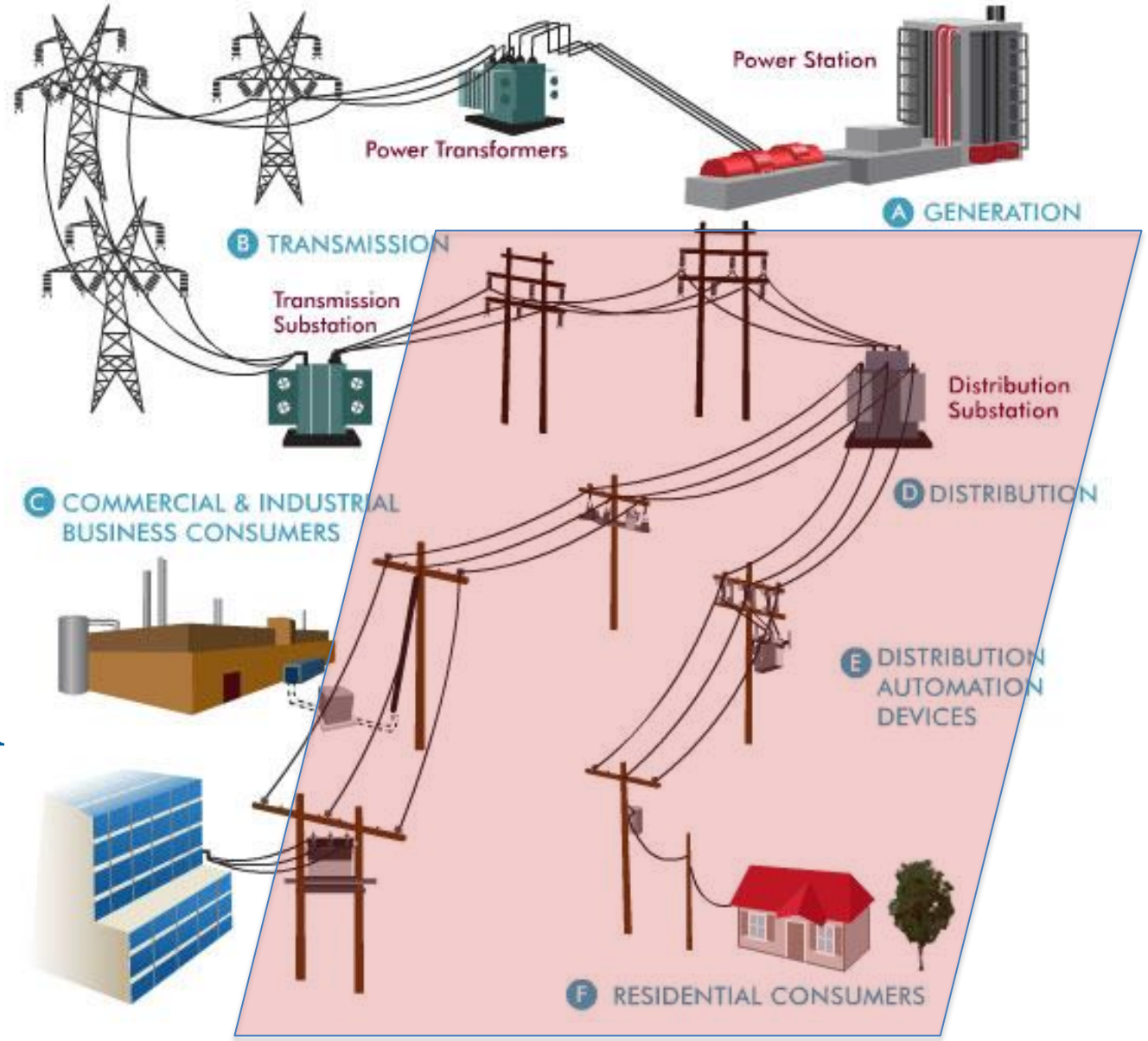
T & G infrastructure cost incidence

- All customers benefit to some extent
- Marginal costs are caused according to contribution to **coincident** peak
  - Allocating according to non-coincident peaks is wrong

Energy cost incidence

- Fuel and energy costs should be apportioned to time of use
  - Off-peak, mid-peak, peak and critical peak, for example

Distribution system facilities (circuits and substations) are sized according to the generation and usage on that footprint



D Cost incidence

- All customers benefit to some extent
- Some customers cause more cost
- Three methods for allocating costs

  1) Basic Customer

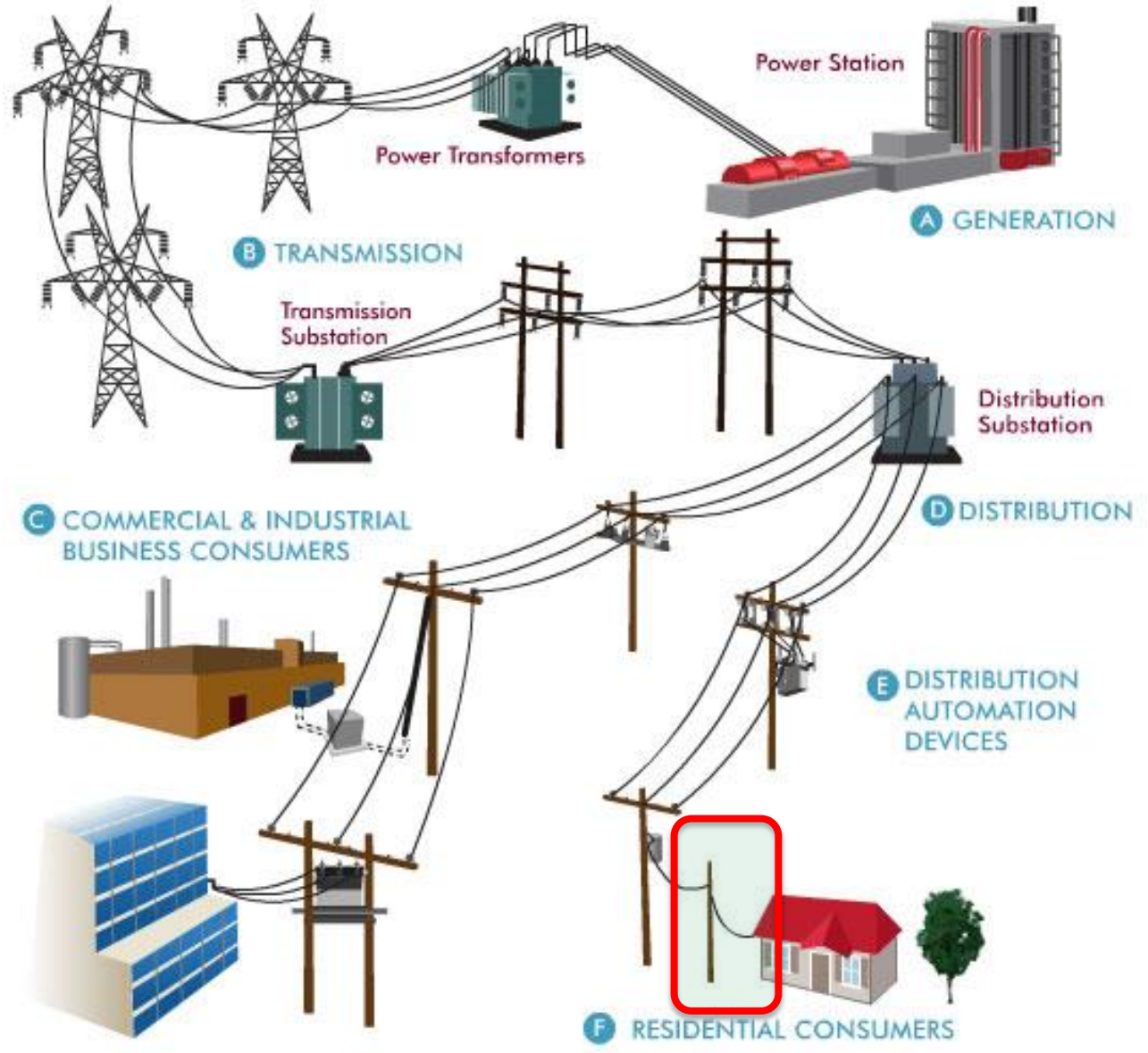
  2) Minimum System/Zero Intercept

  3) Peak and Average

Basic customer method

- only customer specific are customer related, others demand related
- Non-customer specific allocated based on the class contribution to peak demand

The Basic Customer method



The Minimum System/Zero Intercept Method

- "Minimum system" (portion of D) is declared, called customer costs, all others are demand related
- Example: portion allocated on a per customer basis, portion allocated on contribution to peak demand basis

Peak and Average Method

- Cost of "basic" distribution infrastructure treated as energy related, cost of meeting extremes (e.g. peaks) allocated based on contribution to peak
- For example, poles and wires allocated partly based on class peak demand, partly on kWh usage

Some sources of DG system cost may be left out that could be reflected in the study

- DG systems may defer the need for demand related additions and thus benefit all utility customers
- Avoided losses
- Avoided distribution (depends on penetration level on a circuit/substation)
- Avoided T&D
- DRIPE, avoided compliance cost, etc.

Some sources of DG value are left out of the COSS but are consistent with the Accord

- Non-energy benefits such as economic development benefits (e.g., jobs, tax revenue) and non-compliance related environmental resource costs (e.g., water use) are benefits but don't typically get included in a COSS
- In other words, the COSS is not a comprehensive test of values and costs

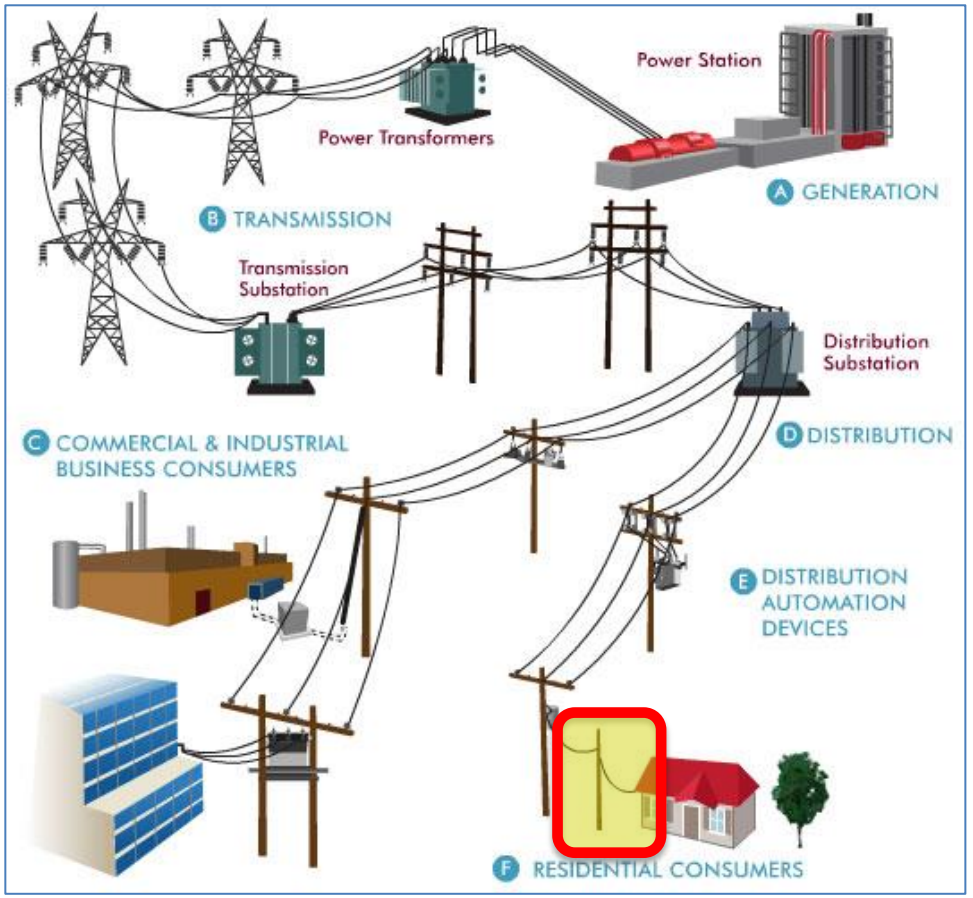
Billing determinants

- Demand
- Energy
- Customers

The COSS: From COSS to Rate Design

Principle #1

A customer should be allowed to connect to the grid for no more than the cost of connecting to the grid.



Principle #2

Customers should pay for the grid in proportion to how much they use the grid, and when they use the grid.

Principle #2 (cont'd)

Customers should pay for the grid in proportion to how much they use the grid, and when they use the grid.

Principle #3

Customers delivering power to the grid should receive full and fair value –- no more and no less.

The COSS: Mitigating costs

Include distributed energy resources in meeting system needs

- Recall the driver of total cost is revenue requirements
- Distributed energy resources have complementary capabilities (Rooftop DG, ground mounted DG, other DG, storage, EE and DR)
- Capabilities can be usefully combined to reduce need for supply side resources

Leverage customer investment

- When customers invest their own money in DERs, all ratepayers are relieved from some investment burden
- Attracting customer investment requires:
  - A value proposition
  - Stability

Leverage competitive procurement

- Competitive procurement can avoid some 35 capital commitments
- In state developers are one option
- EIM is introducing competitive regional provision in the intra-hour market
- Regional integration will introduce additional resource alternatives

Infrastructure investment should align with the Governors' Accord

- Infrastructure that enables and engages customers is important
- Infrastructure that enables competition is important

Aligning the COSS with the Governors' Accord

Principles for Alignment

1. The COSS must be viewed within the context of a larger transition and transformation
2. The price signal conveyed to customers by way of rate design is the most important outcome of the COSS
3. Mitigating cost by supporting private investment, leveraging DERs and building the right infrastructure is key

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power and natural gas sectors. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

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