1. **Historical Performance:**
   Annual versus Cumulative Impacts, Decoupling

2. **Forecasts & Targets**
   Inputs, Market Segmentations and End Uses, Measure Assumptions, Weather, Scenarios, Cost of Carbon Pricing

3. **Program Overview**
   Low Income, Residential, Commercial & Industrial Opportunities

4. **Short Term Direct Use Benefits to Emissions, Climate**

5. **Thoughts going forwards:**
   Economic, Forecasting & Subject Matter Expertise
Local Program Highlights

- Insulation rebates frequently cover more than half the install costs
- In 2018, $418k invested by the community in weatherization (insulation & air sealing), Cascade reimbursed $243k in rebates
  - $453k for all Bellingham 2018 rebates
- Almost 75,000 residential annual therms saved for 2018
- Added Point of Sale pilot in 2019 to minimize upfront financial burden on customers
Cumulative Portfolio Potential Forecasts

CUMULATIVE POTENTIAL DSM FORECAST

TWENTY YEAR TOTAL: 47 MILLION THERMS

YEAR 20 CUMULATIVE DSM = 16% OF CORE FORECASTED DEMAND
**PROGRAMS**

[Learn more: www.cngc.com/energy-efficiency](http://www.cngc.com/energy-efficiency)

### RESIDENTIAL & LOW INCOME

- **New Home** Built Green or Energy Star Certifications - $2,000
- **Weatherization**: insulation $0.75 - $1.00/sqft, air sealing $150, windows $5/sqft
- **Equipment**: HE Furnaces, Tankless WH, Boilers, Fireplaces, Combination Systems, Programmable Thermostats, Doors
- **Low Income** weatherization & equipment program, covers health & safety, up to 100% of costs, no cap

### COMMERCIAL & INDUSTRIAL

- **Custom** offerings for unique projects. Rebates calculated based on anticipated therm savings & avoided costs
- **Prescriptive** weatherization such as insulation, up to $2.50/sqft, plus windows
- **Kitchen** Equipment: dishwashers, fryers, ovens, steamers, pre rinse spray valves…
- **Water**: Boilers, Tankless, Ozone Injection Laundry, Recirculation Controls, Free Aerator & Showerhead Kits…
- **Unit Heaters**, Radiant, Furnaces, & more
WHY DOES CASCADE TRY TO SELL LESS?

- History of Community Partnership
- Demand Side Management optimizes system performance – avoided costs
- Regulated utility – we have to meet annual energy savings goals
- Direct Use Benefits – see image at right on most efficient use
- Environmental Stewardship – it’s the right thing to do for the communities we serve, to support long term sustainability
THOUGHTS ON: ECONOMICS

• **Overview cost-effectiveness testing options**: such as Resource Value Test’s Benefit & Cost Matching, Societal Cost Test, Total Resource Cost Test, Program Administrator Cost Test from the City or Partner’s Perspective, or industry practices, mix and match to create your own unique test for the Bellingham Climate Action Task Force

• **Local Cost Data**: available from aggregated actual rebate applications’ contractor invoices to ensure local, recent installation costs are reflected – to use to design program incentives, budgets, etc.

• **Market Dynamics**: residential single family home, multi family, or manufactured; or commercial retail, restaurant, healthcare, office, etc.; or industrial by manufacturing type. End usage by peak or baseload
THOUGHTS ON: FORECASTS

• **Weather impacts**: NOAA’s forecasted decline in HDDs
• **Ramp rates**: e.g. Cascade uses adoption curves based on the Northwest Power & Conservation Council's 7th Plan methodology
• **Load profile shapes**: to target peak energy use, why it's beneficial
• **Deemed savings**: opportunities for cross referencing
Residential Natural Gas Consumption by End Use

- Space Heating: 64%
- Secondary Heating: 5%
- Water Heating: 19%
- Appliances: 3%
- Miscellaneous: 9%

23,000 customers in Bellingham
50+ million therms per year