EEI Energy Track 2
Beyond Demand
Response
GROCERY STORES
Albertsons Companies Inc

Albertsons Companies is committed to helping people across the country live better lives by making a meaningful difference, neighborhood by neighborhood.

When Joe Albertson opened his first store in 1939, he knew the key to running a really great store is all about working hard for the customers: give them the products they want, at a fair price, with lots of tender love and care. A customer first philosophy was shared by all of the retail pioneers who founded the businesses that make up Albertsons Companies today. We are one of the largest food and drug retailers in the United States, with both a strong local presence and national scale. We focus on running great stores across each of our 13 divisions.

We operate stores across 35 states and the District of Columbia under 20 well-known banners including Albertsons, Safeway, Vons, Jewel-Osco, Shaw’s, ACME, Tom Thumb, Randalls, United Supermarkets, Pavilions, Star Market, Haggen and Cams. Albertsons Companies is committed to helping people across the country live better lives by making a meaningful difference, neighborhood by neighborhood.

2,300+ retail stores

$59.7 billion annual sales*

28 distribution centers*

18 food and beverage plants*

Nation’s largest brand of USDA-certified organic products

*FY2016 ended February 25, 2017
What about Demand Response

• Revenue to curtail load when called upon.
  • Many programs across the country to participate in some are auto DR, aggregators, some are voluntary.
  • Participation hours vary.
  • Equipment requirements EMS controller compatibility.
  • Pre-cooling.
  • Environment setpoints.
  • Do you have enough load to curtail or are you very efficient?
  • Generator programs.
Demand Charges

- Customers on a demand rate schedule will have a demand meter.
- The demand charge will typically be the highest average kW measured in a 15 minute interval multiplied by the demand rate per kW.
- kW compared to kWh speedometer vs odometer
- On and Off Peak demand rates and hours.
- Seasonal demand charges Summer June –September/October
- Rachet demand monthly demand minimums based on previously set peak demands.
Southern California Edison

I total amount you owe by Sep 4 '18 $16,205.10

Compare the electricity you are using
For meter 359150-009888 from Jul 13 '18 to Aug 13 '18
Total electricity you used this month in kWh 255,846

<table>
<thead>
<tr>
<th>Electricity (kWh)</th>
<th>Demand (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On peak</td>
<td>50,752</td>
</tr>
<tr>
<td>Md peak</td>
<td>70,143</td>
</tr>
<tr>
<td>Off peak</td>
<td>134,951</td>
</tr>
<tr>
<td>Total</td>
<td>255,846</td>
</tr>
</tbody>
</table>

Reactive usage is 122,560 kVarh
Maximum demand is 461 kW
Reactive demand is 225 kVar

Details of your new charges
Your rate: TOU-GS-3B
Billing period: Jul 13 '18 to Aug 13 '18 (31 days)
Delivery charges
Facilities ret demand Energy
On peak $50,752 kWh $0.01634 $829.29
Md peak 70,143 kWh $0.01634 $1,146.14
Off peak 134,951 kWh $0.01634 $2,205.10
Customer charge
Power factor adj 225 kvar $0.05000 $123.75

Direct Access cost responsibility surcharge
DA CRS DWR bond 255,846 kWh $0.00594 $1,404.59
PCIA 255,846 kWh $0.00508 $1,269.70
CTC 255,846 kWh $0.00052 $133.04

Other charges or credits
Generation Municipal Surcharge $229.21

Subtotal of your new charges $16,265.10
Your new charges $16,265.10

Your Delivery charges include:
- $2,837.33 DA Cost Responsibility Surcharge
- $291.21 Generation Municipal Surcharge
- $1,694.37 Transmission charges
- $7,510.42 Distribution charges
- $172.79 Nuclear decommissioning charges
- $2,617.30 Public purpose programs charge
- $1,245.97 New System Generation Charge
- $177.71 Taxes and other

Your overall energy charges include:
- franchise fees: $145.85

Additional Information:
- Service voltage: 480 volts
- Generation Municipal Surcharge (GMS) factor: 0.00905
- 524.68 is your daily average cost this period

(*Direct Access Cost Responsibility Surcharge (DA CRS) has been authorized by the California Public Utilities Commission (CPUC) for collection of the Department of Water Resources (DWR) historic costs as well as its going forward long-term contract costs, DWR Bond Charges, and above market costs of utility retained generation known as the Competition Transition Charge (CTC).)
## Components of Total Energy Cost
### City of Austin Example

### Randalls #1779

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>59.98%</td>
</tr>
<tr>
<td>Regulatory</td>
<td>28.28%</td>
</tr>
<tr>
<td>T&amp;D</td>
<td>9.73%</td>
</tr>
<tr>
<td>Penalty</td>
<td>2.02%</td>
</tr>
</tbody>
</table>

**Total Cost:** $26,514.32 = 8.22 cents/KWh
# Xcel Colorado

## Xcel Energy Rates & Riders

### Colorado Commercial and Industrial Customers

### Secondary General Rates

- **Summer Demand Charge period is June, July, August, and September**
- **Winter Demand Charge period is October through May**

<table>
<thead>
<tr>
<th>Schedule SG</th>
<th>Effective Rate 8/1/2017</th>
<th>Effective Rate 6/1/2018</th>
<th>Effective Rate 7/1/2018</th>
<th>Effective Rate 8/1/2018</th>
<th>Effective Rate 10/1/2018</th>
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</thead>
<tbody>
<tr>
<td>Base Rates:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service and Facility Charge</td>
<td>$34.40</td>
<td>$34.40</td>
<td>$34.40</td>
<td>$34.40</td>
<td>$34.40</td>
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<tr>
<td>Energy Charge</td>
<td>$0.00461/kWh</td>
<td>$0.00461/kWh</td>
<td>$0.00461/kWh</td>
<td>$0.00461/kWh</td>
<td>$0.00461/kWh</td>
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<tr>
<td>G&amp;T Demand Charge - Summer</td>
<td>$14.02/kW</td>
<td>$14.02/kW</td>
<td>$14.02/kW</td>
<td>$14.02/kW</td>
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<tr>
<td>G&amp;T Demand Charge - Winter</td>
<td>$9.82/kW</td>
<td>$9.82/kW</td>
<td>$9.82/kW</td>
<td>$9.82/kW</td>
<td>$9.82/kW</td>
</tr>
<tr>
<td>Distribution Demand</td>
<td>$5.63/kW</td>
<td>$5.63/kW</td>
<td>$5.63/kW</td>
<td>$5.63/kW</td>
<td>$5.63/kW</td>
</tr>
<tr>
<td>GRSA/ESA</td>
<td>0.12%</td>
<td>-4.07%</td>
<td>-4.07%</td>
<td>-4.07%</td>
<td>-4.07%</td>
</tr>
<tr>
<td>Riders:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSMCA</td>
<td>$0.46/kW</td>
<td>$0.57/kW</td>
<td>$0.62/kW</td>
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<tr>
<td>PCCA</td>
<td>$1.44/kW</td>
<td>$1.34/kW</td>
<td>$1.34/kW</td>
<td>$1.34/kW</td>
<td>$1.34/kW</td>
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<tr>
<td>ECA</td>
<td>$0.03079/kWh</td>
<td>$0.02986/kWh</td>
<td>$0.02643/kWh</td>
<td>$0.02643/kWh</td>
<td>$0.03581/kWh</td>
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<tr>
<td>RESA</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
<td>2.00%</td>
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<tr>
<td>CACJA</td>
<td>$1.56/kW</td>
<td>$0.91/kW</td>
<td>$0.91/kW</td>
<td>$0.91/kW</td>
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</tr>
<tr>
<td>TCA</td>
<td>$0.34/kW</td>
<td>$0.48/kW</td>
<td>$0.48/kW</td>
<td>$0.48/kW</td>
<td>$0.48/kW</td>
</tr>
</tbody>
</table>
Typical Energy Use in Grocery Stores

A. Electricity usage
- Refrigeration 47%
- Lighting 18%
- Heating 14%
- Cooling 5%
- Cooking 5%
- Ventilation 3%
- Other 4%
- Water heating 2%
- Office equipment 1%
- Computers 1%

B. Natural gas usage
- Heating 65%
- Water heating 6%
- Other 4%

Notes: Categories with values less than 1 percent are not shown.

Source: US Energy Information Administration
Demand Limiting and Energy Reduction

- EMS Controls
  - Refrigeration control algorithm
    - Staging compressors
  - Lighting schedules
  - Anti Sweat Heater control
  - Floating head and suction pressure
- Other control strategies such as RTU controls
- Retro- Commissioning
- Energy Efficient Lights
- Refrigeration Display Cases
  - ECM Motors
- Variable Frequency Drives
- Battery Storage
Energy Utilization

- Electric Commutated Motors (ECM)
- Variable Frequency Drives
- Anti-Condensate Controls
- LED’s
- Water Aerators & Spray Valves
- Water Aerators and Spray Valves
- HVAC-R Commissioning
- Display Cases
- Display Case LED’s
- Walk-in Coolers/Freezers
Energy Checklist

Build on the energy checklist below, and work with your Energy Team Captain to identify cost saving opportunities in your store.

- All display cases are properly stocked, load limits are followed and product is “fronted”
- All freezer and cooler doors are closed when not in use
- Reach-in doors are not “propped” open for stocking – checklists are used and doors are opened only once
- Sales floor lights are shutting off to 50% during non-business hours
- Display cases, perimeter lights, spot lighting and all other non-essential lighting is off during non-business hours
- Cooking equipment is off when not being used
  - Applies to hoods/fans, rotisserie, bread oven, fryer
- Doors are closed
  - Compressor room, vestibule, doors to the back room, receiving doors
Refrigeration – Where else can we save money?

- Keep freezer and cooler doors closed
- Do not prop open the plastic curtains and replace them if they no longer block the doorway completely

Did you know it takes $1,000 of retail sales to make up for every hour the freezer door is left open?

- Do not prop open reach-in doors while stocking – leaving doors open wastes dollars and reduces shelf life (shrink)
  - Stock frozen and dairy doors one at a time
  - Make a list of items needed from coolers and freezers and use a cart to minimize the number of trips needed

Stocking properly can potentially save $4,000/yr and help to reduce shrink!
Refrigeration – Display Cases

• Verify that cases are loaded properly
  • Do not block the return air grille with product or pricing/promotional tags. Return air grilles are found in ALL display cases and are located at the front, bottom of the case.
  • Ensure load limits are followed – see inside case for “load line” and do not stock case above or past this line

• Fully stock the cases
  • Cases are most efficient when they are fully stocked
  • POTENTIAL SAVINGS - $3,500/yr per store!

Return air grille
(Located at the front of the case; re-circulates refrigerated air back into the case)

Blocked air flow!
(For all display cases, verify that the return air grille allows air to flow freely)
Distributed Energy at Albertsons Companies

• **49 Solar Projects**
  • In seven states (AZ, CA, CO, DC, HI, OR, MD and NJ)

• **1 Wind Project** – CA 2-1MW turbines Tracy DC

• **1 Fuel Cell Project** – Bloom Energy

• **13 Battery Storage Projects** – Stem; Engie - Green Charge Networks
  • In two states (CA, HI)

#2079 60 KW

#1879 18 KW
New Additions

• EV Charging Stations
  • Level II
  • DC Fast Chargers
• In Home Delivery Vehicles
• Drive Up & Go
• Expanded Fresh
  • More Prepared Foods
Electrification of the Supply Chain

- California Air Resources Board (CARB)
- Electric Transport Refrigeration Unit (eTRU)
  - Electric plug in stations
- Electric Trucks
  - DC fast chargers
- Electric Material Handling Equipment (MHE)
  - Smart battery charging systems
  - Potential for LCFS credits