



# Limited Brands & Comverge: A 10 Year Partnership

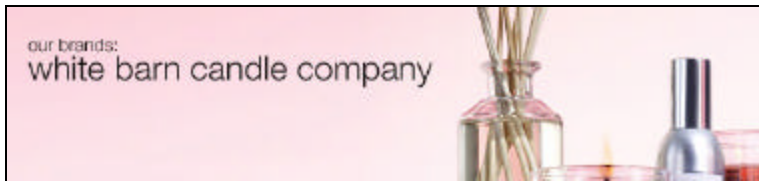
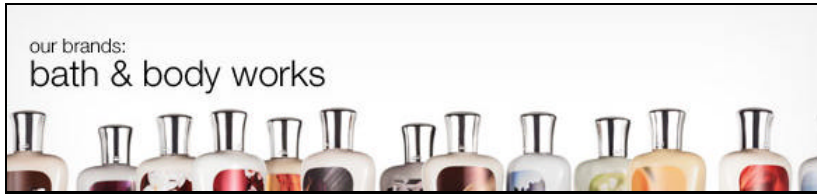
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Sandra Ware, Limited Brands  
Manager of Energy & Environmental Services

Shawn Borden, Comverge  
Senior Energy Analyst



# Limited Brands – Who We Are





## Limited Brands – Who We Are

- 2,700 U.S. stores
- 300 Canadian stores
- 400 stores in 40 other countries

Founded in 1963 in Columbus, Ohio, Limited Brands has evolved from an apparel-based specialty retailer to a more than \$10 billion company focused on lingerie, beauty and personal care that makes customers feel sexy, sophisticated and forever young.

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## Limited Brands – Energy & Environmental Services

- Annual utility spend ~ \$65M
  - Sandra's responsibilities
    - Demand Side Energy Management
      - Creating new and innovative means to save energy
        - HVAC proactive replacement project
        - Temperature reset project
        - Replacing the EMS systems in the stores for better management of the store environment
    - Store Lifecycle Management
      - Managing the 1<sup>st</sup> year maintenance/warranty process for design and equipment
      - Managing the lifecycle of what goes into the stores
        - trending / reporting
        - parts evaluation / lifecycle
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# Progression of Partnership

- 1999
    - Monitoring installed in a percentage of stores across the country
    - Mix of brands and types, focus on deregulation and data for commodity purchasing
    - Provided training and data verification only
  - Over time progressed to analysis
    - HVAC maintenance
    - Landlord analysis
      - Renegotiated contracts
      - Benchmark for new contracts
      - Landlord uses metered data for invoice
    - After hours savings potential
  - Next Step – Implementation including Demand Response!
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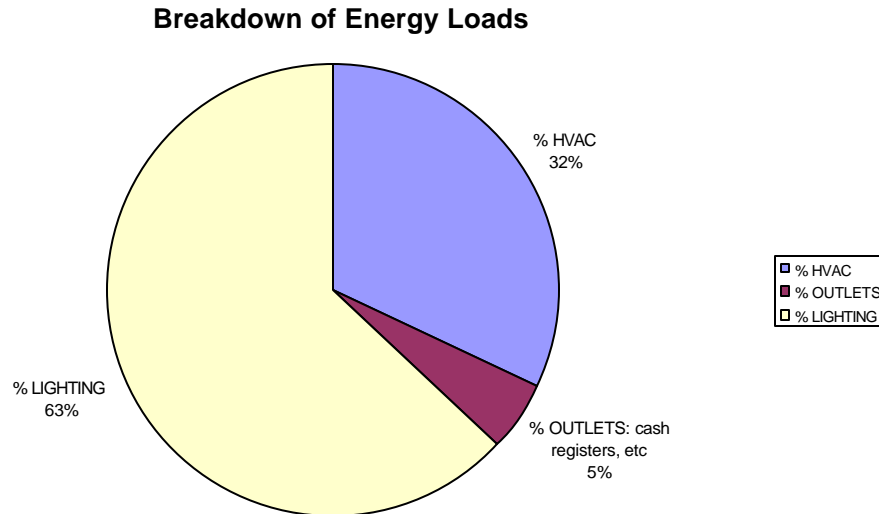
# Comverge Services

- Energy Monitoring & Website Access
    - Interval data displayed
    - Daily downloads
    - Sub-loads monitored (HVAC, lighting)
  - Energy Analysis & Consulting
  - Project Implementation
    - After Hours Reduction
    - Demand Response
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# Data Analysis

- Sample of early analysis derived from sub-metered data



**From sub-metering our HVAC units we were able to understand our stores load profile and energy usage.**

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# Progression of Partnership

- Today
  - Comverge is a part of Limited Brands Energy Team
    - Working together in person at least once a week
    - Involved in internal Store Solutions meetings
    - Works on projects beyond data
    - Pays attention to Limited's needs

**Comverge has helped us over the years to be more proactive in demand side management. With their monitoring and analytical expertise, we were able to see inefficiencies both in equipment and in process.**

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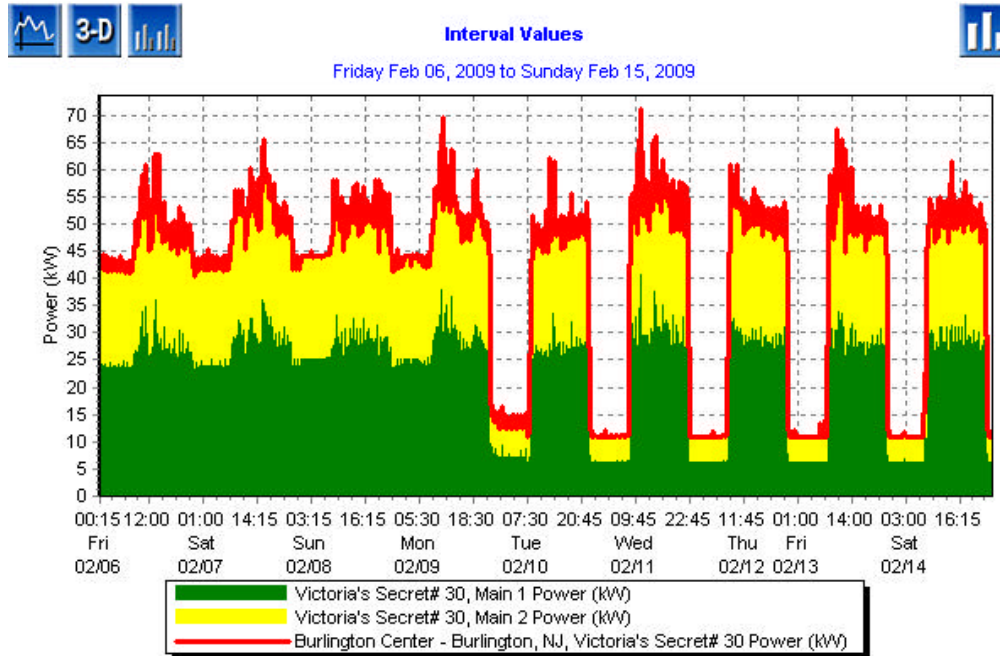


**One of the many opportunities Comverge helped us to realize is the excessive use of electricity in our stores during non-sales hours.**

## After Hours Program

- \$500,000 saved in the last three years
  - Comverge analysts:
    - Identify stores with high night time energy use
    - Enter tickets in Limited's maintenance software to dispatch contractors
    - Communicate with contractors and controls company to optimize night time settings
    - Follow through with savings calculations and continual monitoring
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# After Hours – Sample Fix



← This fix will save the store nearly \$10,000 in one year.

The after hour program also allowed us the opportunity to re-evaluate our stores control systems.



# New Energy Management System

Today we have installed a new Building Control System in about 50 of our stores that gives us a holistic view of our stores environment, both from a maintenance point of view and from an energy perspective. The remainder of the fleet will be rolled out within the next 2 years.

- Participate in demand response programs
- Remotely adjust the store temperature
- Adjust the dampers on the HVAC units
- With thermo-graphics software, we can see if the required temperature in the various zones in the store is met
- Proactively save on maintenance calls
- Turn off lights that are left on during closed hours
- Better manage store comfort

All in real time.....

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# Demand Response Participation

Limited Brands is now able to participate in DR programs due to advanced controls and interval metering installed.

- Participates in PJM Capacity Program
  - Stores aggregated by EDC
  - Commitment to reduce load within 2 hours of notification of an event
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# Demand Response Hurdles

- Only stores served directly by utility may participate
  - Many stores have mall provided power – they are excluded from DR programs
  - Most utilities do not provide interval meters for small box retail so Limited Brands must install
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# Demand Response Strategy

- Temporarily raise set point in store space during event so that RTU compressor turns off
  - Turn off specified zones of lighting if necessary
  - Can force compressors off and/or restage RTUs if necessary
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# Demand Response Example

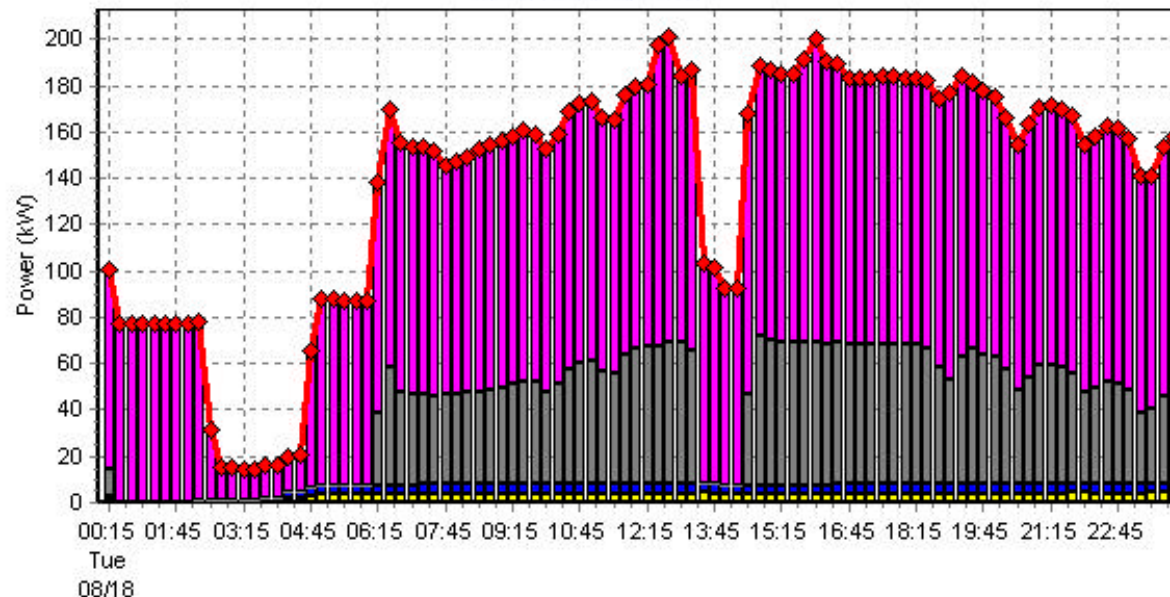
- Test event called by PJM August 18 from 1:00 PM to 2:00 PM
- Large Victoria's Secret store
- Approximately 80 kW reduction – chiller turned off



Interval Values



Tuesday Aug 18, 2009



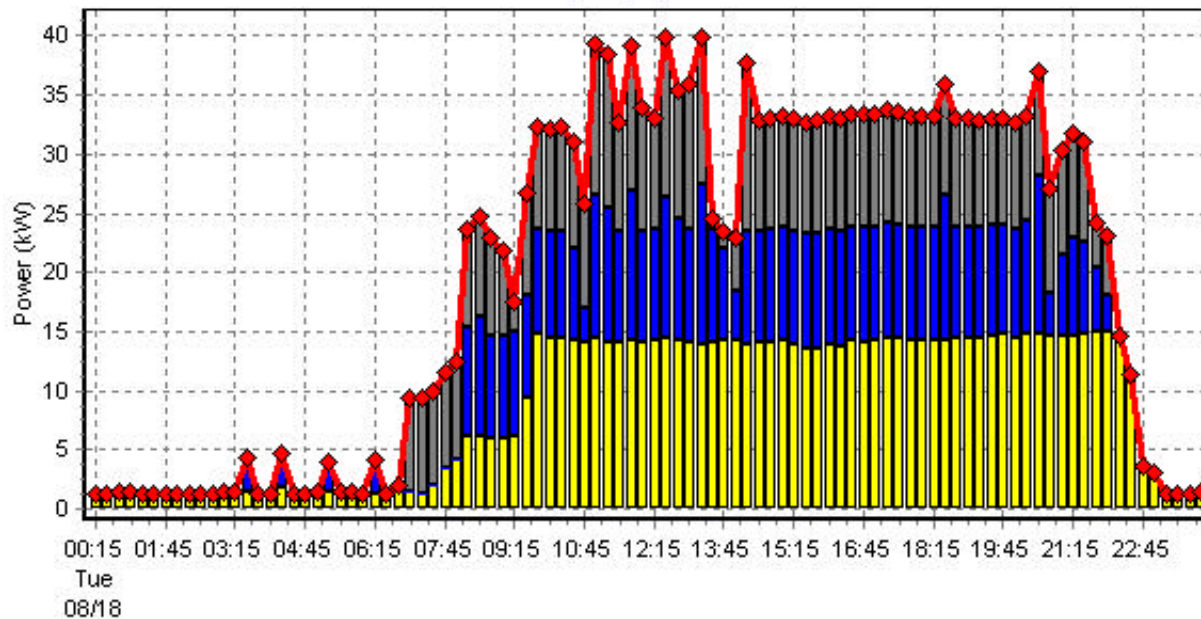


# Demand Response Example

- Test event called by PJM August 18 from 1:00 PM to 2:00 PM
- Smaller Victoria's Secret store
- Approximately 10 kW reduction – one RTU turned off



Interval Values  
Tuesday Aug 18, 2009





# Demand Response Impressions

- Why we did it
- What we think of it so far

