NERC’s Demand Response Data

Collection: System Adequacy
2007 Emerging Issue Focus

Green House Gas (CO₂)
Regulation & Renewable Mandates

Transmission
Aging Workforce
Equipment Availability

Balance for System Reliability & Adequacy

Power System
- Static/Dynamic Reactive Sources
- Advanced Planning Tools
- Extreme Weather Impact Demand

Supply
- Renewables
- Nuclear Power
- Fossil-Fuel Security
- Hot Weather & Plant Capacity

Demand
- Demand Response

NERC
North American Electric Reliability Corporation
Demand-Side Management

Demand-Side Management

Demand Response Programs

Energy Efficiency Programs

Incentive-Based Demand Response

• Direct Control Load Management
• Interruptible Demand

• Demand Bidding/Buy-Back
• Emergency Demand Response
• Load Reduction Acting as Capacity
• Ancillary Services

Time-Based Rates

• Time of Use (TOU)
• Critical Peak Pricing (CPP)
• Real-Time Pricing (RTP)

Figure 1: DSM Programs: Focused on Demand Response

1 Data on these Demand Response Programs are collected by NERC for Seasonal and Long-Term Reliability Assessments
Current NERC Data Collection

- **Direct Control Load Management**
  Magnitude of Customer demand that can be interrupted by Regional Council On Peak. Focused on Residential customers

- **Interruptible Demand**
  Magnitude of customer demand, in accordance to contractual agreement, can be interrupted by the Regional Council on Peak. Direct action by operator or customer and can be used to fulfill planning or operating reserve
2006/2007 Summer Assessment
Regions

Interruptible Demand & Direct Control Load Management

Percentage of Total Internal Demand

<table>
<thead>
<tr>
<th>Year</th>
<th>Region</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>ERCOT</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>2007</td>
<td>FRCC</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>2006</td>
<td>MRO</td>
<td>3.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>2007</td>
<td>NPCC</td>
<td>4.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>2006</td>
<td>RFC</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2007</td>
<td>SEPC</td>
<td>6.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td>2006</td>
<td>SPP</td>
<td>7.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>2007</td>
<td>WECC</td>
<td>8.0%</td>
<td>8.0%</td>
</tr>
<tr>
<td>2006</td>
<td>NERC</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Interruptible Demand

Direct Control Load Management

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Next Steps

● **NERC Study on Influence of Demand Response on Reliability**
  Goal to identify what programs influence reliability and adequacy, suitable models, and data collection requirements

● **Actions from Study Incorporated**
  Target enhancements in the 2008 Summer and Long-Term Reliability Assessments