

# Manufacturing Development Commission

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## Demand Response and Energy Efficiency in Manufacturing

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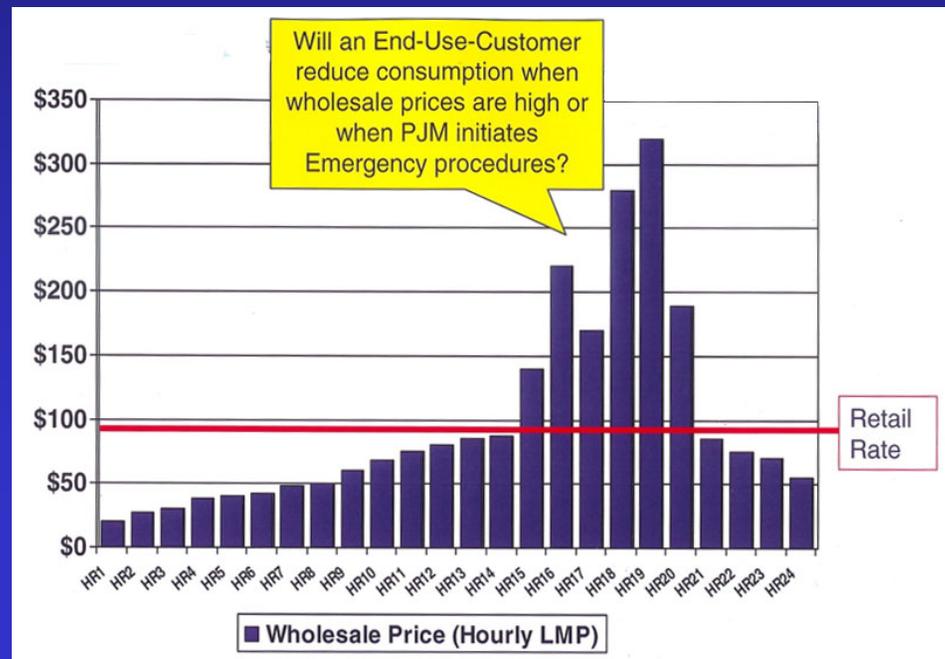
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# Reducing Energy Costs

- **Demand Response**
  - Reducing electricity use during periods of high or peak system-wide demand
- **Energy Efficiency**
  - Reducing the energy input per unit of product
- **Energy Conservation**
  - Using less through turning off

# Demand Response

- Electricity cost highest at peak demand
- DR reduces average cost per kWh for all consumers
- Shares savings with customer reducing demand



# Demand Response

- **Utility Programs**
  - Off peak pricing; emergency load shedding
- **PJM Interconnection Program**
  - Types
    - Rapid Response
    - Emergency Response
    - Economic Response
  - Work through Curtailment Service Provider

# Demand Response

- Possible legislation – 2007 SCC Study DR Group recommendations
  - Statewide goal for capacity reduction
  - Utility demand response programs with cost recovery
  - Real-time or near real-time rates
  - Create incentives for demand response equal to new generation incentives
  - Use of curtailment service providers
  - SCC report on potential, costs, benefits
  - Define emergency for back-up generator use – air quality impact

# Energy Efficiency

- **Past reductions in industrial energy use**
  - Annual rate of increase
    - Virginia
      - 1960-2005 at 2.2% per year
      - 1990-2005 at 0.5% per year
    - United States
      - 1960-2005 at 1.1% per year
      - 1990-2005 at 0.2% per year

Source:: US Dept of Energy State Energy Data System, Industrial Energy Use

# Energy Efficiency

- US Department of Energy Industrial Efficiency Program – Save Energy Now
  - Reduce industrial energy use by 2.5% per year
  - Components
    - Plant energy assessments
    - Training curricula on plant and system energy improvements
    - Technical publications
    - Software tools – self evaluation
    - New technology development
    - Partnerships – state and regional

# Energy Efficiency

- **Virginia Energy Plan**
  - Reduce growth rate of energy use by 40%
    - 10% electric reduction
    - 7% natural gas reduction
    - 10% fuel oil reduction
  - Manufacturing recommendations
    - Use ANSI energy management protocols
    - Use DOE Industrial Technology Program tools
    - Process, steam, compressed air, motors, other

# Energy Efficiency

- **History**

- Energy assessments through ODU, VT
- VT Energy Management Institute
- DMME - Steam efficiency programs
- Industrial Assessment Centers
  - NC State, West Virginia University, University of Tennessee
- ODU Lunch and Learn series

# Energy Efficiency

- US DOE, Save Energy Now: State, Regional & Local Delivery grant solicitation
  - 3 years, \$300,000-\$900,000 total grant
  - Sample activities
    - Marketing and outreach
    - Local training centers
    - Energy assessments
    - Technology demonstrations
    - Commercialization of emerging technologies
    - Project implementation
    - Pilot ANSI accredited Plant Certification Program

# Energy Efficiency

- US DOE, Save Energy Now: State, Regional & Local Delivery grant solicitation
  - Virginia team?
    - DMME, DBA, VEDP
    - ODU, VT, UVA
    - Virginia Manufacturers Association
    - Virginia Philpot Manufacturing Extension Partnership
    - Roanoke Valley-Allegheny Regional Commission
    - Electric and natural gas utilities
  - Letter of Intent: September 15, 2008
  - Application: October 16, 2008