

Overview of the Virginia Energy Plan

Presentation to
The Commission on Energy and Environment
July 17, 2008

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Virginia Energy Plan

Presentation

- Energy policy legislation
- Plan outline
- Virginia energy consumption and sources
- Goals and recommendations

Virginia Energy Policy

2006 State Energy Policy Legislation Policy & Objectives

- Ensure availability of reliable energy reasonable costs
- Establish sufficient infrastructure
- Use resources efficiently & facilitate conservation
- Facilitate development of Virginia's low cost resources, including clean coal
- Facilitate development of less polluting energy sources
- Foster energy R&D
- Energy facilities
 - No disproportionate impact to economically disadvantaged or minority communities
 - Minimize impacts to pristine natural areas, locate near compatible development

Virginia Energy Plan

Outline

1. Introduction and Executive Summary
2. Virginia Energy Resources & Consumption
3. Energy Efficiency & Conservation
4. Energy Infrastructure
5. Energy and the Environment
6. Energy Research & Development
7. Recommendations

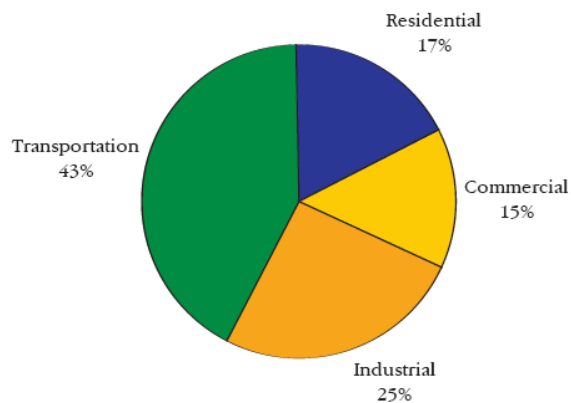
Virginia Energy Plan Goals

- **Increase energy independence**
 - 40% reduction in rate of energy growth
 - 20% increase in in-state energy production
- **Expand consumer energy education**
 - Overcome barriers to consumer action
- **Climate change**
 - 2000 GHG emission levels by 2025; \approx 30% from BAU
- **R & D / economic development**
 - Alternate fuels, nuclear technologies, coastal energy, carbon capture & storage

<http://www.dmme.virginia.gov>

Energy Resources & Consumption Use by Sector

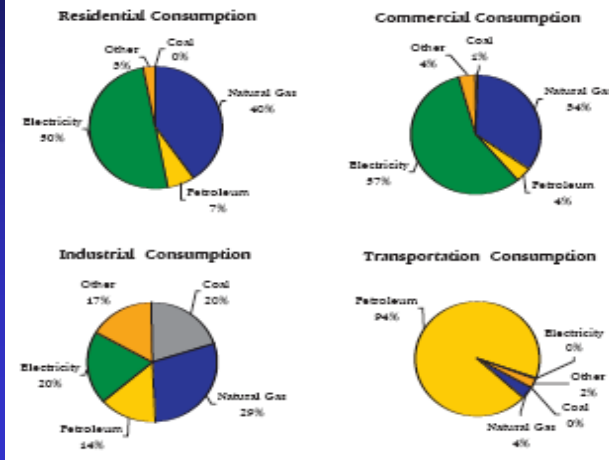
Figure 1-2 Energy Use in Virginia by Sector, 2003



Energy Resources & Consumption

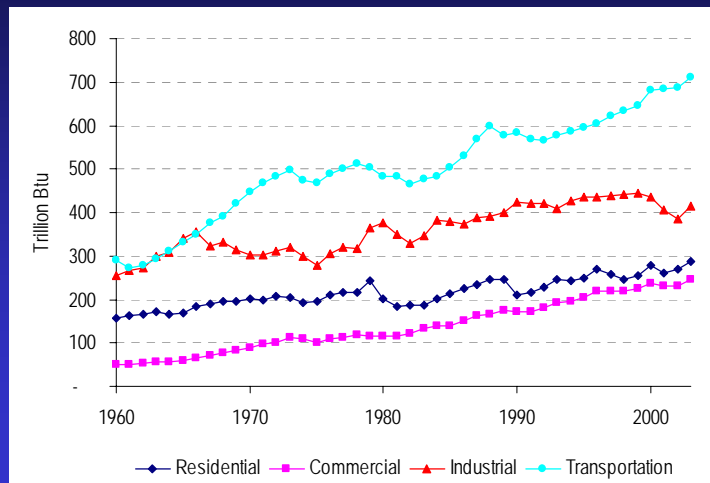
Types of Use by Sector

Figure 1-3 Sources of energy for residential, commercial, industrial, and transportation consumption



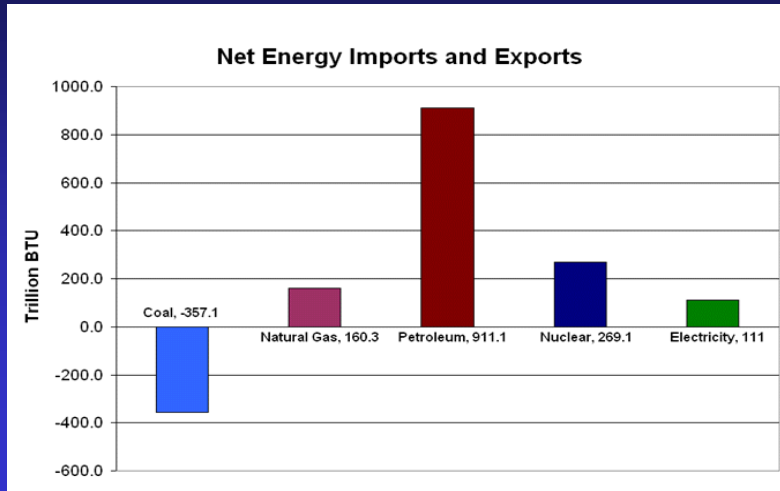
Energy Resources & Consumption

Rates of Growth by Sector



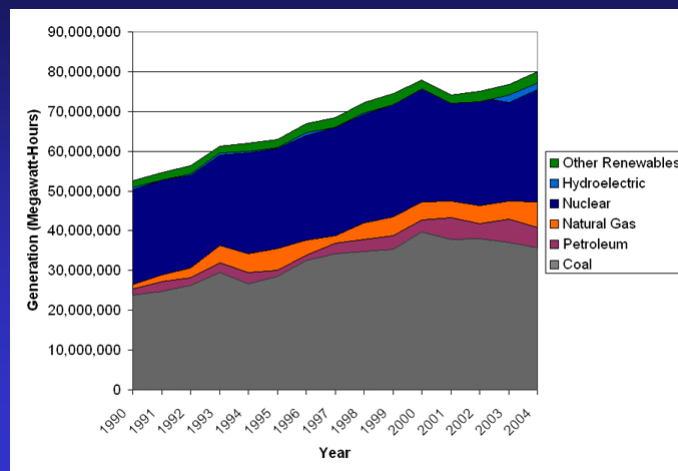
Energy Resources & Consumption

Sources of Electric Generation



Energy Resources & Consumption

Sources of Electric Generation



Energy Resources & Consumption Infrastructure



Recommendations Efficiency and Conservation First

- State policies
- Federal policies
- Local government policies
- Reducing energy use in transportation
- Government – lead by example
- Individual actions
- Commercial business actions
- Industrial actions
- Agriculture and forestry best practices
- Higher education – greening campuses

Recommendations Energy Supply & Infrastructure & Supply

- **Increased electric generation – clean sources**
 - Renewable Portfolio Standard
 - Base load and peaking plants
- **Biofuels production**
 - 300 million gal/yr ethanol; 120 million gal/yr biodiesel
- **Expanded capacity at Yorktown refinery**
- **Stabilized coal production**
- **Increased natural gas production**

Recommendations Energy Infrastructure & Supply

- **Infrastructure improvements**
 - Electric
 - Natural gas
 - Petroleum distribution
 - Coal production
 - Hydrogen fueling
 - Energy infrastructure security

Recommendations Energy Education

- Focus on energy consumers
- Expand activities
- Coordinated
 - Among fuel types
 - Among utilities, government, NGOs

Recommendations Energy and the Environment

- Carbon emission reduction
 - Conservation & renewables to reach about ½ of target
 - Create Commission on Climate Change
 - Inventory; Impacts; Adaptation; Recommendations
 - Executive Order 59 – Report by December 15
- Environmental justice – cost and community impacts
- Recognize ancillary land, water, air impacts
- Biofuels – impacts from crops
- Facilitate carbon capture & storage
- Partner with related programs

Recommendations Research & Development

- **Consistent energy R&D funding**
 - Nuclear; Alternate liquid fuels;
Coastal energy; Carbon capture & storage
- **Coordinated governance – VERDO**
- **Join ASERTTI**
- **Virginia/Mid-Atlantic energy technology showcases**
- **Include energy R&D in energy technology parks**
- **Tie to economic development/jobs**

Appendix Slides

Recommendations Efficiency and Conservation First

- **State Policies**
 - Expand sales tax holiday contingent on revenue impact
 - Electric utility conservation to meet 10% savings goal
 - Expand Weatherization Assistance Program
 - Energy education to general public – Expand in 2008
 - Energy code / home energy rating systems
 - Energy Assessment Centers
 - Early adoption of new technologies

Recommendations Efficiency and Conservation First

- **Federal Policies**
 - Consistent support for residential, commercial & industrial consumers and new energy sources
 - Expand appliance efficiency standards
 - Increase CAFE standards
- **Local Government Policies**
 - Separate property tax classification for 30%+ energy efficient buildings (2007 HB 2618)
 - Account for energy in regulation of development
 - Student transportation efficiency (2007 HB 2302)
 - Waste-to-energy support

Recommendations Efficiency and Conservation First

- **Energy Efficiency in Transportation**
 - Vehicle miles traveled
 - Mass transit
 - Development supporting low-fuel/no fuel options
 - HOV/HOT lanes
 - Telecommuting, car-sharing, ridesharing
 - Fleet efficiencies
 - Purchasing and maintenance
 - Drive smart
 - Alternate transportation fuels
 - E-85, B-20, E-10 reformulated gasoline

Recommendations Efficiency and Conservation First

- **Government actions – Lead by example**
 - Executive Order 48 (2007)/State Energy Management Program
 - Building recommissioning
 - Alternative energy purchasing techniques
 - Coordinate with the Federal Energy Management Program
 - Local government efficiency and conservation actions
 - Schools – curriculum, building/fleet efficiency, alternate fuel use

Recommendations Efficiency and Conservation First

- **Individuals**
 - Make easy day-to-day and lifestyle choices
 - See the *Virginia Energy Savers Handbook* and U.S. Dept. of Energy *Consumers Guide to Energy Efficiency and Renewable Energy*
- **Commercial and Industrial**
 - Assign management responsibility – Use Energy Star or ANSI/MSE 2000:2005 energy management protocols
 - Focus on lighting, HVAC, transportation efficiency, process improvements, combined heat & power
 - Building recommissioning

Recommendations Efficiency and Conservation First

- **Agricultural & Forestry**
 - USDA & NRCS recommended practices for energy
 - Forest Products Industries of the Future recommendations
- **Higher Education**
 - Greening the College Campus

Recommendations Energy Supply & Infrastructure

- **Renewable Electric Generation**
 - Implement Virginia's renewable portfolio standard
 - Facilitate waste wood use
 - Increase waste-to-energy
 - Address community restrictions on renewable systems
 - Develop on-shore wind with local land use approval and showing of no significant avian or bat mortality
 - Assess off-shore wind

Recommendations Energy Supply & Infrastructure

- **Natural Gas Infrastructure**
 - Third Hampton Roads pipeline crossing
 - Pipeline capacity to move natural gas to Eastern Virginia markets
 - Offshore development only if consistent with Virginia policy
 - Use equivalent method for MMS offshore administrative areas
- **Petroleum Infrastructure**
 - Yorktown refinery expansion
 - Petroleum terminal modifications for new alternate fuels
 - Liquid biofuel production from agricultural and waste products

Recommendations Energy Supply & Infrastructure

- **Coal Production Infrastructure**
 - Adequate haul routes
 - Adequate coal car capacity by railroads
 - Coal import facilities in Hampton Roads
- **Hydrogen Infrastructure**
 - Support as per Hydrogen Blueprint
- **Energy Infrastructure Security**
 - Protect from natural and man-made disasters – maintenance, replace aging facilities, hardening
 - Maintain clear public-private communication – local & state

Recommendations Energy and the Environment

- **Carbon emission reduction**
 - Energy efficiency reduces carbon emissions
 - Other actions needed
- **Energy decisions to address cost and community impacts**
 - Environmental justice
- **Efficiency and conservation – less land, water & air impact**
- **Biofuels**
 - Winter crops, herbaceous materials, algae production
 - Incremental tax proceeds to fund agricultural BMPs
- **Facilitate carbon capture & storage**
- **Partner with related programs**

Recommendations Research & Development

- Consistent energy R&D funding
 - Nuclear, biofuels, coastal energy, carbon capture & storage
- Virginia Energy Research and Development Organization
 - Public energy R&D governance
 - Government, university, business involvement
- Join Association of State Energy Research and Technology Transfer Institutions (ASERTTI)
- Sponsor Virginia/Mid-Atlantic energy technology showcases for venture capital
- Include energy R&D in energy technology parks

Recommendations Economic Development

- Tie to research & development
- Refine biofuel & solar production grants
- *Tiger Teams* to package development site
- Workforce services – VCCS and university training
- Economic development electric rate
- Energy technology parks