



The News Journal



CREATING
the CLEAN
 ENERGY
 ECONOMY
 IN DELAWARE, THE REGION
 AND THE NATION

Mike Klein
 Director, Energy Institute
 University of Delaware

UNIVERSITY OF
 DELAWARE
 CREATING
 KNOWLEDGE-BASED
 PARTNERSHIPS

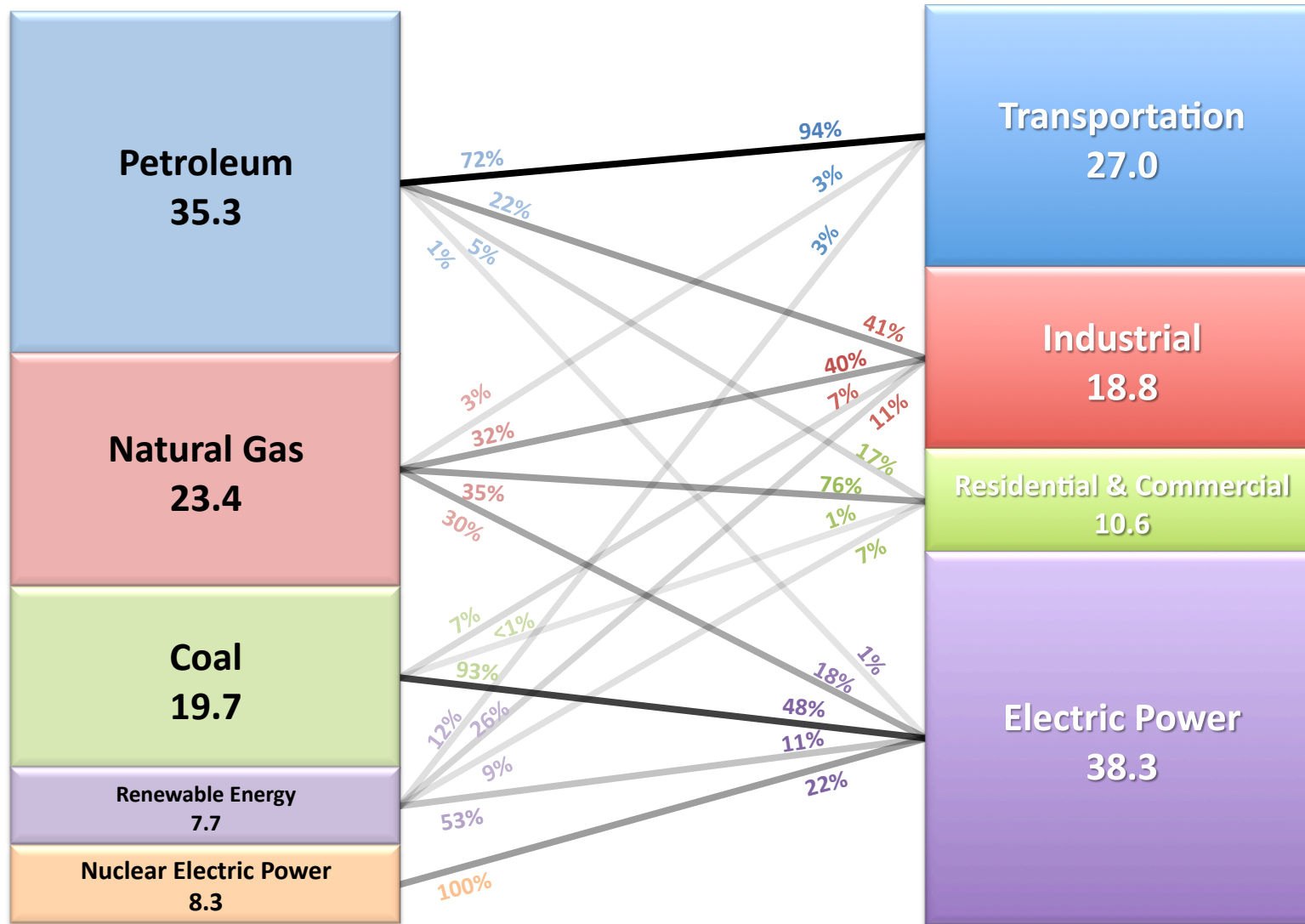
Creating the Clean Energy Economy

In Delaware, The Region and the Nation

- **Conference Goals**
 - **Creating:** Develop an action plan
 - **Clean Energy:** A “Grand Challenge” for the US
 - **Economy:** Jobs Growth and Economic Development
- **Tangible Product:** A **Delaware-specific** plan in the context of the national and international energy situation



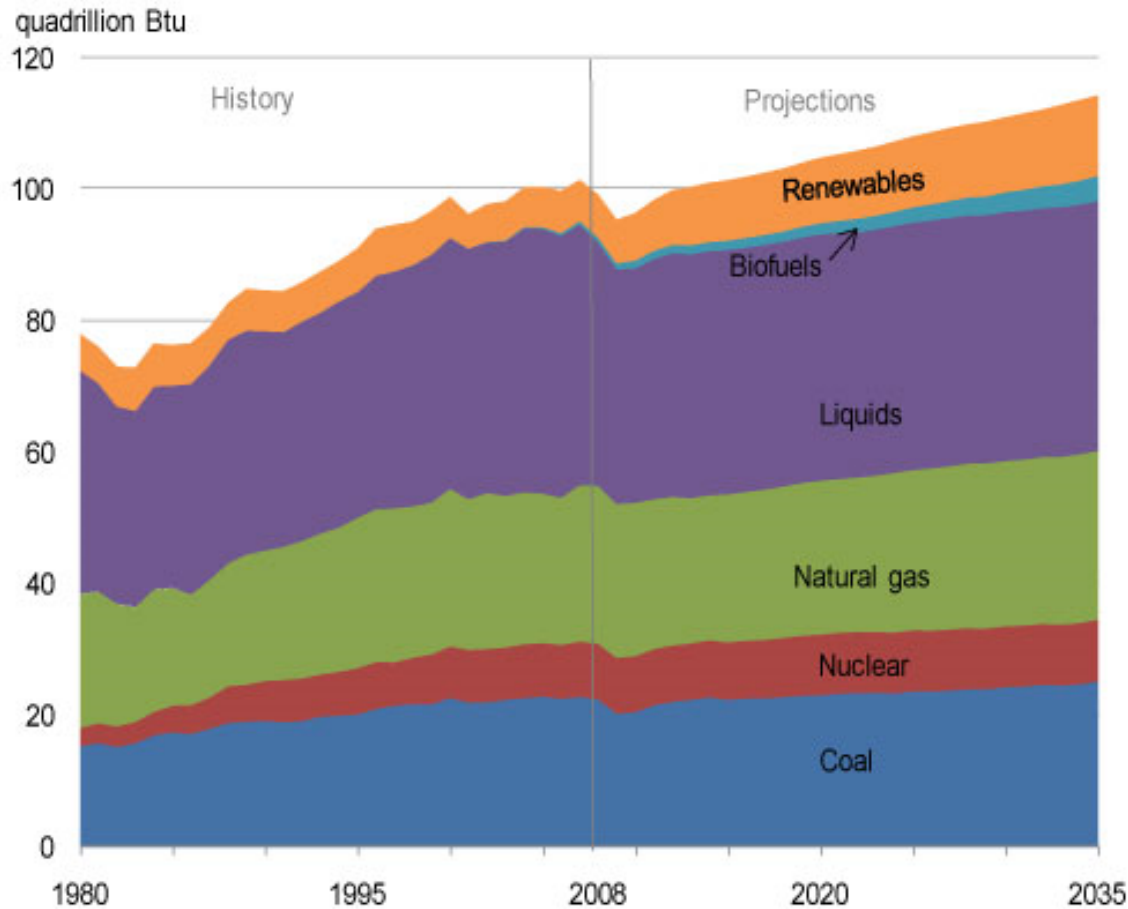
US Energy Sources* and Uses 2009



*In Quads, <http://www.eia.doe.gov/basics/energybasics101.html>

U. S. Energy Information Administration Energy Projections by Fuel

Figure 41. Primary energy use by fuel, 1980-2035



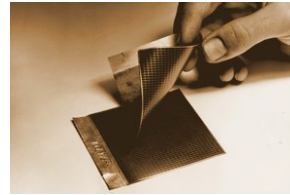
<http://www.eia.doe.gov/oiaf/aeo/demand.html>

The Grand Challenge

- **In 2100, the world will need:**
 - **3X current energy production**
 - **<1/3 current CO₂ emissions**
- **This is 10X less CO₂ emitted per unit of energy used**

UD Signature Energy Programs

- Institute of Energy Conversion
- Catalysis Center for Energy Innovation (EFRC)
- Test Facility for On/Offshore Wind Turbines
- Fuel Cell Hybrid Bus
- Intelligent Infrastructure for Plug-in Vehicles and V2G Power
- Center for Advanced Magnetics
- Center for Energy and Environmental Policy
[Delaware Sustainable Energy Utility](#)



Some Conference “Seed” Thoughts

- Energy is a “Grand Challenge” issue
- Energy is a “Multi-element” issue: science, technology, security, economics, ethics, policy, environment, ...
- There is no single energy source or technology that will “solve” our energy and environmental needs
 - The source and distribution “coefficients” will change over time
 - The source and distribution “coefficients” will be geographically specific
- Efficiency/conservation has the best payback, but we cannot save our way to meeting the world’s future energy needs
- Delaware will benefit from a plan that comprises all the elements noted above
- Please participate actively! [Partn_CleanEnergyProgV5-1.pdf](#)