

# Your Decision Crisis or Renaissance?

**Gary Hanson**

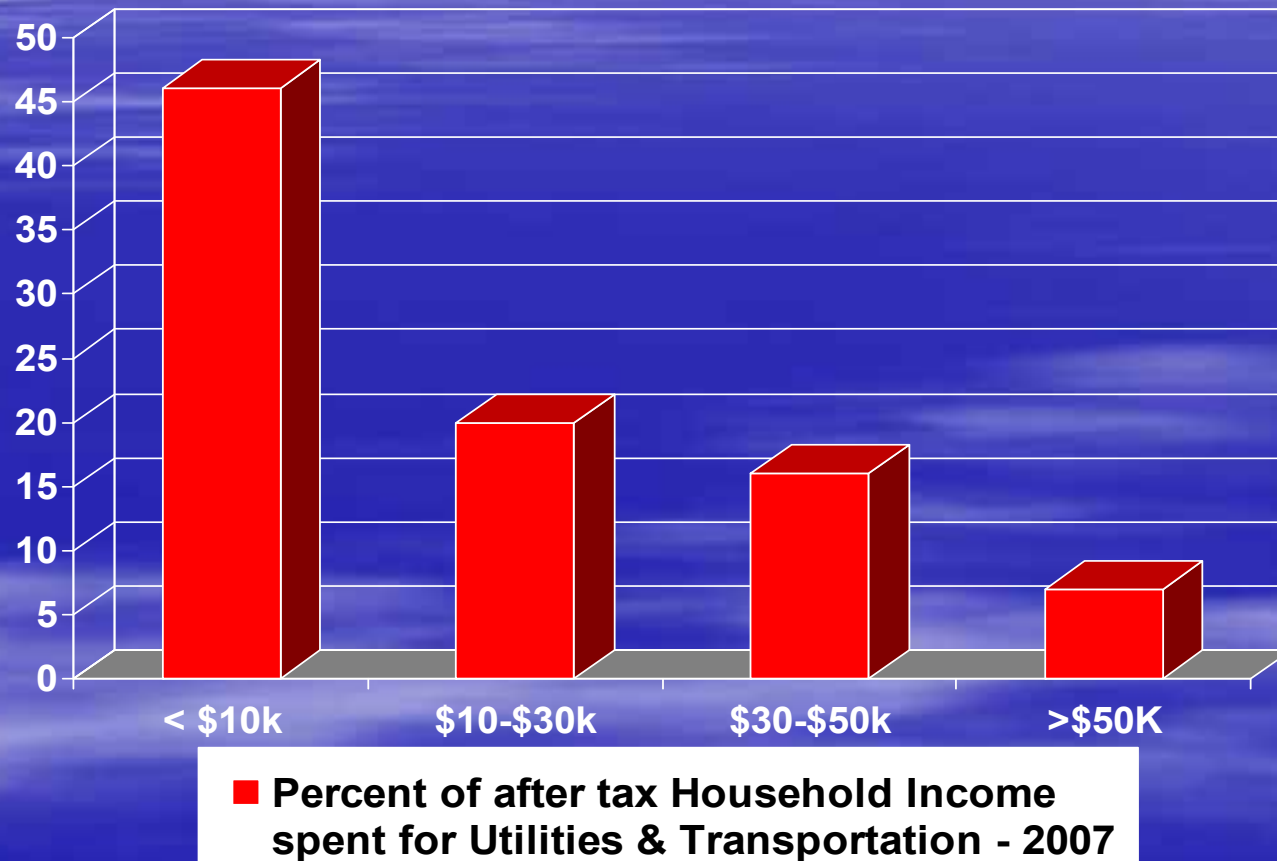
South Dakota Public Utilities Commission

May 12, 2009



NASA, ESA

# High Utility Costs Dramatically Affect Families



# Electric Capacity Challenges

- Volatile costs of fossil fuels
- U.S. Energy use increasing significantly
- Energy security constricts fuel supplies
- Capital costs have increased dramatically
- Regulation has been schizophrenic
- Deregulation rate caps expired / renewed
- Transmission constraints and needs
- Transmission cost allocation uncertainty

# Electric Capacity Challenges

- Protracted & Multiple siting/permitting processes
- Some electrical generation will retire
- Potential Environmental Legislation  
CO2 Tax, Cap & Trade, RPS, EPA Rulings,  
State Prohibitions on Generation Methods
- Renewable Energy is not free
- Some Renewables are intermittent
- ROW energy demand is increasing dramatically

**Ready... Fire...**

**Aim!**

# Multiple Energy Issues

- |                                               |                          |
|-----------------------------------------------|--------------------------|
| <b>1. Electric Capacity -</b>                 | <b>Coal, NG, Nuclear</b> |
| <b>2. Transportation –</b>                    | <b>Petroleum</b>         |
| <b>3. Heating AC &amp;<br/>Manufacturing-</b> | <b>Natural Gas</b>       |

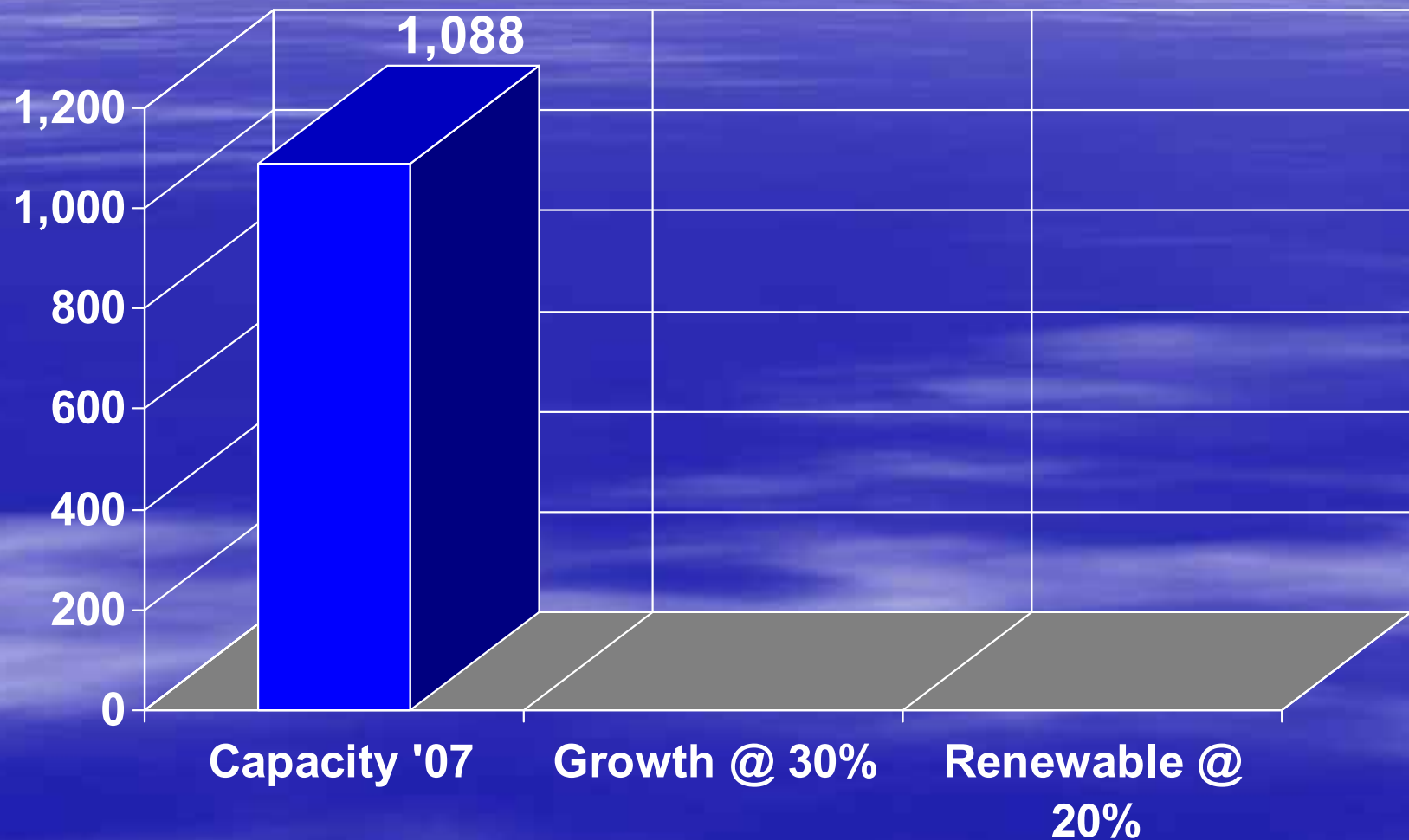
# Four Supreme Absolutes

**Solutions must be;**

- 1. Environmentally Prudent**
- 2. Economically Prudent**
- 3. Ensure Reliability**
- 4. Sustainable**



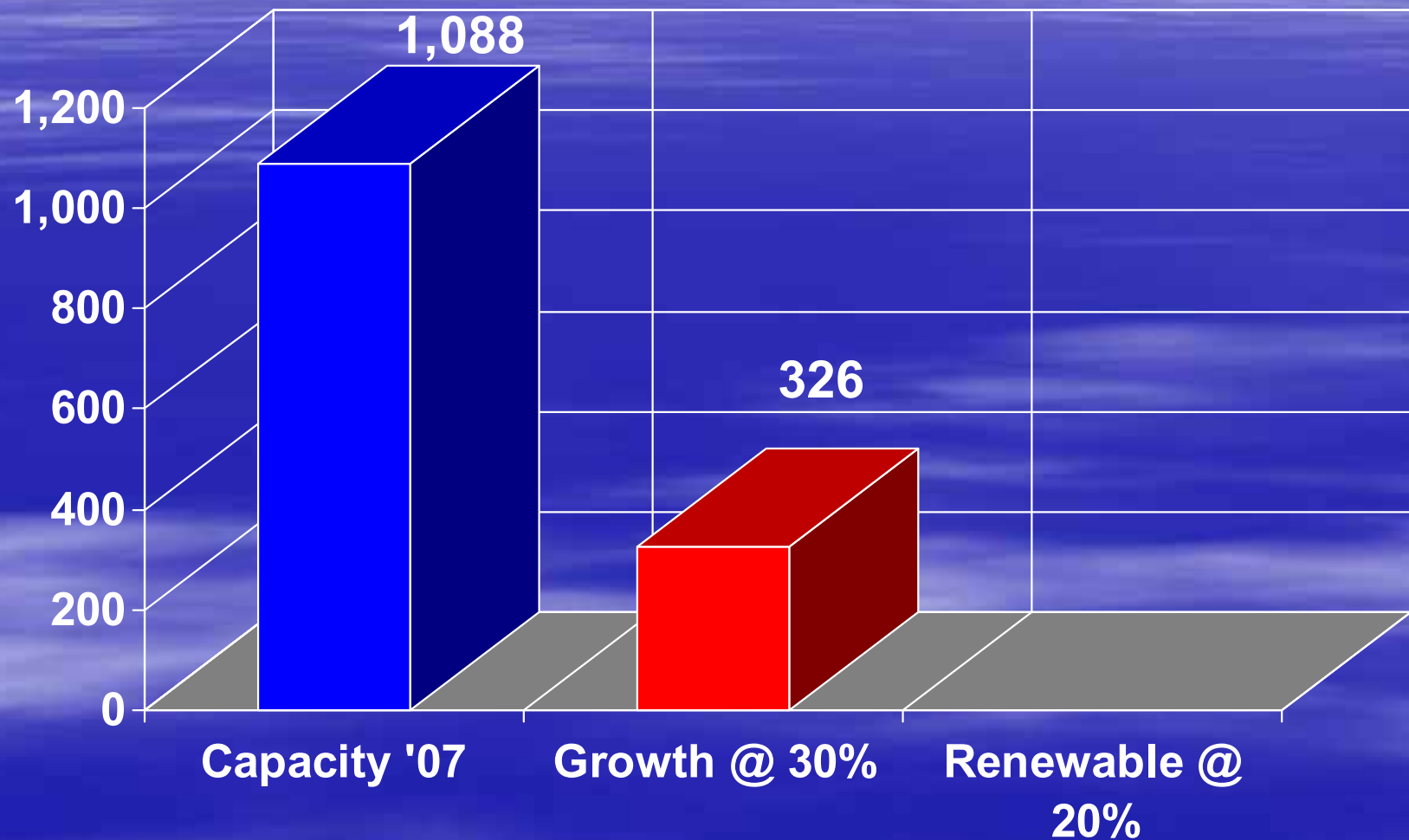
# GW Capacity Needed by 2025



EIA '07 Name plate Capacity

SD.PUC

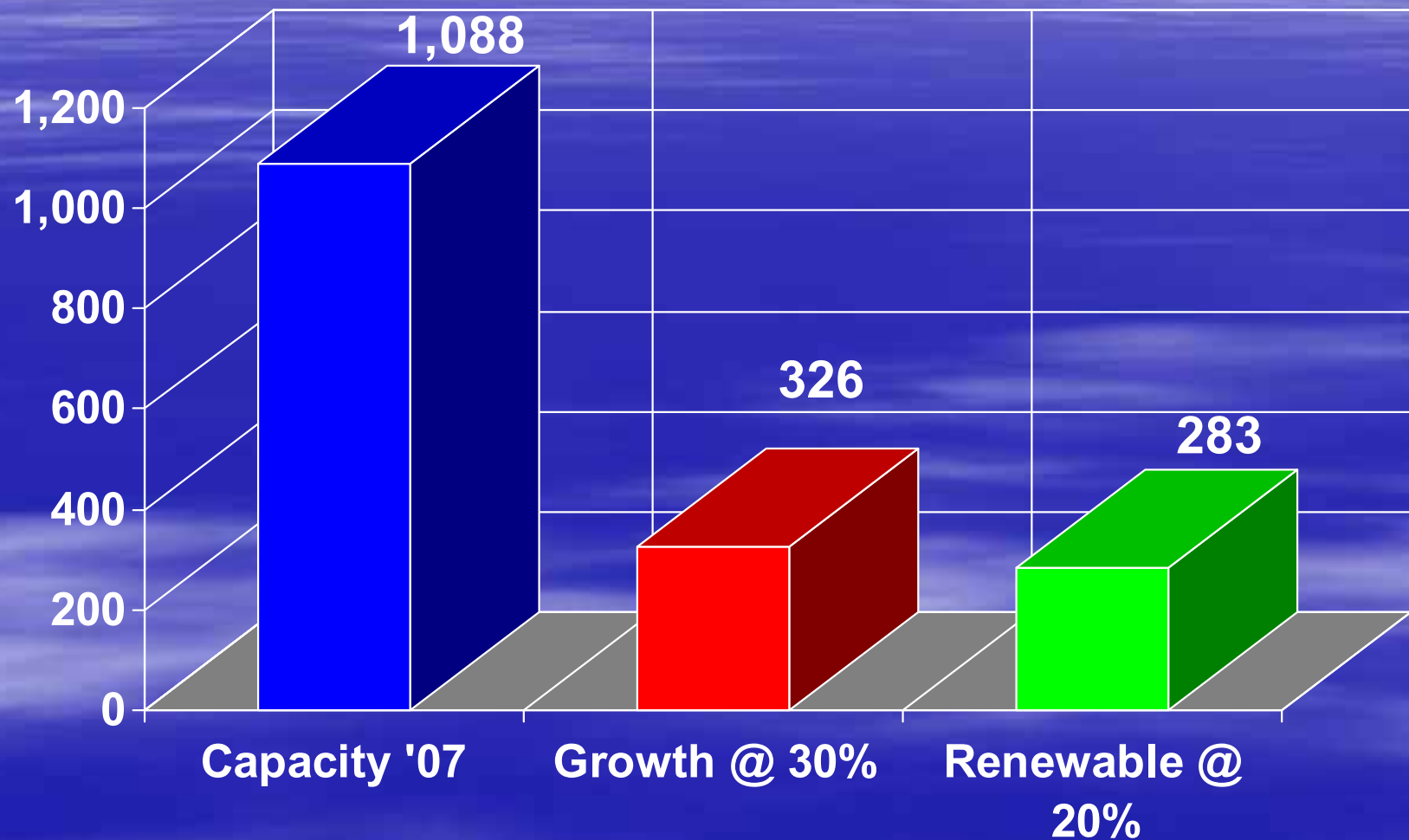
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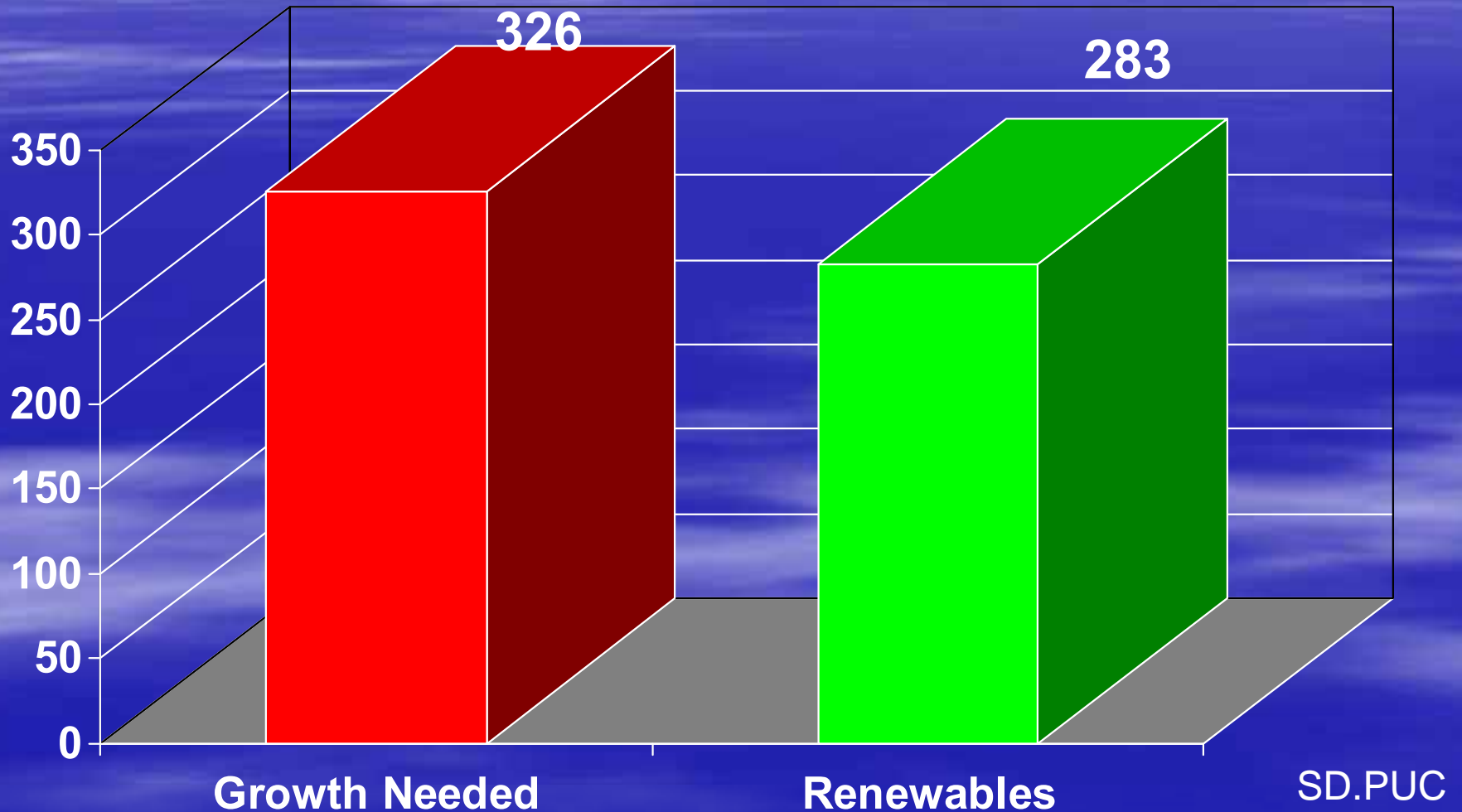
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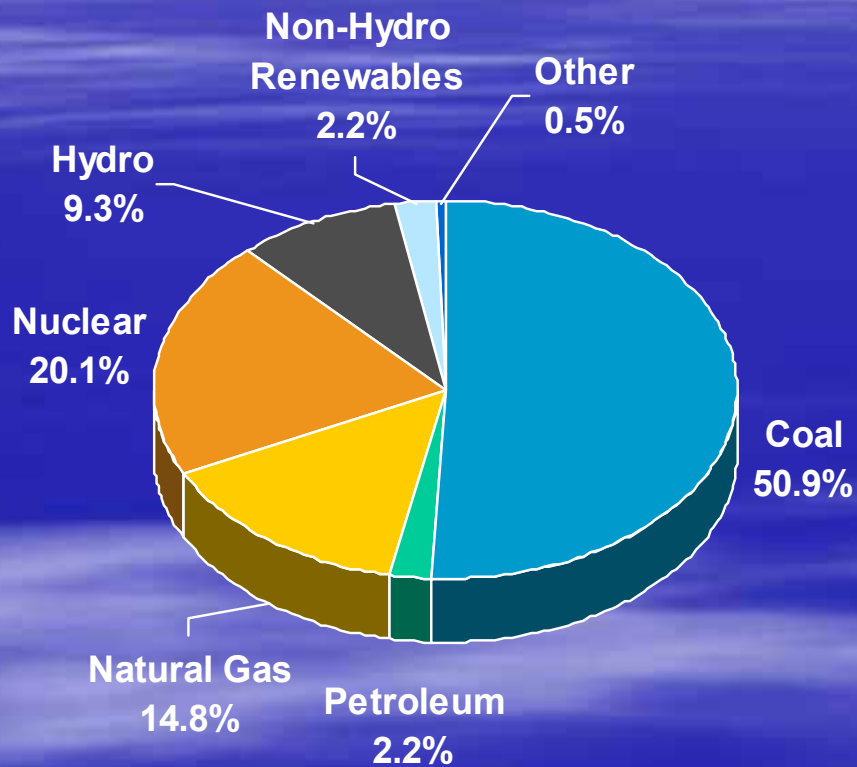
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# GW Renewables Needed by 2025 for 20% RPS

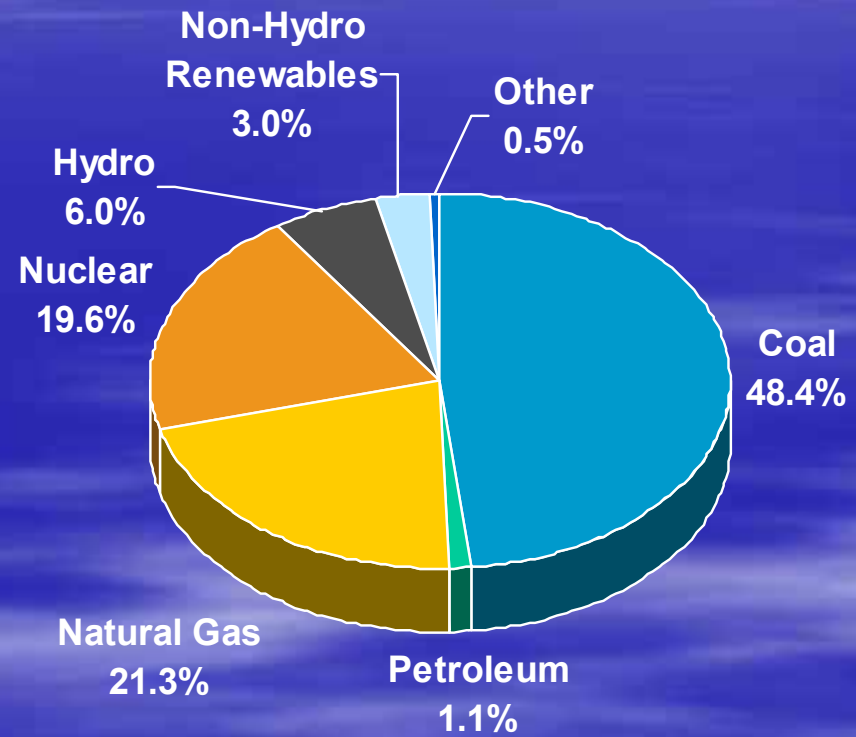


# Electric Generation Sources

1995

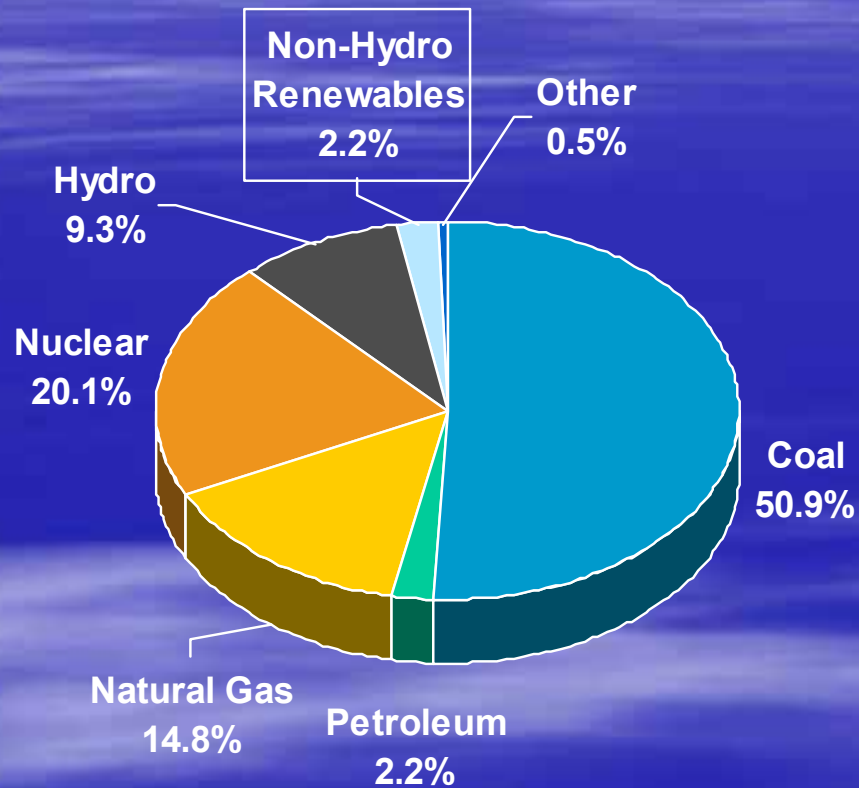


2008

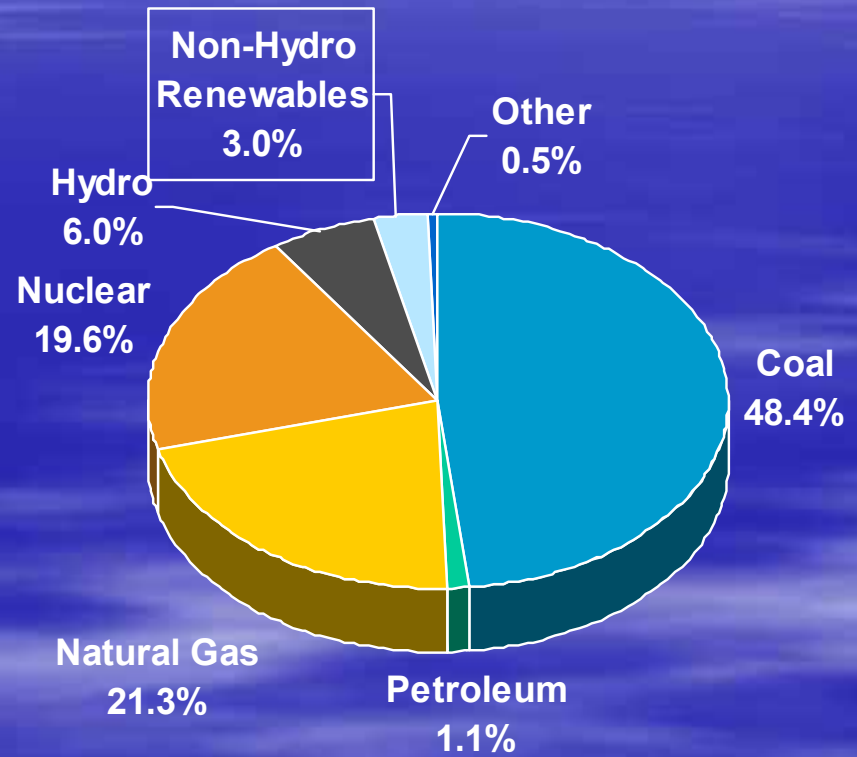


# Electric Generation Sources

1995

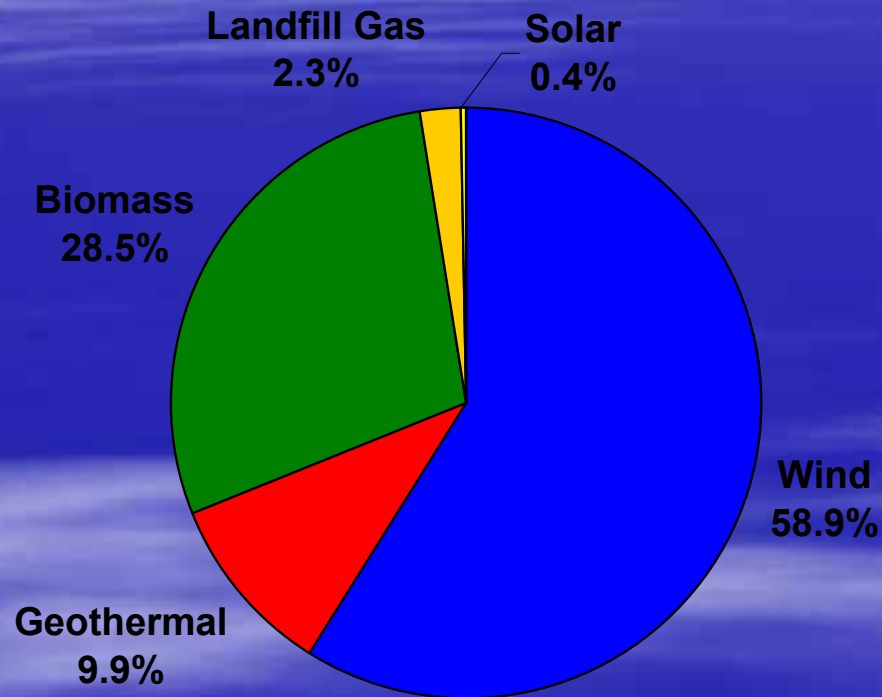


2008

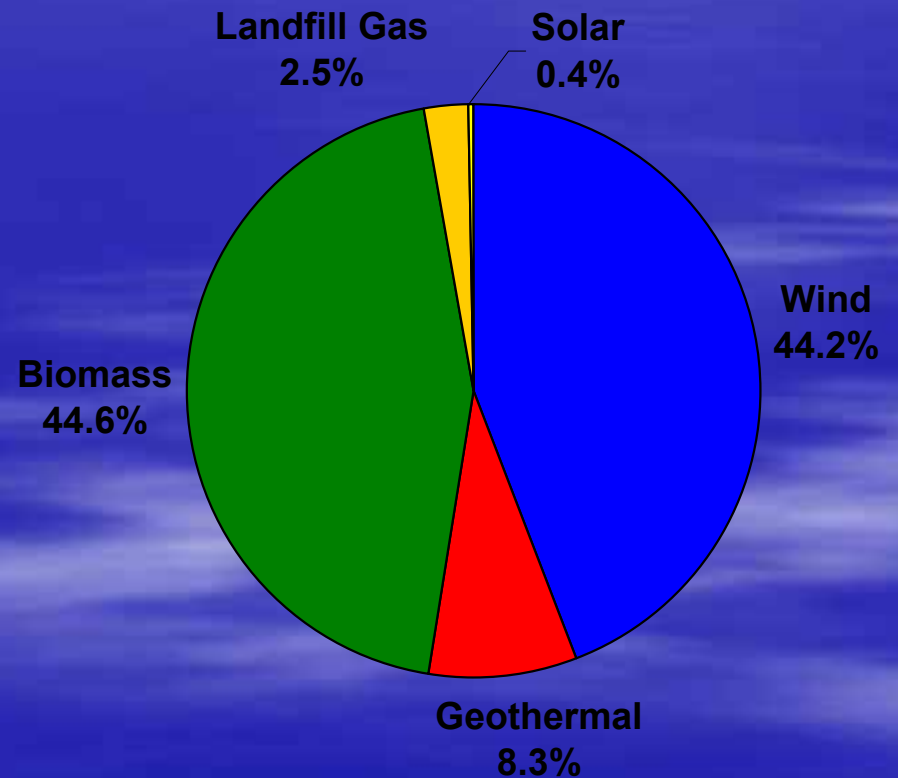


# US Renewable Generation Mix in 2020 under 20% RES

UCS Assumptions



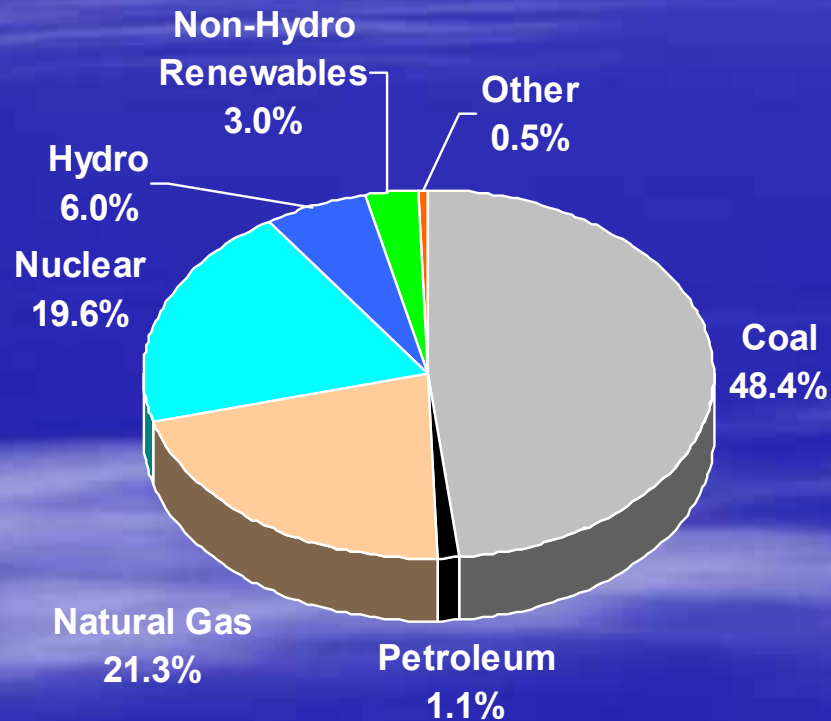
EIA Assumptions



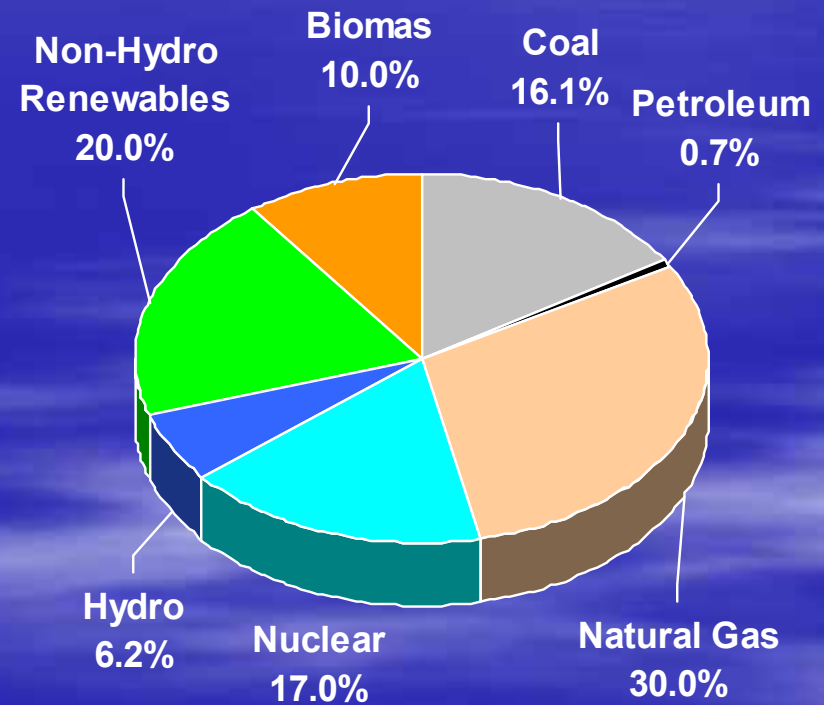
Sources: UCS, *Renewable Energy Can Help Ease Natural Gas Crunch*, March 2004, and UCS, *Renewing America's Economy*, August 2004.

# Where are we Going?

2008



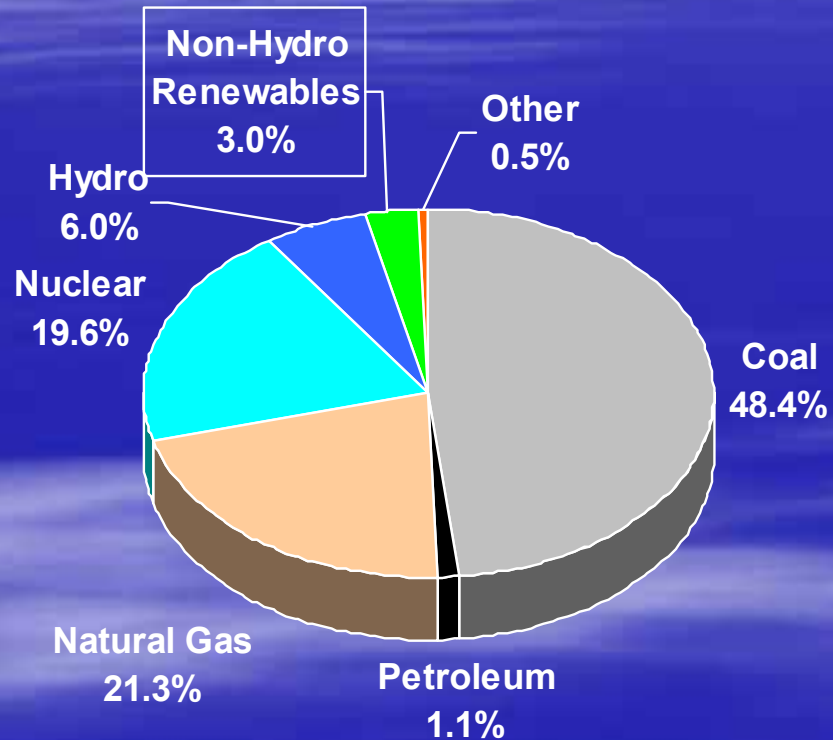
2030



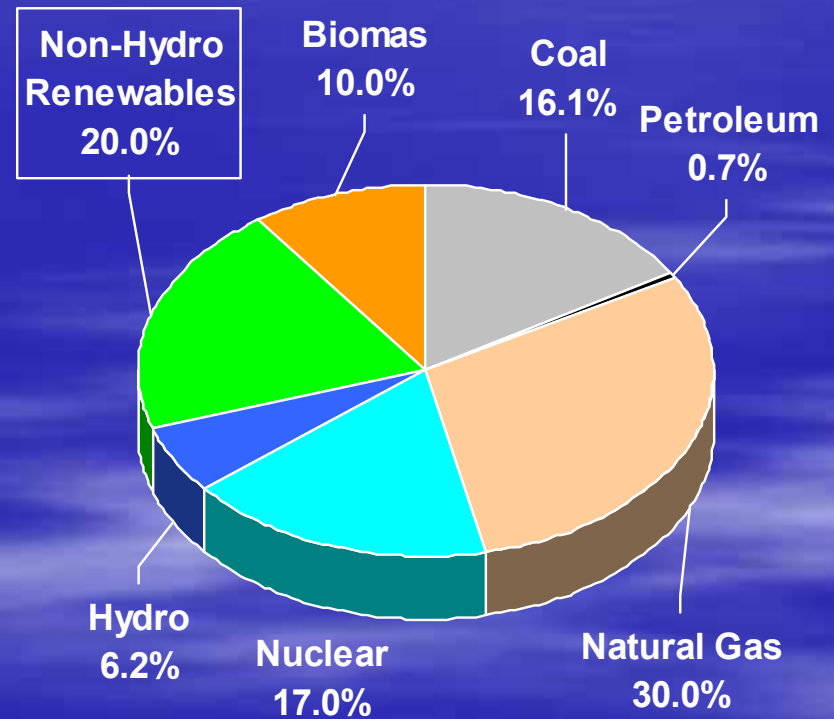


# Where are we Going?

2008



2030



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**THANK YOU!**

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