Renewable Energy: Barriers and Policy Tools

May 2007, Chisinau, Moldova

Brian T. Castelli
Executive Vice President
& Chief Operating Officer
Alliance to Save Energy

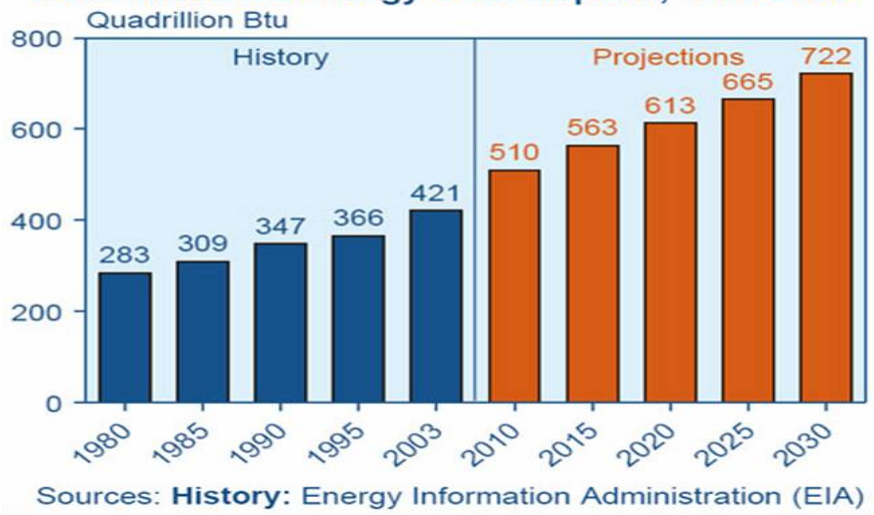
ALLIANCE TO SAVE ENERGY
Creating an Energy-Efficient World

What is the Alliance?

ALLIANCE TO SAVE ENERGY

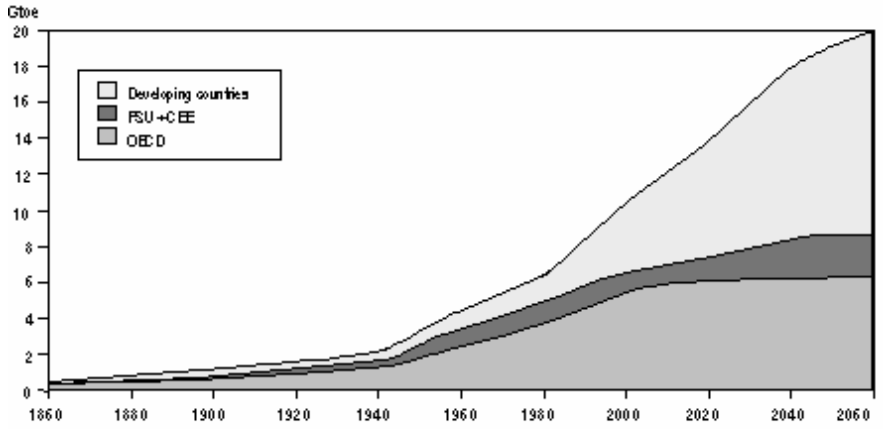
- Mission: To advance energy efficiency world-wide through policy, education, research, technology deployment, market transformation and communication initiatives.
- Headquartered in Washington, D.C. with operations in Eastern Europe, South Africa, Mexico, India and several states in the U.S.
- Chaired by Senator Mark Pryor (D-AR) and James Rogers (CEO, Duke Energy) with strong bi-partisan congressional, corporate & public interest leadership.

How much energy will we consume in the future?



The Bad News

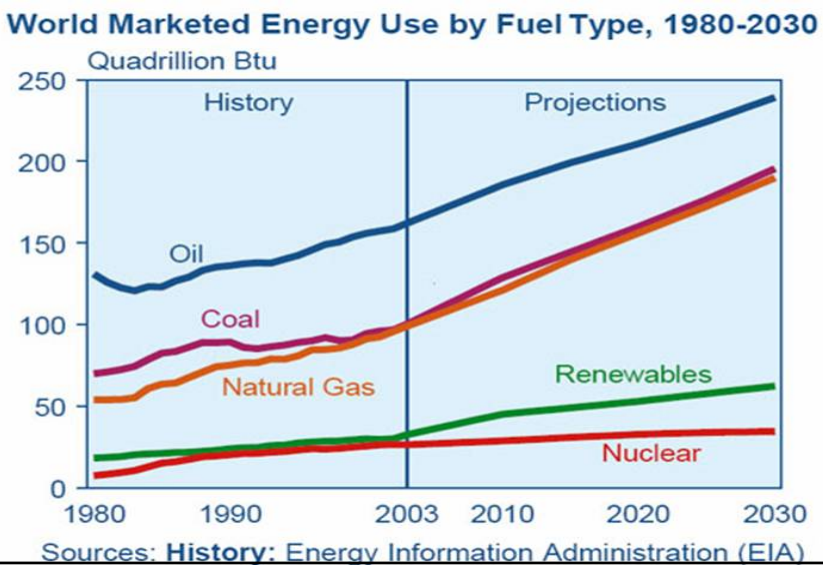
Primary energy consumption forecast 1860-2060



Source: World Energy Council, World Bank.
The graph for the period 2000-2060 shows a scenario of future energy consumption based on current trends.

http://www.fao.org/DOCREP/003/X8054E/x8054e04.htm

Future sources of energy (predictions by fuel types)

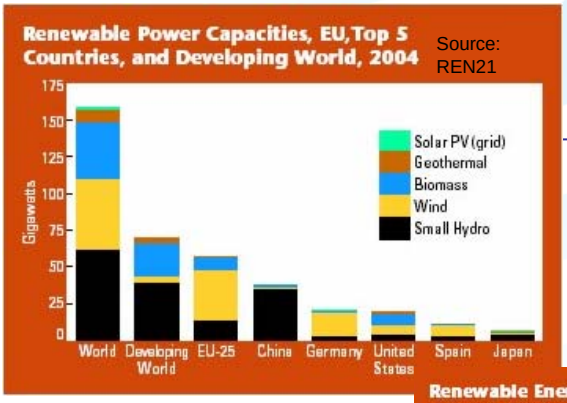


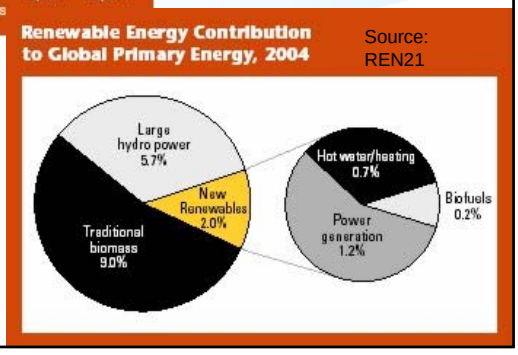
Sources: **History:** Energy Information Administration (EIA)

Energy demand growth by region

Region	2003	2010	2015	2020	2025	2030	Average Annual Percent Change, 2003-2030
OECD	234.3	256.1	269.9	281.6	294.5	308.8	1.0
North America	118.3	131.4	139.9	148.4	157.0	166.2	1.3
Europe	78.9	84.4	87.2	88.7	91.3	94.5	0.7
Asia	37.1	40.3	42.8	44.4	46.1	48.0	1.0
Non-OECD	186.4	253.6	293.5	331.5	371.0	412.8	3.0
Europe and Eurasia	48.5	56.5	62.8	68.7	74.0	79.0	1.8
Asia	83.1	126.2	149.4	172.8	197.1	223.6	3.7
Middle East	19.6	25.0	28.2	31.2	34.3	37.7	2.4
Africa	13.3	17.7	20.5	22.3	24.3	26.8	2.6
Central and South America	21.9	28.2	32.5	36.5	41.2	45.7	2.8
Total World	420.7	509.7	563.4	613.0	665.4	721.6	2.0

ALLIANCE TO SAVE ENERGY

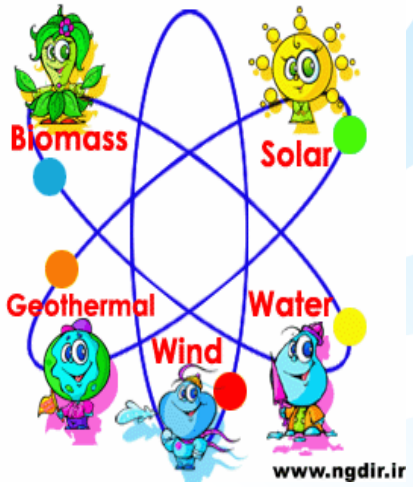




While renewable energy use is substantial today, only a small portion of it (2%) comes from new, truly renewable sources: *wind, solar, small hydro, biogas, geothermal, tidal/wave*

Common Barriers for RE development

- High capital costs
- Market entry bottlenecks
- High production cost / low competitiveness
- Lack of capital with appropriate terms (length and interest rate suitable for RE project payback)
- Lack of information on feasibility and resource capacity in certain locations/countries



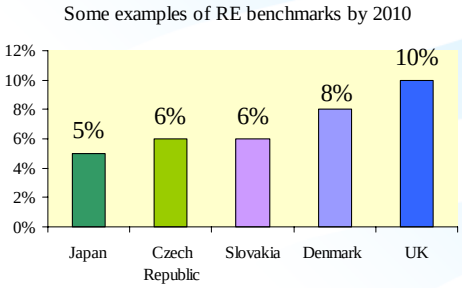
To eliminate those barriers

- Fill the information gap on the RE potential
- Need to raise the cost-effectiveness of RE investments
- Improve the competitiveness of the RE products and services
- Promote the utilization of RE on supply and demand side
- Create favorable conditions for market entry
- Create suitable financing mechanisms for RE projects
- Support R&D initiatives to help find lower cost RE technological alternatives making RE more competitive

What can the state do to eliminate barriers for the development of the renewable energy sources?

Policy tools for expanding utilization of renewable energy resources

- Establishing RE targets:
  - Mandatory renewable energy benchmarks *[Australia]*
  - Expansion of RE share in the national energy mix with timeframes and percentages *[Germany, Austria, Denmark, Hungary, Japan, Latvia, Slovakia, Great United Kingdom, France, Finland]*
  - Renewable energy portfolio standards *[USA, Israel]*
- State support to strategic initiatives contributing to renewable energy development *[Ireland]*
- Regional energy agencies supporting development of renewable energy initiatives *[Denmark]*



State promotional programs

- Research and Development programs *[Austria, Lithuania, Germany, Russian Federation]*
  - Sponsorship of RE industry *[UK]*
  - Monitoring and auditing of the RE development *[Finland, Russia]*
- Certification programs which certify compliance to certain technical standards – certified equipment/producers qualify for state incentives *[Australia, EU]*
- Information and marketing programs *[Australia, Russia]*

Map of wind turbines installed in Denmark.
(Source: Danish Minister of Energy)

Promotion of Renewable energy generation

- Application of energy and environmental taxes
  - Environmental fees *[Netherlands, Czech Republic]*
  - Carbon taxes/ GHG fees *[EU]*
  - Taxes on use of fossil fuels (also called "BTU tax") *[Bulgaria, EU EE Action Plan 2020]*
- RE energy purchase obligations by the distribution companies
- RE use obligations for energy or fuel producing, consuming or distributing entities
- Simplified procedures for connection to the electric grid

Promotion of RE Consumption

- Subsidies for households or private entities utilizing RE *[Netherlands, South Africa]*
- Minimum (fossil energy) consumption standards for energy consuming equipment *[Australia]*
- Tax and credit incentives *[Russia, USA]*
- RE information services/offices *[Ireland]*
- Regional energy agencies supporting development of renewable energy initiatives *[Denmark]*

Financial and economic incentive mechanisms

- Accelerated depreciation on RE equipment *[Australia, Russia]*
- Favorable tariffs for grid-connected RE *[Bulgaria, Netherlands, Hungary, Latvia]*
- Net metering provisions for grid-connected RE *[USA]*
- Guaranteed price / balanced price *[Germany, Denmark]*
- Guaranteed purchase and fixed high feed-in price for renewable electricity *[Germany, Belgium, USA, Armenia]*

Financial and economic incentive mechanisms - *continued*

- Tax incentives
  - exemptions or reductions on VAT, deferred VAT payment,
  - profit or income tax deduction on RE investments
  - exemptions on customs duties for imported RE products
  - sales tax exemption on RE equipment

  [Australia, Italy, Austria, Japan, USA, Bulgaria]
  - Tax and credit incentives for enterprises promoting RE use *[Russia, USA, EU]*
- Soft loans (favorable or subsidized interest rates) *[Bulgaria, Armenia, Canada, Austria, Japan]*
- Revolving Funds *[South Africa, Armenia, Russia, Romania, Bulgaria, Ukraine, Estonia, etc]*
- Grants for RE projects *[Denmark, Italy]*

Thank You!

Alliance to Save Energy
1200 18th Street, NW, Washington, D.C. 20036
Phone: 202.857.0666
Website: www.ase.org

Brian Castelli,
Executive Vice President & COO
bcastelli@ase.org

ALLIANCE TO SAVE ENERGY
Creating an Energy-Efficient World