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Regulatory Policy & Reality:
Reflections on 2009 and Beyond

Branko Terzic, P.E., FRSA
Regulatory Policy Leader, Energy & Resources, Deloitte Services LP

Institute for Regulatory Policy Studies
Illinois State University
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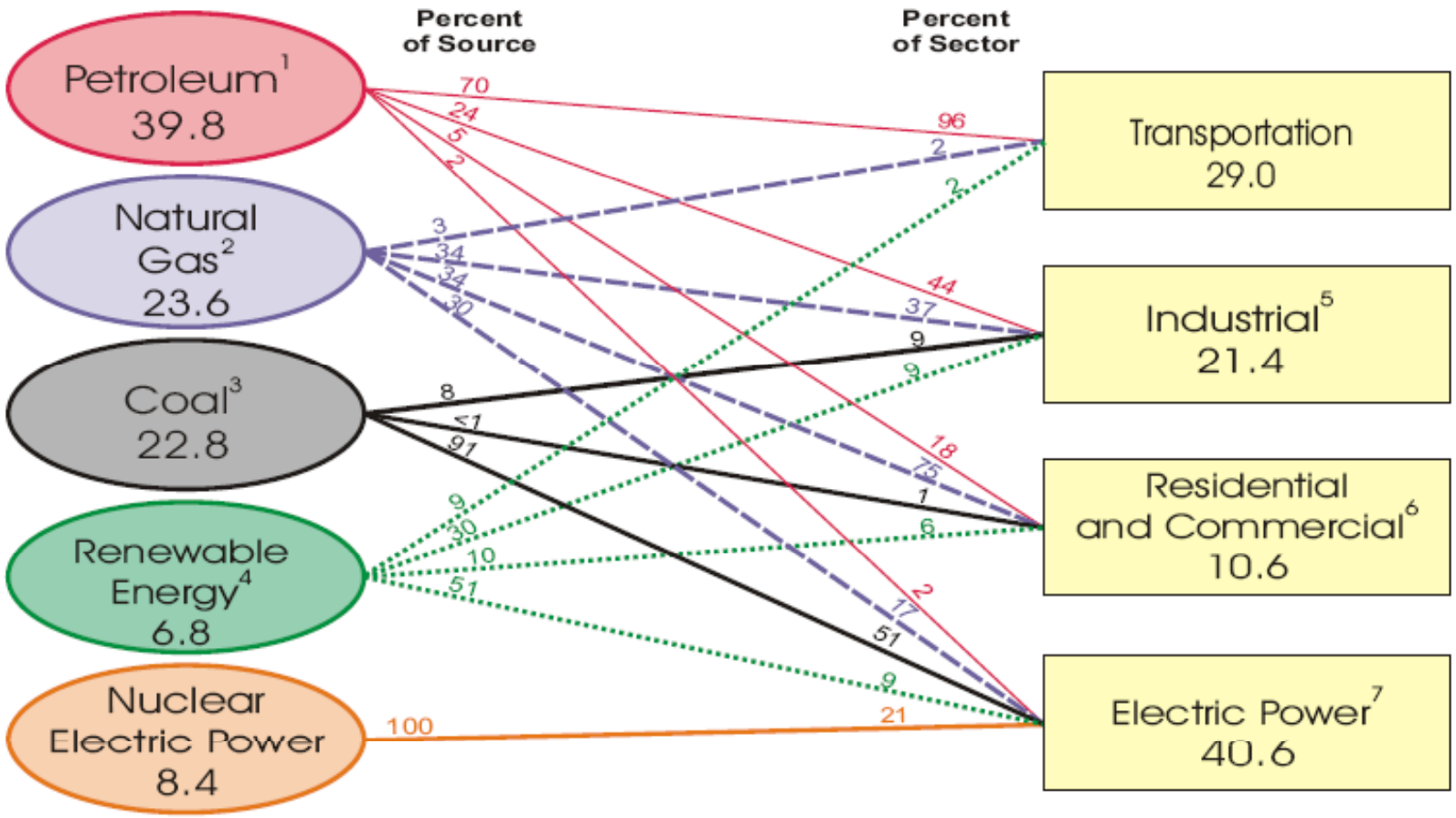
Administration's global energy realities

- Increasing demand for energy (long run)
- Increasing global warming probability (best guess)
- Increasing national security concerns (inevitable)
- Increasing prices (long run, too)
- State regulatory implications

U.S. Primary Energy Consumption by Source and Sector, 2007

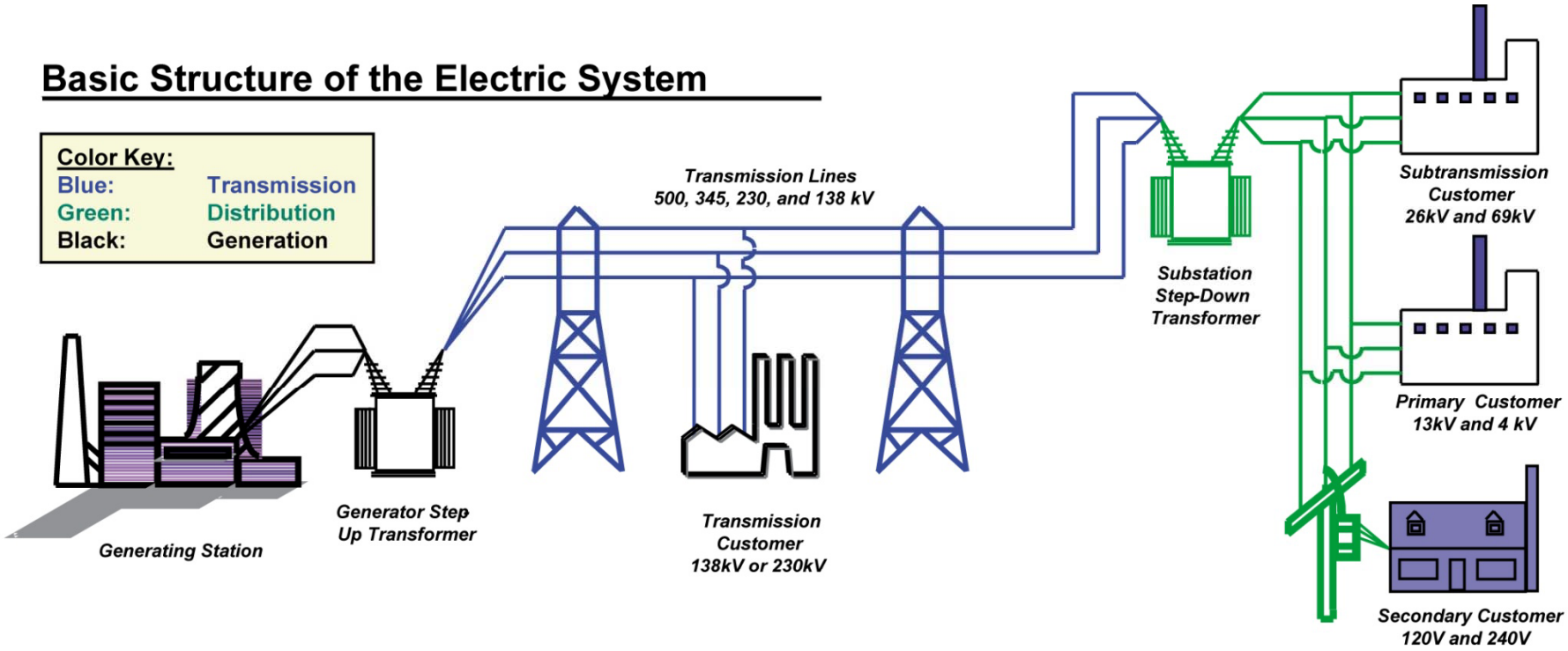
(Quadrillion Btu)



[1]Does not include 0.6 quadrillion Btu of fuel ethanol, which is included in "Renewable Energy."
[2]Excludes supplemental gaseous fuels.
[3]Includes less than 0.1 quadrillion Btu of coal coke net imports.
[4]Conventional hydroelectric power, geothermal, solar/PV, wind, and biomass.
[5]Includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants.
[6]Includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants.
[7]Electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

Note: Sum of components may not equal 100 percent due to independent rounding.
Sources: Energy Information Administration, *Annual Energy Review 2007*, Tables 1.3, 2.1b-2.1f and 10.3.

Power system overview

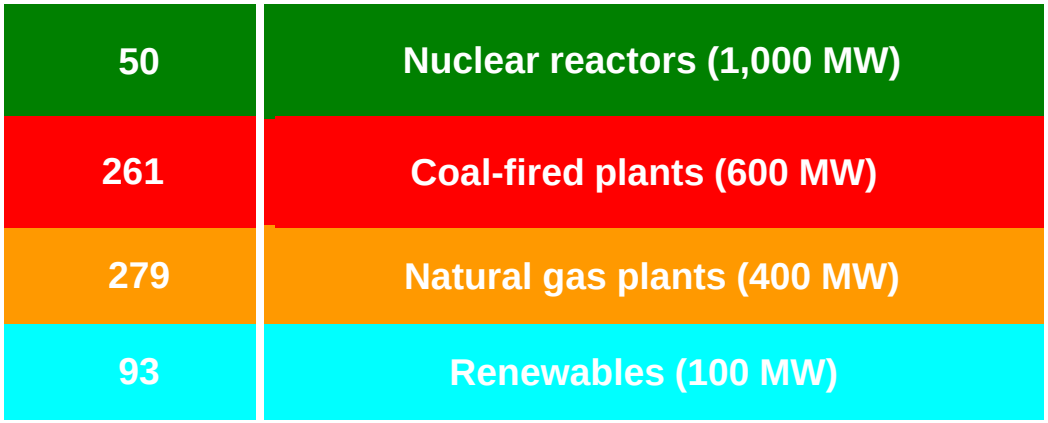


Global increasing energy demand

- Demand for basic services
  - Six billion humans today
  - Two billion have inadequate electric services
  - Two billion have no electricity
  - Everyone wants a TV, computer, telephone (and car)
- Trend of higher energy intensity in U.S. and other developed countries
  - First homes, basic appliances, light, refrigeration
  - Larger homes, more appliances
- More uses continue to be invented
  - Communications
  - Digital picture frames
  - Electrification of transportation

Meeting expected US demand

- Electricity demand in 2025 was projected to be 45% greater than today (OK, maybe less than that!)
- To maintain current electric fuel supply mix would mean building (at the same time):



Source: 2006 Annual Energy Outlook, EIA

Advice from National Petroleum Council

- Letter of President Bush of October 5, 2005, to NPC
  - "What does the future hold for global oil and natural gas supply?"
  - "What…oil and gas…supply and/or demand side strategies does the council recommend…?"
- Answer of NPC in HARD TRUTHS: Facing the Hard Truths about Energy" July 18, 2007
  - Sorry, Mr. President, but "an understanding of all energy forms necessary to provide meaningful advice on oil and gas." Thus the response came back about electricity production and fuels!
  - First "moderate demand by increasing energy efficiency"
  - Then "Expand and diversify U.S. energy supply"

What policymakers face

- Securing an adequate energy supply at reasonable cost (not new)
- Intelligently managing energy demand to lower consumer bills (not new)
- Managing the greenhouse gas (“climate change”) issue (new)

An early view of the corporation

- “It is not because a corporation has a large capital or transacts a large and profitable business that it is an injury to community or a menace to prosperity. On the contrary, the development and growth of modern business have made large aggregations of capital absolutely necessary, and such capital is fairly entitled to a reasonable and legitimate profit. The wrong is done and the injury inflicted when such combination of capital are enabled, by means adopted for the purpose, to control prices, stifle competition and create a monopoly.”

- Writings of Robert La Follette edited by Robert S. Maxwell

“Climate change” view now accepted

- Consider view in UK’s Stern Review
  - There is an economic issue!
  - Climate change can be considered as insurable risk
  - Payment of annual insurance premium is acceptable
  - Premium payment is in form of funding of research and programs
  - Select programs according to Terzic Classifications Order of Risk and Reward

Energy Efficiency

- Energy efficiency is a moral obligation. Children understand this. It was evident in the acceptance comments today of this year's national Igniting Creative Energy Challenge (ICE) awards grade, middle and high school student winners…
- "The United Kingdom's report The Economics of Climate Change: The Stern Review, released earlier this year, estimates that a 1% annual expenditure starting today would reduce the risk and cost of damages if we have the science right. If we do not, well, then we would still benefit. We would have hedged our risk. Some or much of the 1% expenditure will lead to the development of new technologies. These new technologies will likely have expected benefits in terms of energy security, jobs creation and even unforeseen benefits….
- Thus energy efficiency expenditures today, most immediately producing economic benefit, become imperative. Expenditures on other programs would prudently need to follow. The 1% expenditure thus becomes an insurance premium we pay on a policy to protect our children and future generations. This is our moral responsibility. It is as simple as that."
- Branko Terzic

Terzic Classes of Climate Change Action

- Class I: Practical, affordable solutions we can implement today;
- Class II: Less economical solutions with significant societal value that deserve consideration; and
- Class III: Difficult but impactful solutions without associated societal benefits.
  - From THE WORLD CRISIS (Sept. 2008)

1985

- Leader-Telegram Newspaper (Eau Claire Wisconsin) May 16, 1985
- **"PSC official proposes plan to save energy, aid business"**
- "We must stop viewing conservation as a sacrifice to be made. Rather it is a genuine opportunity for business development."
- "(Public Service Commissioner Branko) Terzic proposes that the state's utilities take the lead in making Wisconsin homes and business energy efficient" and have "the ability to sell efficiency". . . "By making energy conservation an investment – in the same way that building a power plant is an investment…utilities can continue to earn profits…while strengthening the Wisconsin economy."

The executive branch energy officials

- President Barack Obama
  - Executive Office - White House
    - National Security Advisor - General James L. Jones USMC (Retired)
    - Energy and Climate Coordinator - Carol Browner “Energy Czar”
    - Chair White House Council on Environmental Quality - Nancy Sutley
    - “Science Advisor” Prof. John P. Holdren
  - Federal agencies
    - Environmental Protection Agency - Lisa Jackson
  - Cabinet
    - Secretary of Energy - Dr. Steven Chu
    - Secretary of Interior - Ken Salazar
    - Secretary of Treasury - Tim Geithner
    - Secretary of Defense - Robert Gates
    - Secretary of State - Hillary Rodham Clinton

Obama administration priorities

- Help create 5 million new jobs by strategically investing $150 billion over the next 10 years to build a clean energy future
- Within 10 years save more oil than we currently import from the Middle East and Venezuela combined
- Double renewable energy generating capacity over three years
- Build 3,000 miles of new transmission lines and install 40 million smart meters
- Weatherize at least 2 million homes & 75 percent of Federal buildings
- Put 1 million Plug-in-Hybrid cars – cars that can get up to 150 miles per gallon – on the road by 2015, cars that we will work to make sure are built here in America
- Ensure 10 percent of our electricity comes from renewable sources by 2012, and 25 percent by 2025
- Implement an economy-wide cap-and-trade program to reduce greenhouse gas emissions 80 percent by 2050

"We will harness the sun and the winds and the soil to fuel our cars and run our factories."
President Obama's Inaugural Address, January 20, 2009

Renewable Portfolio Standards

Various proposals discussed:

- Obama campaign -10% by 2012 & -25% by 2025
- Rep. Markey – Draft House bill
  - 6% by 20102
  - 25% by 2025
  - No credit for efficiency
- Sen. Bingaman - Draft Senate bill
  - 4% by 2012
  - 21% by 2021
  - Efficiency to count up to 25% of compliance

Climate Change Legislation

- Impact of recession on timing is certain but not measurable
- Initial CO2 Allowance disposition question
  - Administration favors auction of all
    - Holdren signals compromise may be acceptable
  - House may support auction
  - Senate less support
- Bi-Partisan concern about impacts
  - Public has not heard electric rate increase talk, yet
- Expected differences in House and Senate Bills

The One Winning Issue – “Smart Grid”

- Could be described as “miracle cure”
- Cures such ills as
  - Inability to get renewable power to market
  - Problems of “intermittent” power from renewable
  - Inefficiency of current grid/dispatch/end-use
  - Difficulty of implementing DSM
  - Under-utilization of some (unspecified) assets
- Challenges
  - State vs. federal siting and licensing muddle
  - Dumb tariffs

H.R. 1 American Recovery and Reinvestment Act of 2009 Renewable Energy Provisions

Tax Incentives

Three-Year Extension of PTC: The bill provides a three-year extension of the Production Tax

Credit (PTC) wind facilities ,geothermal, biomass, hydropower, landfill gas, waste-to-energy

Investment Tax Credit (ITC) Accessible to All Renewable Energy: wind, geothermal, biomass and other technologies eligible for the PTC,

Repeals Subsidized Energy Financing Limitation on ITC Grant Program in Lieu of Tax Credits

Increases Credit for Alternative Fuel Pumps:

Advanced Energy Manufacturing Credits: $2 billion energy related manufacturing investment credits carbon capture and storage (CCS).

Five Year Carry-Back Provision for Operating Losses of Small Businesses:

Extends Bonus Depreciation to 2009

Direct Spending

Total Direct Spending for Renewable Energy and Energy Efficiency: $16.8 B

Grid Development: $11 B

$4.5 billion for the DOE

R&D, Demonstration Projects: $2.5 billion for renewable energy and energy efficiency

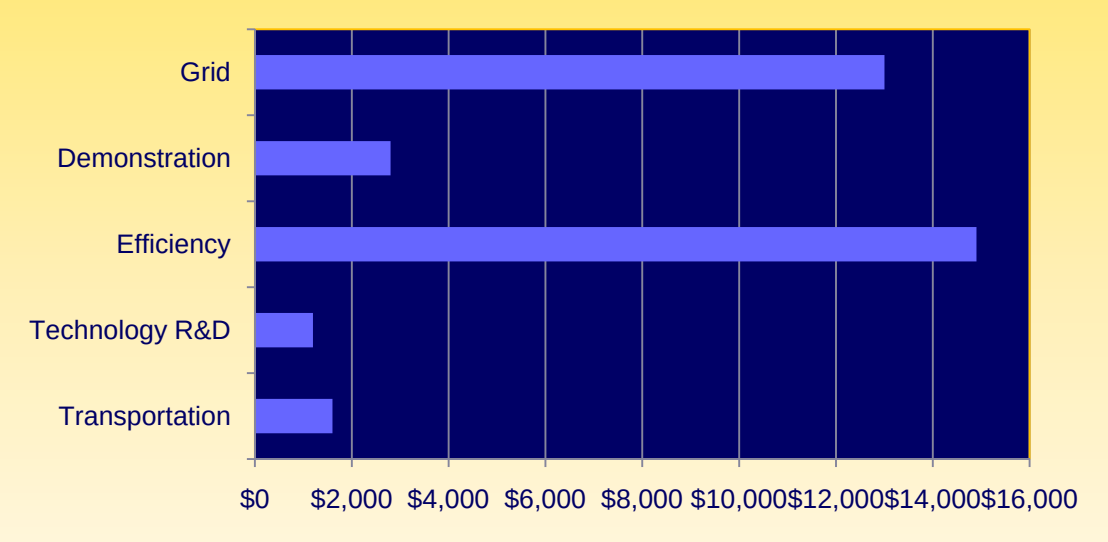
Advanced Battery Grants: $2 B

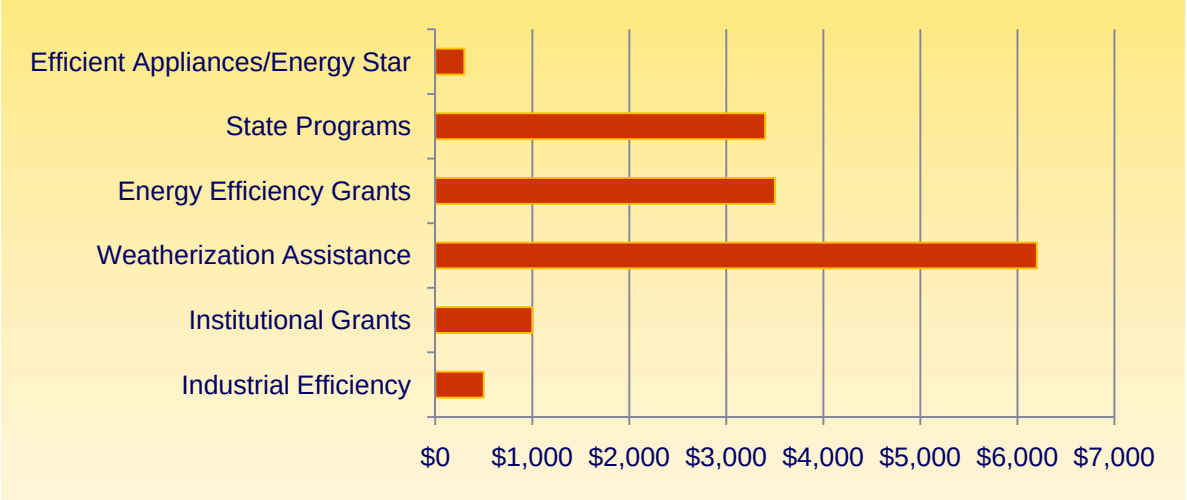
Bond and Loan Programs

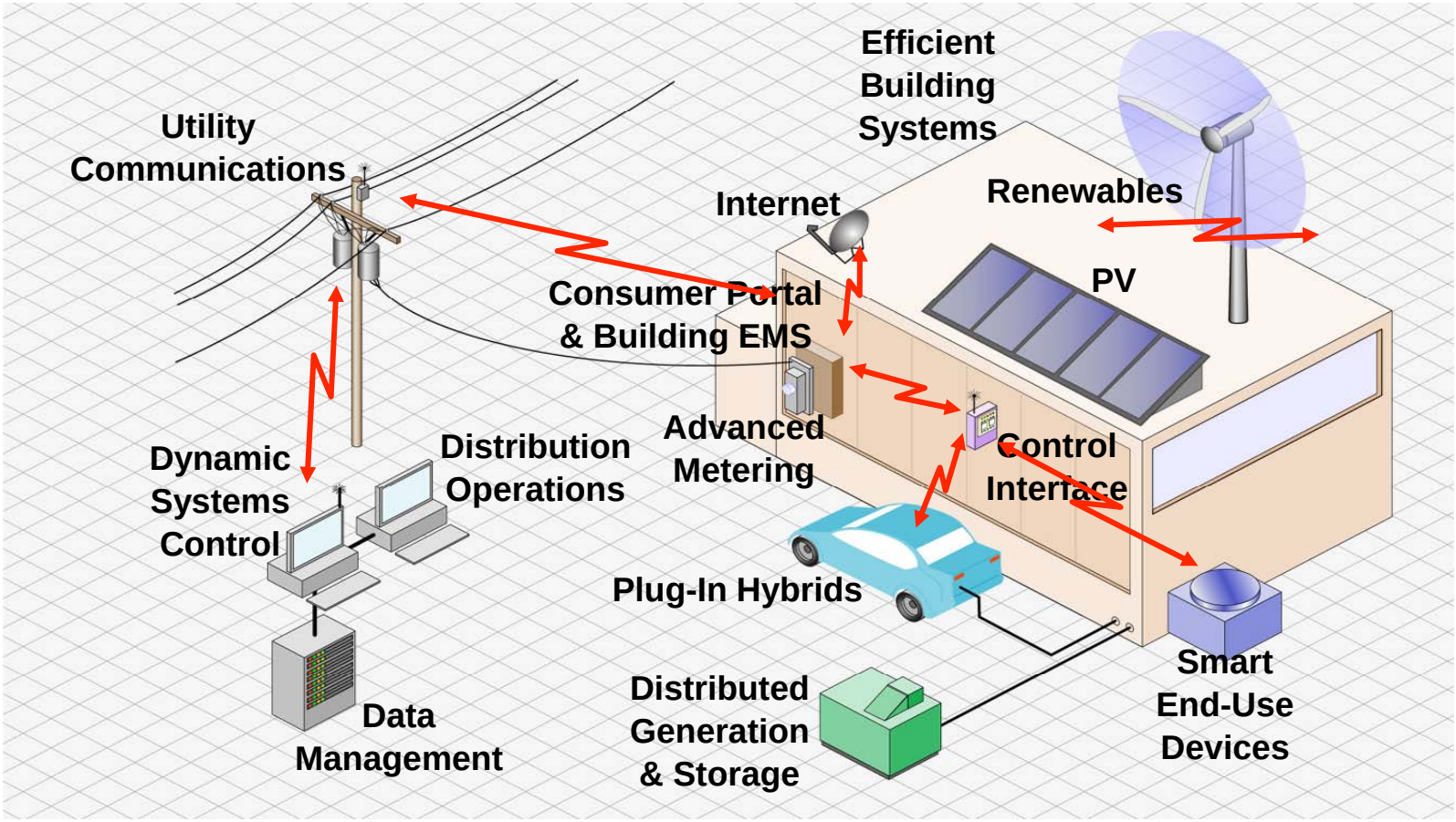
Clean Energy Renewable Bonds (CREBs): $1.6 B

Renewable Energy Loan Guarantee Program: $6 B billion for a temporar**y**

Energy Stimulus Funding, U.S. House of Representatives – 2009







State Regulation Issues

- Federal RPS implications
- “Decoupling”
- Cap and Trade costs
- Nuclear role
- Rate case impacts
- “Smart Grid”
- Demand side management
- Treatment of “efficiency” investment
- Competition policy

Summary

- Embrace “Green” energy approach
- Encourage energy efficiency
- Address “climate change” as probable
- Lead the international debate on climate change
- Promote domestic energy supply

Classic References

- Deloitte Regulated Utilities Manual
- Accounting for Public Utilities by Robert Hahne and Gregory Aliff
- Hard Truths: Facing the Hard Truths About Energy by The National Petroleum Council
- Stern Review: The Economics of Climate Change
- Principles of Public Utility Rates by James C. Bonbright, Albert L. Danielson, and David R. Kamerschen
- The Regulation of Public Utilities by Charles Phillips
- The Age of Oil by Leonardo Maugeri

Terzic Resources

- Column “Terzic on Strategy” in NEW POWER EXECUTIVE bi-weekly newsletter (since 1999)
- “Commentary” by Branko Terzic in EUROPEAN ENERGY REVIEW quarterly magazine (since 2007)
- **“Exporting America to the World”** February 2007 Public Utilities Fortnightly (with Gregory Aliff)
- “**The ABCs of Regulation”** February 2007 Public Utilities Fortnightly (with Gregory Aliff)
- **“Reinventing The Classic Business Strategy”** December 2005 Public Utilities Fortnightly (with David Fornari)
- www.deloitte.com

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Branko Terzic

bterzic@deloitte.com
Office (703) 251-4350

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