

Building New Nuclear Plants: The Utility Decision

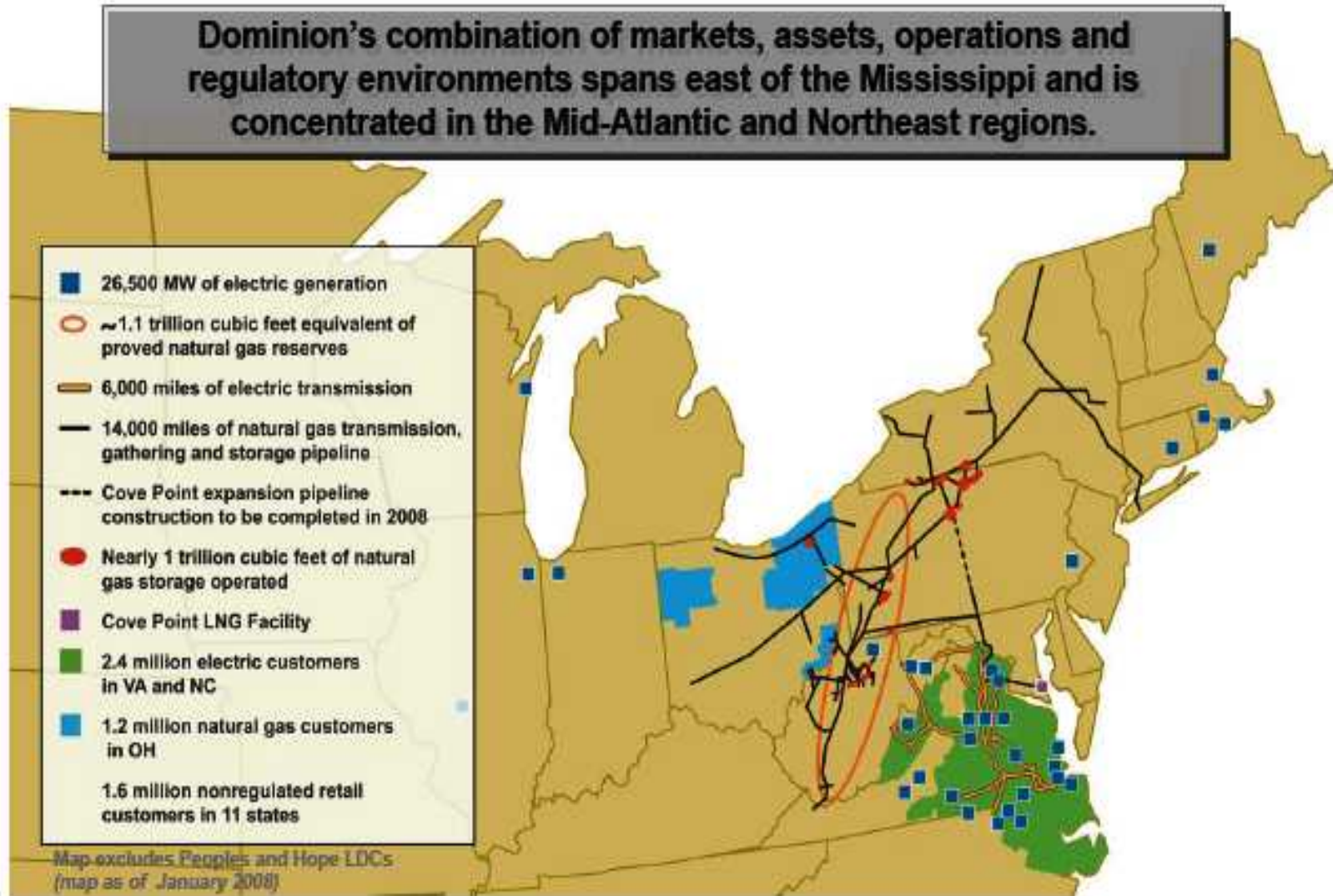
EIA 2008 Energy Conference
April 8, 2008

Eugene S. Grecheck
Vice President Nuclear Development



Dominion

Dominion's combination of markets, assets, operations and regulatory environments spans east of the Mississippi and is concentrated in the Mid-Atlantic and Northeast regions.



Balanced, Diverse Fuel Mix



Coal



Nuclear



Natural Gas

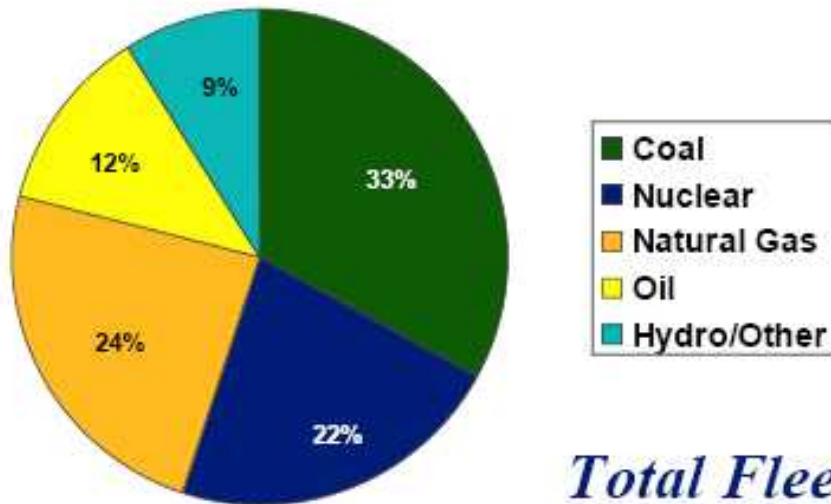


Oil

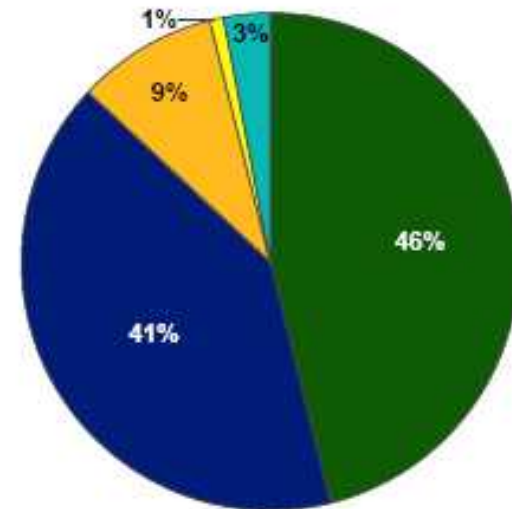


Hydro

2007 Electric Capacity by Fuel



2007 Electric Production by Fuel*



Total Fleet



Excludes Troy (OH), Pleasants (WV), and Armstrong (PA) gas-fired peaking facilities whose sale closed in Q1 2007.
*Electric Production by Fuel proportions exclude Non-utility Generation (NUG) under contract.

The Evolving Utility View of New Nuclear

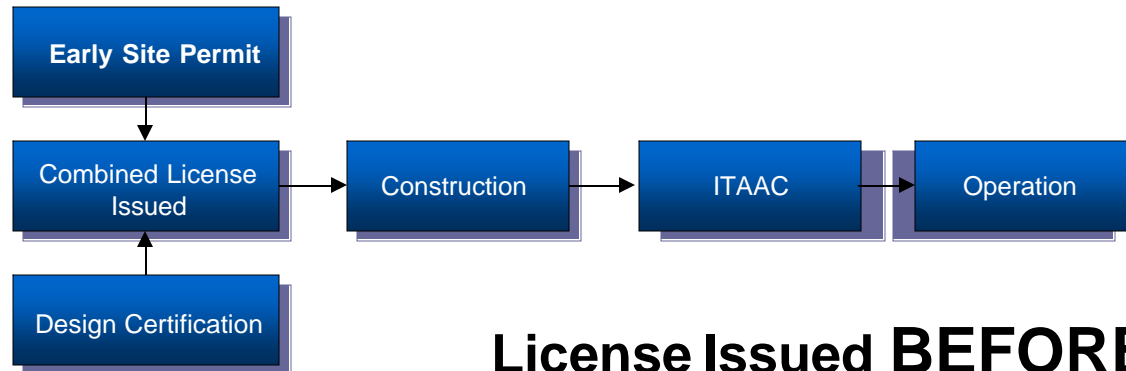
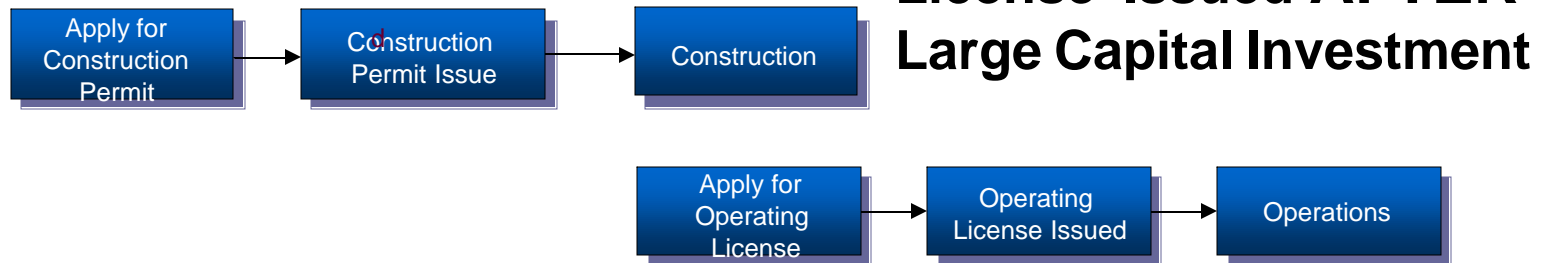
- Pre 2001—Skepticism
- 2001-2003—Tentative exploration
- 2003-2004—Focus on licensing hurdles, first ESP applications, formation of NuStart, DOE NP2010 solicitations
- 2005—EPACT incentives
- 2006-2007—Many COLA announcements, first applications submitted
- 2008—Facing the realities?

The original issues—start of this decade

- No new nuclear plant orders since 1978
- Licensing and construction takes too long
- Last new plant began operation in 1996
- Construction and operations and maintenance costs are too high
- Licensing is unpredictable
- Any company announcing a new nuclear project would be punished by Wall Street

NRC Licensing Process Changes in 10CFR52

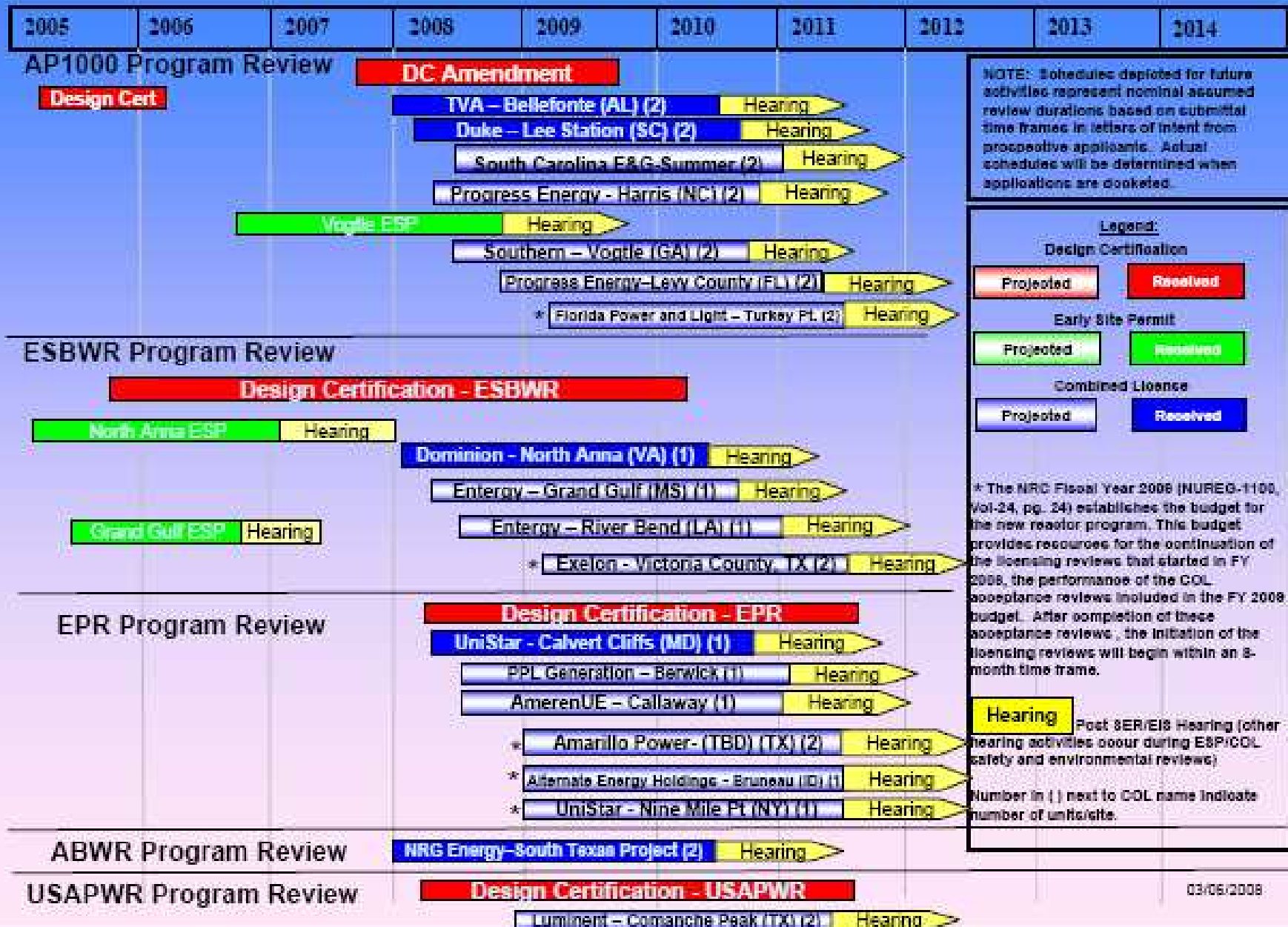
OLD LICENSING PROCESS



NEW LICENSING PROCESS

New Reactor Licensing Applications (Site and Technology Selected)

An estimated schedule by Fiscal Year (October through September)



Virginia's Long-Term Energy Gap

Peak Demand
(Megawatts)

22,000

20,000

18,000

16,000

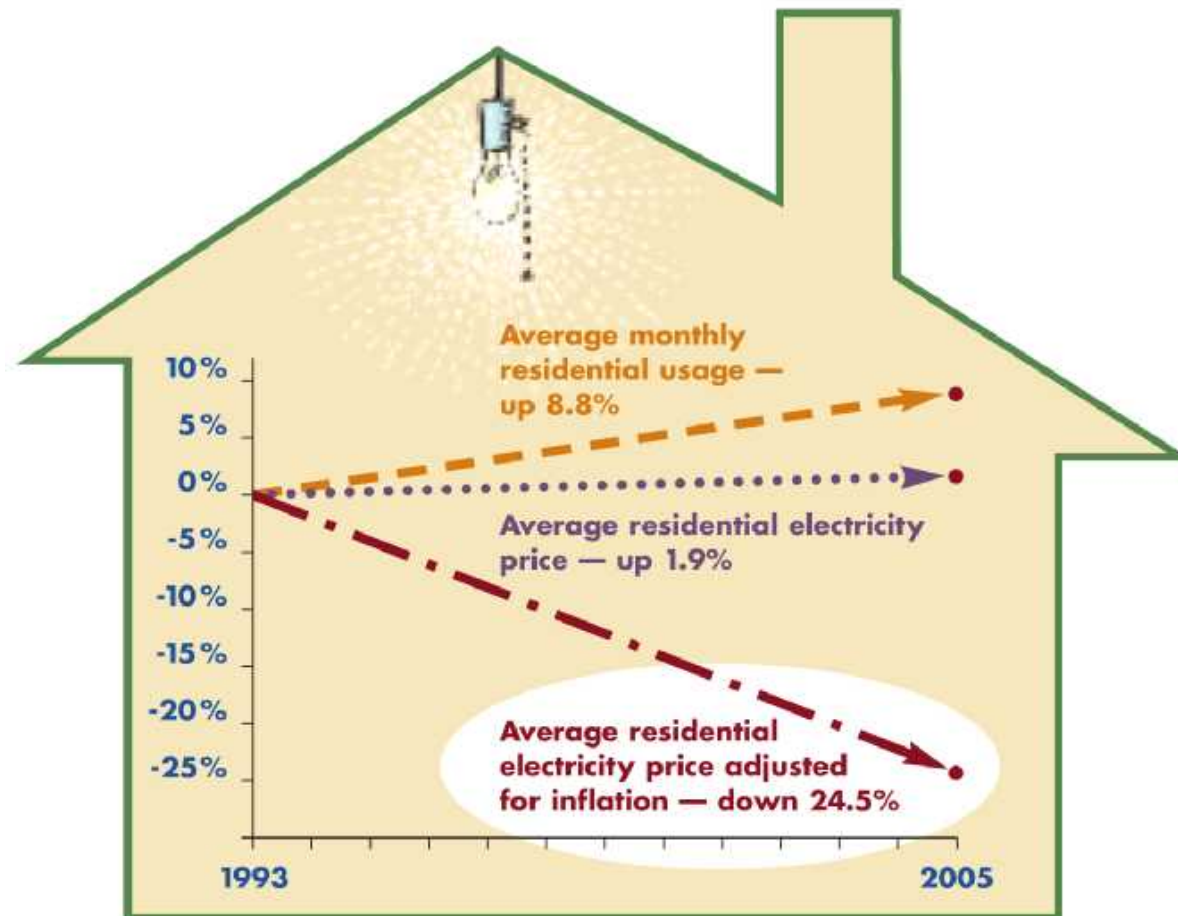
2007

2017

Additional
Deficit of
4,000 MW
by 2017

- Current generating capacity
- Projected Dominion peak demand—PJM Forecast

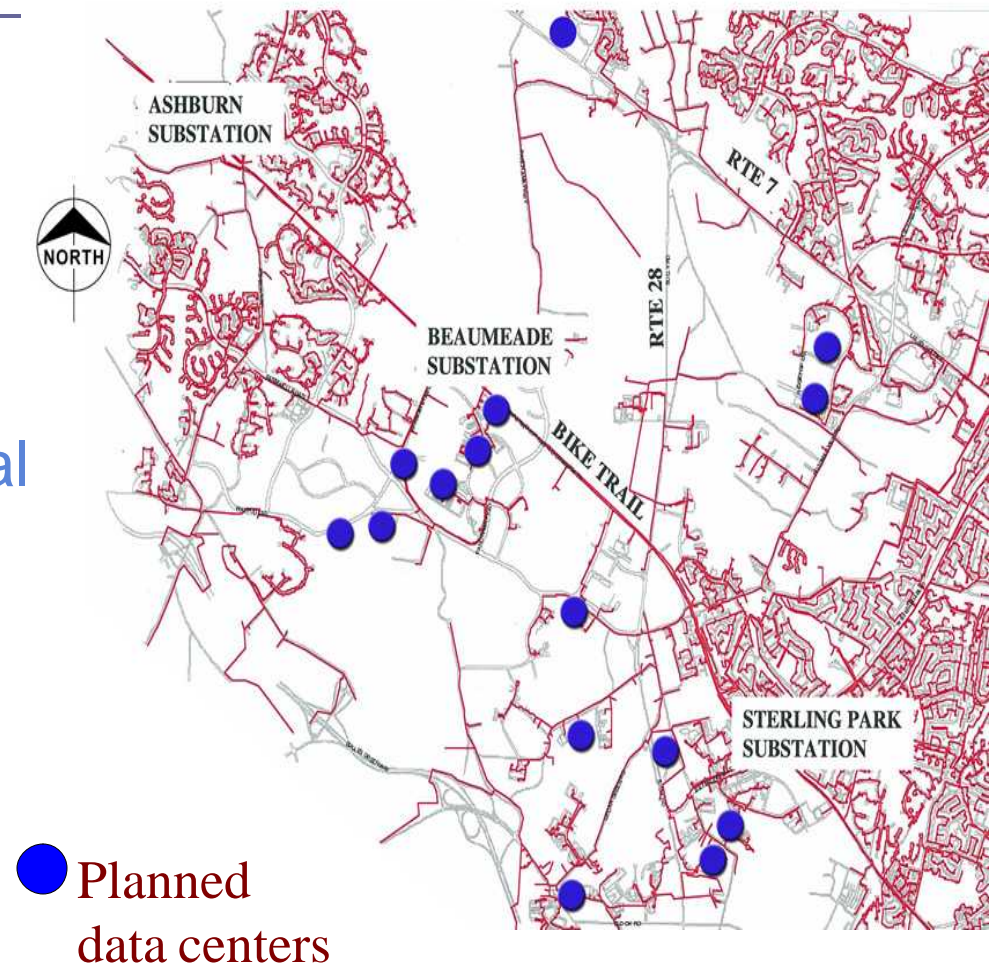
Virginia Electricity Consumption Continues to Increase



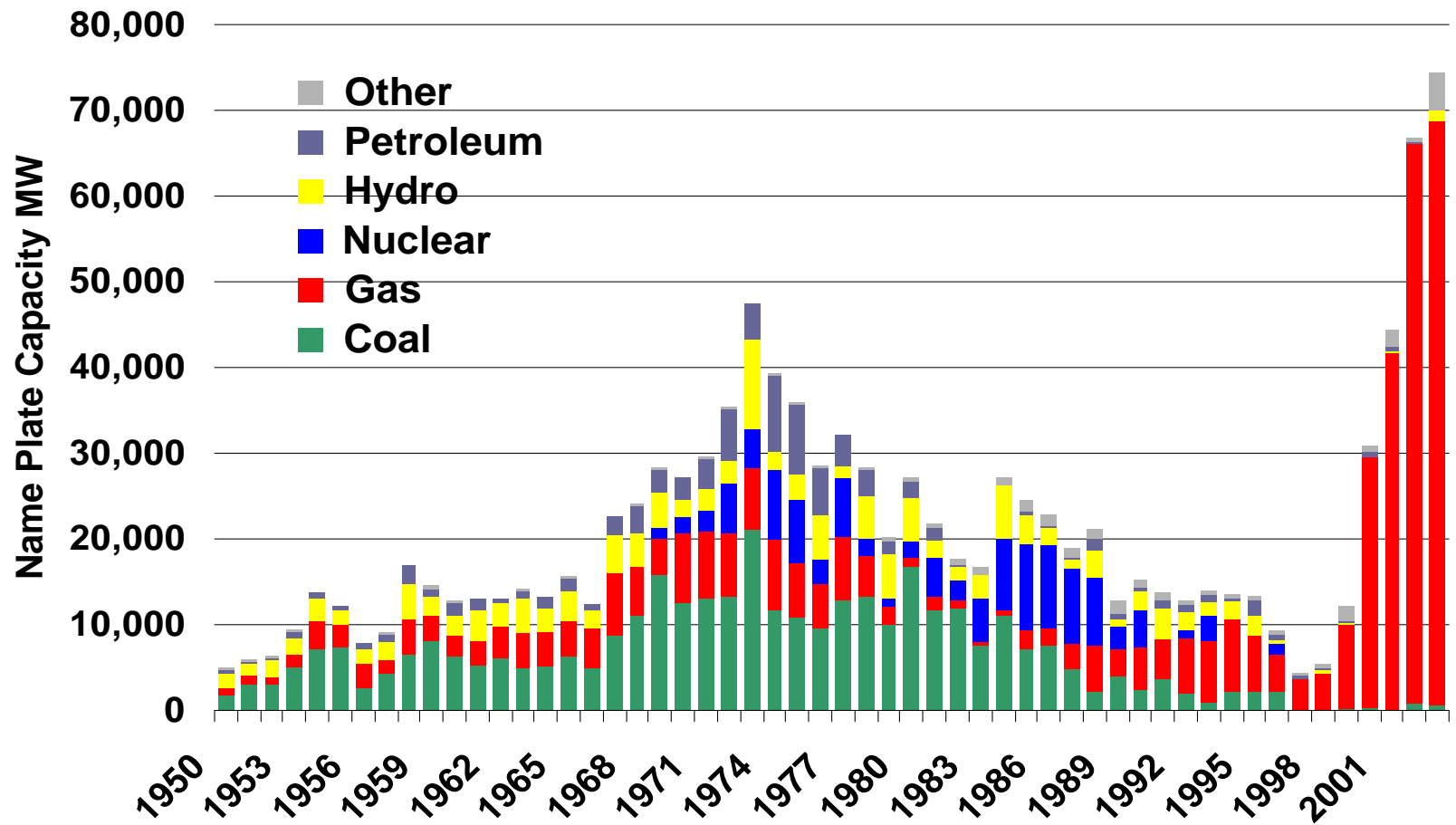
1993–2005 kilowatt-hour usage and costs for Dominion Virginia Power residential customers.

Planned Data Centers in Loudoun County: Base Load Demand

- Data centers rapidly driving up regional demand.
- Each facility adds 40 - 80 MW of additional demand.
- Demand for electricity may grow as much as 12 percent

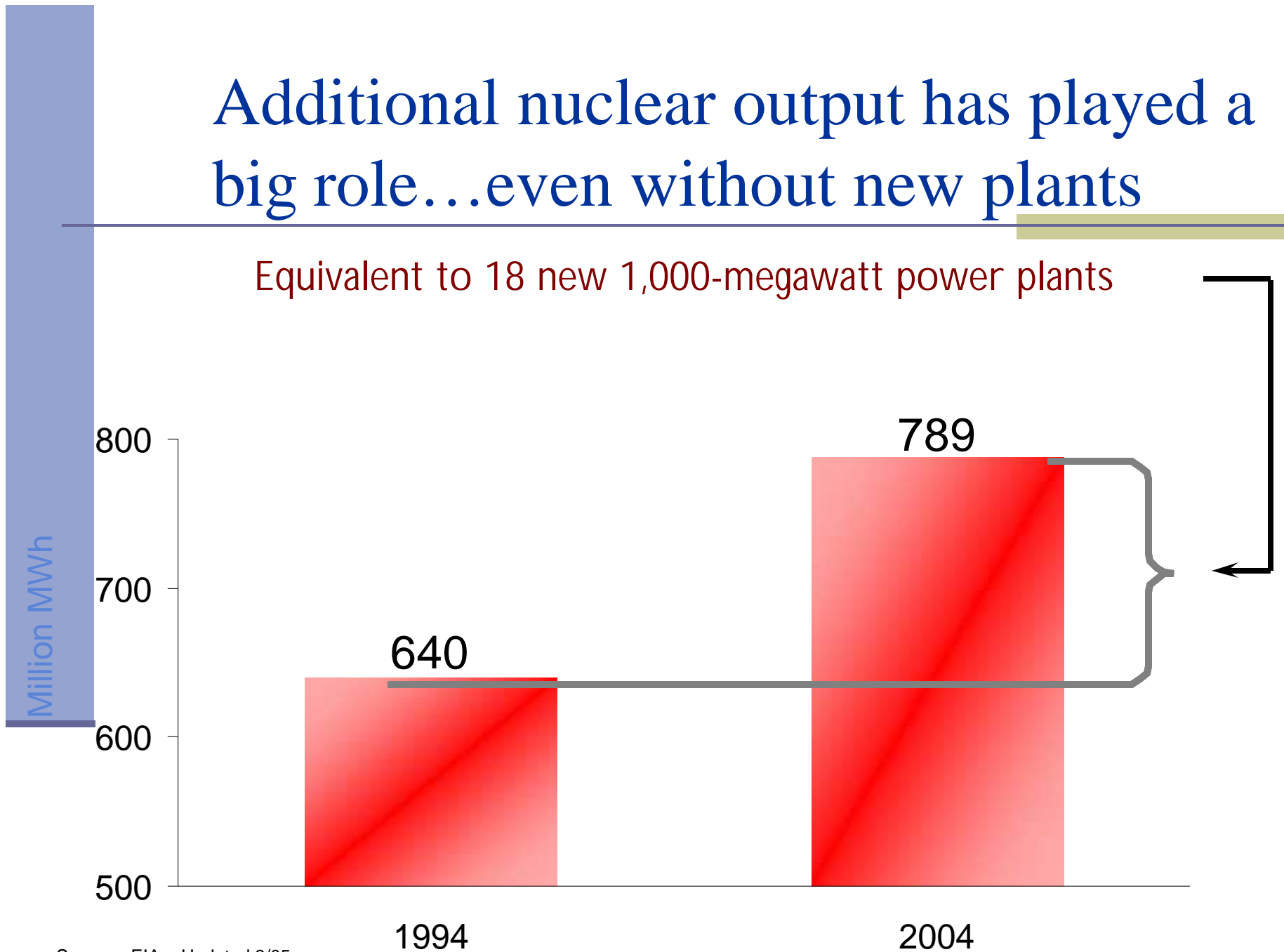


How we met past demand: **not** the path to the future

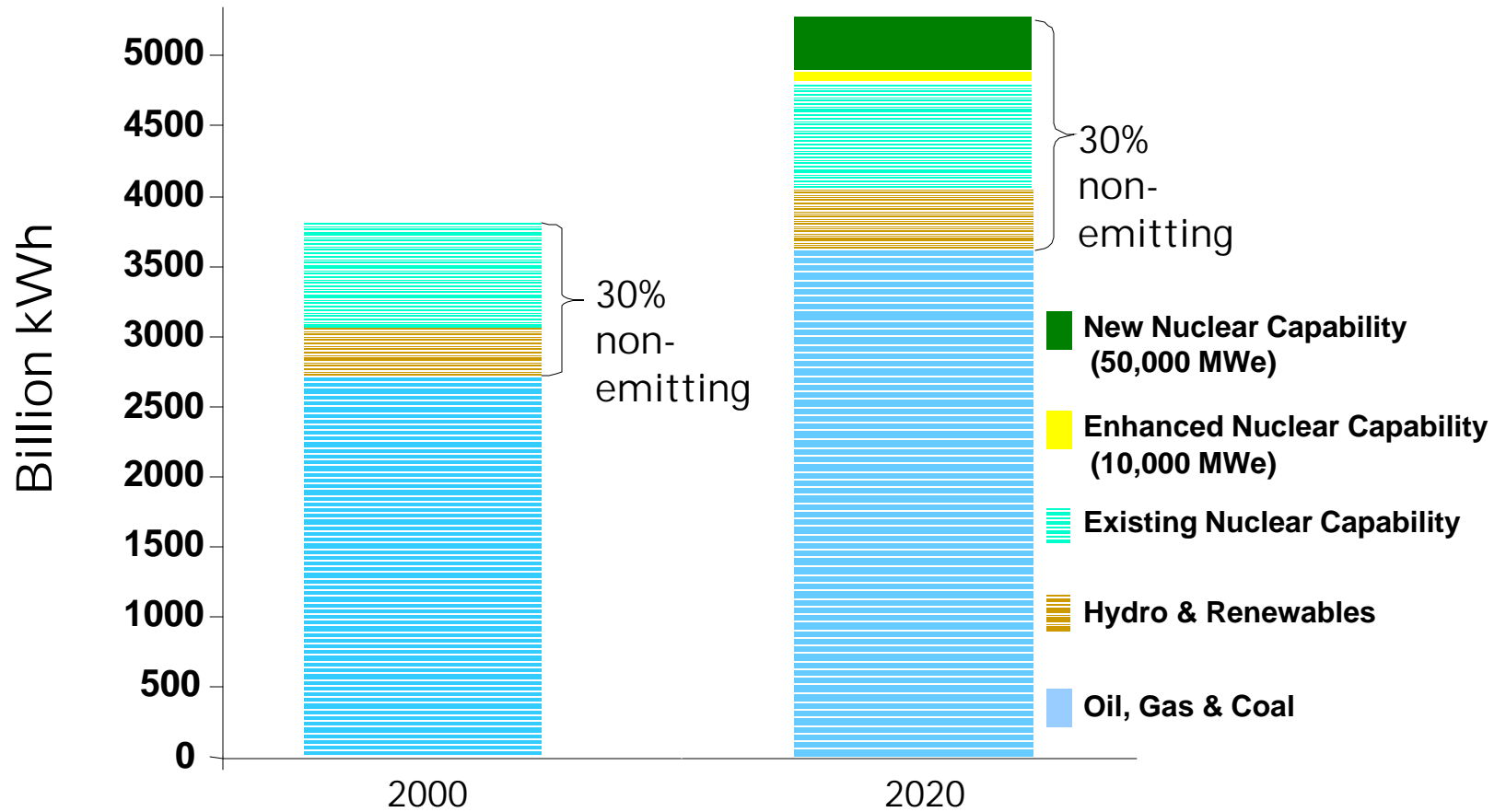


Additional nuclear output has played a big role...even without new plants

Equivalent to 18 new 1,000-megawatt power plants



50,000 MWe of New Nuclear Needed to Maintain Existing Energy Supply Diversity



What has Dominion been doing?

- Comprehensive efforts over a diverse portfolio...clean coal, natural gas, nuclear, renewables, conservation, transmission
- An industry leadership position in understanding the path to new nuclear
- A diverse approach to meeting an anticipated 4,000 MW gap in electric supply by 2017
- Visit our web site:

[www. PoweringVirginia.com](http://www.PoweringVirginia.com)



Virginia's Energy Roadmap: Meeting Virginia's Energy Needs for the 21st Century

Rapid economic growth is good news for Virginia but it presents special challenges for Dominion as the largest energy provider in the state. Energy demand in our service area is projected to increase by more than 4,000 megawatts over the next decade. That is the equivalent of adding one million homes to those we already serve.

In addition, regional demand has grown 40 percent in the last 10 years. It is expected to grow another 8 percent by 2011, even with conscientious energy efficiency and conservation efforts.

A strong economy requires more energy to support its continued growth. And growth means more jobs, more tax revenues and more financial resources with which to address community needs.

The key issue confronting the Commonwealth is where the additional power will come from to sustain this growth. Virginia already imports more power from outside its borders than any state except California.

We can begin to rectify that imbalance with a comprehensive approach that combines conservation and efficiency programs with renewable energy sources and new, economic and environmentally sound base-load generation.

This strategy will give Virginia more control over its own destiny by relying less on volatile energy supply markets. It also supports the state's 10-year Energy Plan.

Select from the links below to learn about Dominion's major initiatives.

Learn about our initiatives:



Conservation



Renewables



Nuclear



Clean Coal



Natural Gas



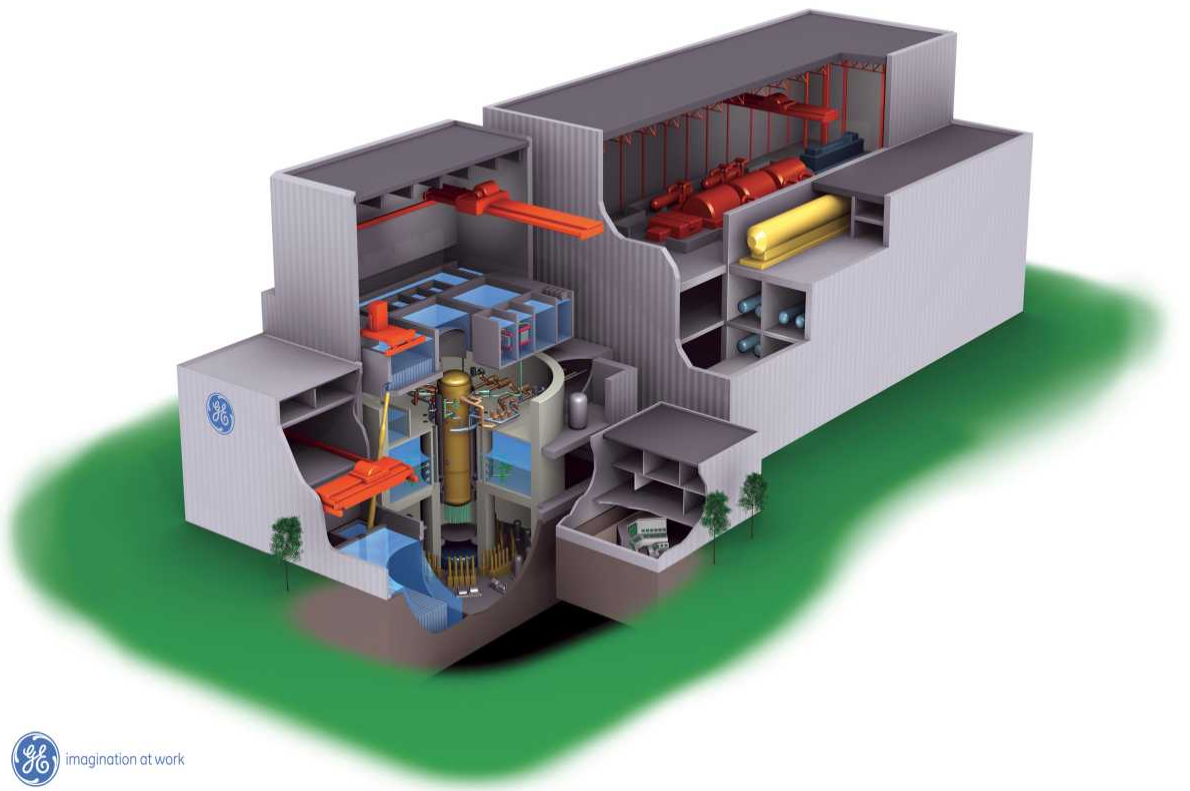
Energy Transportation



Climate Change

COL Application: Moving forward with the nuclear option

- General Electric ESBWR
- Single unit, 1500 MWe
- Next generation, simpler, more passive design meets safety goals 100 times more stringent than current
- Application to NRC submitted November 2007



Proposed North Anna 3 Project Milestones

■ Project Kickoff	April 2005
■ GE Submits ESBWR Application	August 2005
■ Begin COL application preparation	September 2005
■ Long lead item purchase order	April 2007
■ Submit COL application/ ■ Begin detailed engineering	November 2007
■ NRC Issues COL	2011
■ Safety Related Construction Start	2011*
■ Unit Operation	2016

* Pending contract agreements



Emission-free Nuclear Power

We are laying the groundwork for an expansion of clean nuclear energy at our North Anna Power Station in Louisa County, Va. Dominion is seeking a federal Combined Operating License (COL) authorizing construction and operation of a new reactor at North Anna. It would feature an advanced, simplified design using boiling water reactor (BWR) technology from General Electric. The new unit could meet the energy needs of as many as 375,000 homes.

And it would produce virtually no emissions into the atmosphere - including carbon. Operation of this new unit would be the equivalent of removing 1.5 million vehicles from America's highways. Nuclear power must play a major role in efforts to combat climate change.

Additionally, it would employ a low-profile cooling tower to avoid placing any additional heat into Lake Anna and the Waste Heat Treatment Facility, already used to cool the two existing units.

Dominion has always viewed nuclear energy as a safe, reliable and clean energy source. Currently, North Anna and Surry, our other nuclear station in Virginia, provide more than a third of the state's electricity.

Although Dominion has not made a final decision to build the unit, it wants to keep the nuclear energy option available to meet the Commonwealth's future energy needs.

If federal and state authorities approve construction, and Dominion decides to proceed, work could get underway as early as 2010, with electricity produced as early as 2015.

[Learn more](#) about the North Anna 3 project.

Regulated Generation Growth

	2008	2009	2010	2011	2012	2013	2014	2015
Summary Statistics								
Cumulative Additional Capacity (MW)	343	632	897	1,605	2,268	2,338	2,920	4,207
Growth CapEx per year (mm) ¹	\$877	\$1,450	\$1,108	Not disclosed				
Project Detail								
Ladysmith 3 & 4	300 MW	<<< VaSCC approved project August 2007						
Peaker Uprates	224 MW				<<< In PJM Queue			
Ladysmith 5	150 MW	<<< SCC granted authority 3/08; pending remaining permits and approval as of 4/08						
Baseload and Combined Cycle Uprates (R)	297 MW Fossil						<<< In PJM Queue	
	200 MW Nuclear					<<< In PJM Queue		
Bear Garden (R)	582 MW				<<< In PJM Queue; filed VaSCC 3/08			
Virginia City Hybrid Energy Center (Rider filed in 2007)	585 MW					<<< VaSCC approval granted 3/08, awaiting VA Air Board permit as of 4/08		
Gas-fired Combined Cycle (R)					In PJM Queue >>>		582 MW	
North Anna 3 (R)	In PJM Queue; Filed COL in 4Q07, Application complete 1Q08>>> 1,287 MW (Dominion's Ownership)							

¹) Updated as of 3/31/08. All planned projects and planned capital expenditures are preliminary and may be subject to regulatory and/or Board of Directors' approvals. Regulated Generation Net Plant at 12/31/06 was approximately \$6.5 billion; (R) – project subject to VASCC rate rider approval

The base load dilemma



- Costs increasing rapidly:
 - For example, nuclear estimates:
 - EIA - \$2083/kW (2005)
 - MIT - \$2000-2500/kW (2003)
 - Keystone - \$3600-4000/kW (June 2007)
 - S&P - \$4000/kW (May 2007)
 - Moody's - \$5000-6000/kW (October 2007)
 - FP&L - \$5700-8020/kW (Fall 2007)

More of the dilemma

- Project costs challenge company balance sheets—even regulated utilities

Company	Market capitalization (3/13/08) (\$billions)
Exelon	43.8
Dominion	29.6
Southern	26.4
Duke	24.4
Entergy	20.1
Constellation	14.6
FPL Group	23.8

Relative ability to fund major capital projects

		Market Cap (\$Bn)	Cost as % of Market Cap
\$4Bn Power Plant 	Exelon	54	7.5
	Dominion	40	10.0
	"Average" investor-owned utility	10	42.5
\$4Bn Deepwater Drilling Platform 	Exxon Mobile	466	0.9
	Royal Dutch Shell	249	1.6
	BP	211	1.9

Going forward....

- Real baseload demand is increasing
- Historic means of meeting demand will not work
- Nuclear is the only large scale non emitting base load source available
- Licensing processes are moving forward
- Financing and risk allocation will require new thinking
- Loan guarantees necessary for new nuclear

In the meantime...North Anna 3 reactor vessel forgings are in production

