



Strategic Approaches to The Electric Future



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Company Overview



Coal/Lignite
66%



Nat. Gas/Oil
22%

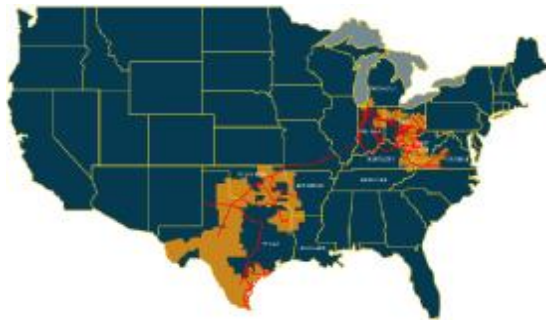


Nuclear
6%



**Pumped Storage/
Hydro/Wind**
6%

AEP's Generation Fleet
39,000 MW Capacity



5.2 million customers in 11 states
Industry-leading size and scale of assets:

<u>Asset</u>	<u>Size</u>	<u>Industry Rank</u>
Domestic Generation	~39,000 MW	# 2
Transmission	~39,000 miles	# 1
Distribution	~214,000 miles	# 1

Key Challenges/Uncertainties

- *Volatile Fuel Costs*
- *Post-Recession Load Recovery*
- *Energy Security*
- *Environmental Challenges*
- *Need for Infrastructure Replacement*
- *Higher Customer Bills*
- *Regulatory Recovery*

Environmental Challenges

- *Climate Change*
- *SO₂ & NO_x*
- *Hg and Other Hazardous Air Pollutants*
- *Water Quality / Aquatic Impacts*
- *Coal Ash*
- *Mountaintop Mining*
- *Natural Gas “Fracking”*

Climate Change

- *Still a priority within the Administration.*
- *The American Clean Energy and Security Act, sponsored by Reps. Waxman & Markey, narrowly passed through the House in June 2009.*
 - *Favorable in comparison to EPA regulations, which have the potential to be much more costly.*
- *Senators Kerry, Graham and Lieberman currently working on new bipartisan Senate version of climate legislation.*
- *However, dynamic of votes in Senate will make passage difficult in 2010.*
 - *Legislative session is shortened due to election year.*
 - *Financial regulatory reform, Supreme Court Justice confirmation and immigration reform are also priorities.*
- *AEP will continue work to add constructive improvements to any climate legislation to ensure the best interests of our ratepayers.*

AEP Position: A “Reasonable” Approach to Climate Legislation

Reductions and Timing - Moderate with Adequate Lead Times

Scope of Program - Economy Wide

Flexibility of the Program - Trading, Banking, Unrestricted Offsets, Early Action Credits

Allowance Allocation And Other Cost Issues - Full Allocation to Electric Sector and “Low” Auctions

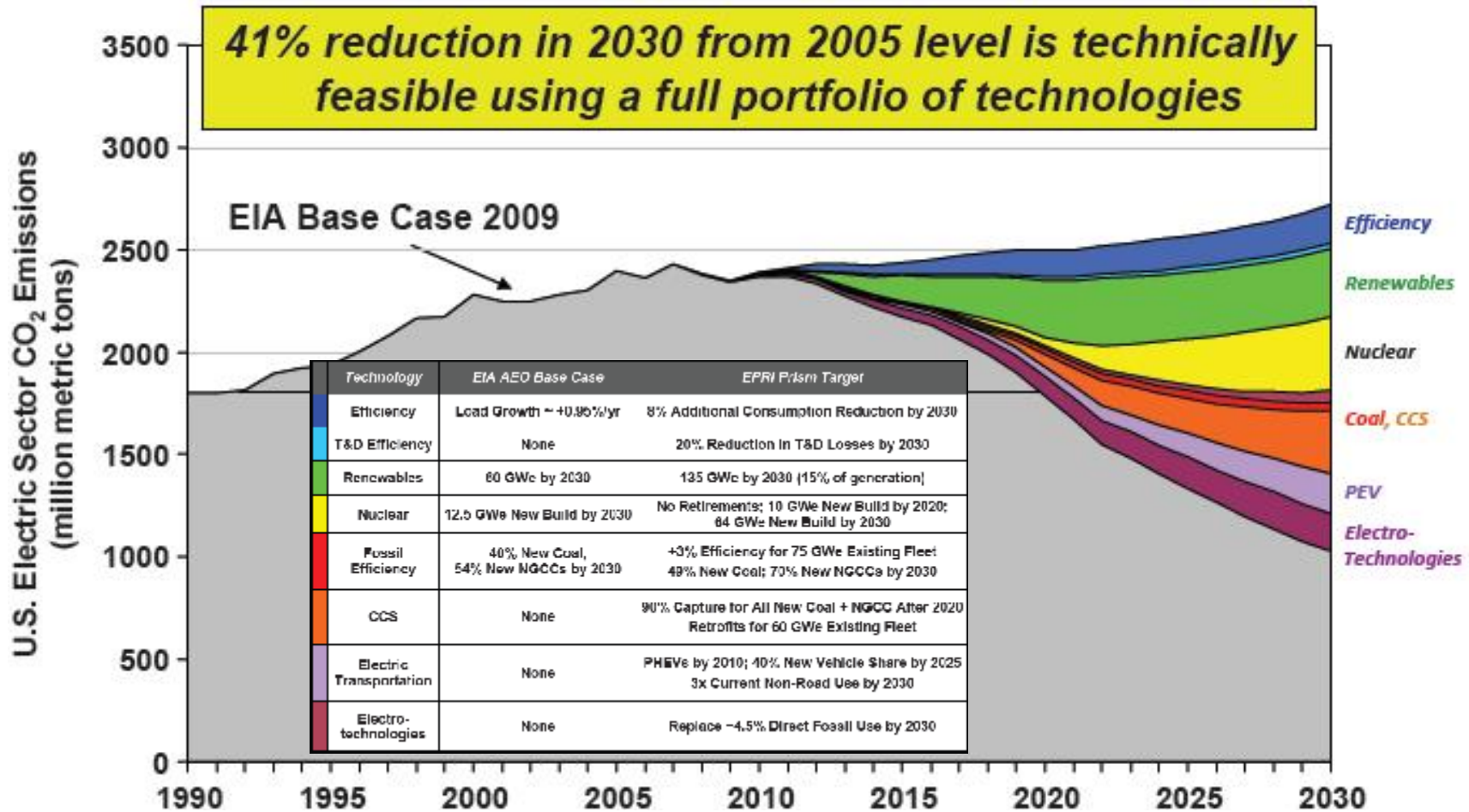
Technology Development/Deployment - Bonus Allowances or Other Support for Carbon Capture and Storage (CCS)

International Linkage - e.g., AEP-IBEW Proposal

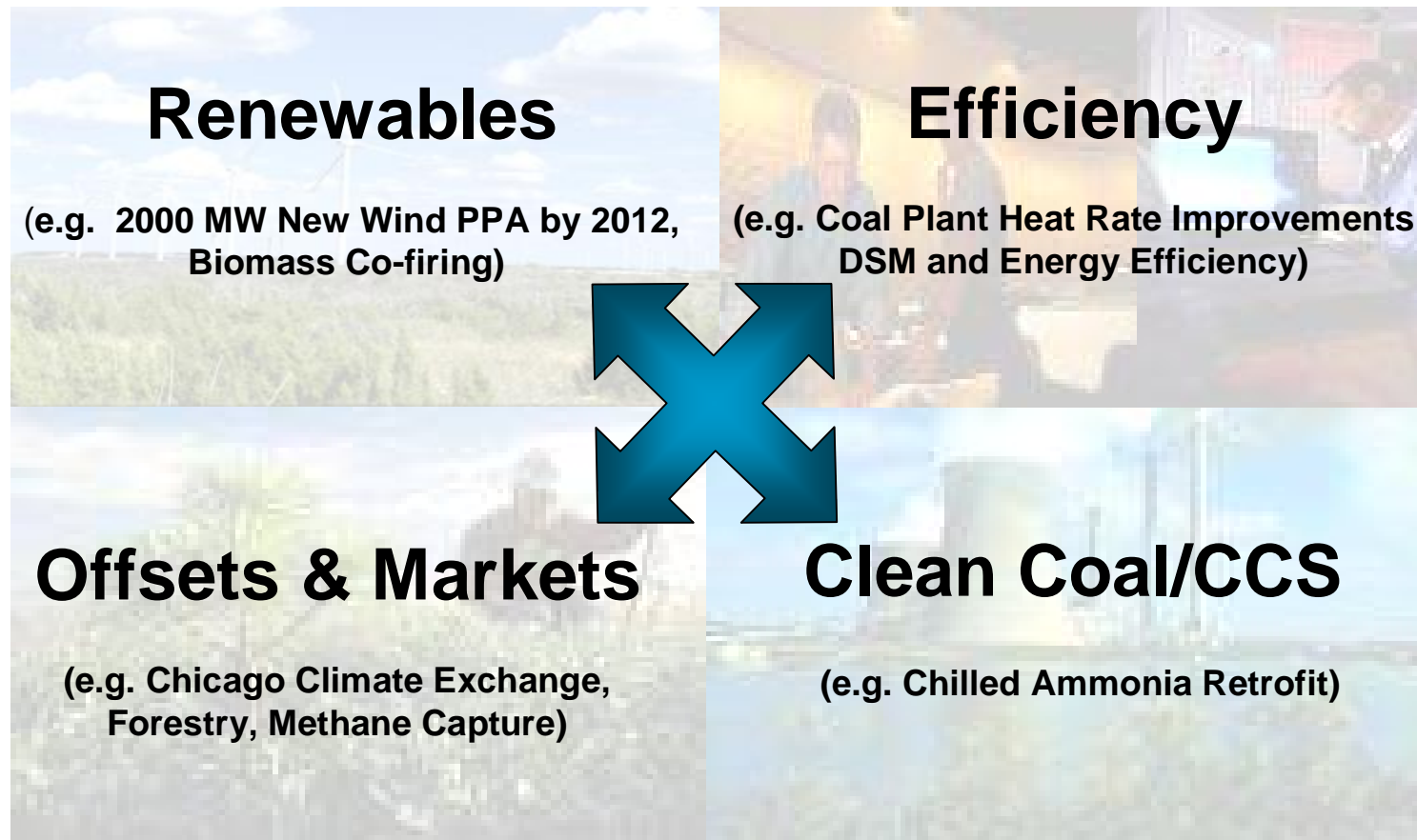


AEP Supports Reasonable Legislation on Climate

U.S. Climate Targets Require a Portfolio



AEP's GHG Reduction Portfolio



Renewables – Wind Energy

- *AEP has over 12 years experience with wind*
 - *Developer*
 - *Owner*
 - *Operator*
 - *Off-taker*
- *Goal of increasing total wind generation to 2000 MW by 2012*
- *Currently halfway to goal – 1004 MW under contract*
- *Meeting goal will largely hinge on appropriate regulatory treatment*

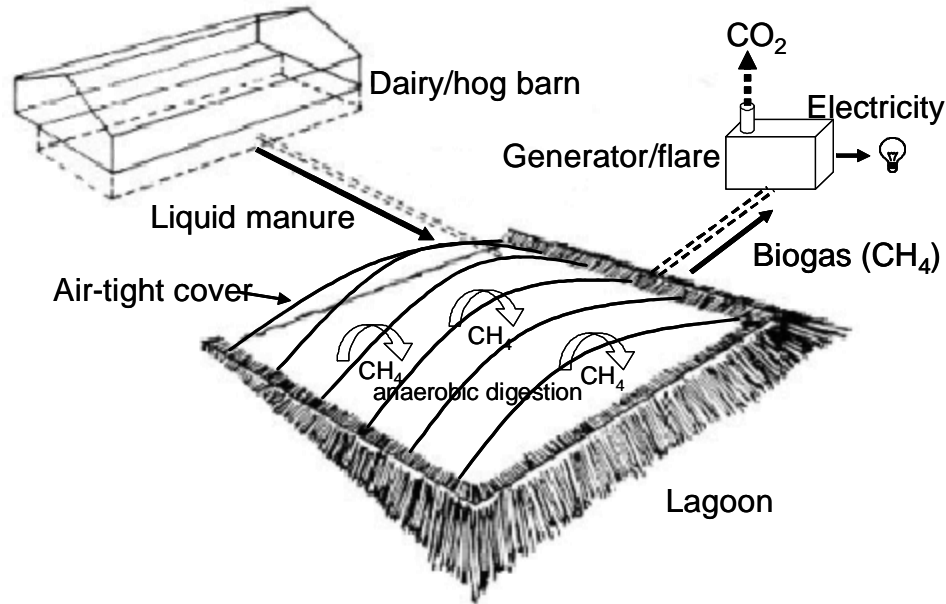


Renewables - Biomass

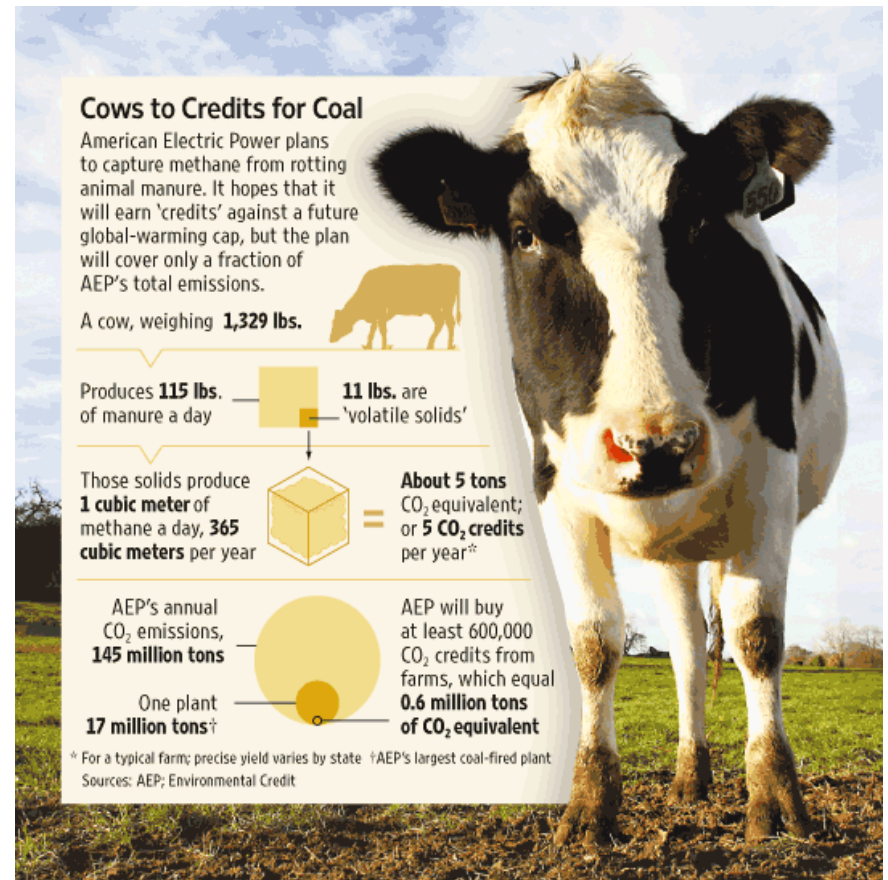
- *AEP has been investigating the use of biomass in cofiring applications for a number of years.*
 - *2003-2004: Tested of processed wood waste in 100 MW boiler.*
 - *2009-2010: Tested of sawdust in 1300 MW boiler.*
 - *2010: Issued RFP for biomass resources to be delivered to Ohio coal plants for cofiring to meet in-state renewable standard.*
 - *Will continue to test the capabilities of our facilities and prepare to utilize biomass commercially when economic.*



Early Action in Offsets: Livestock Methane



- **Methane (CH₄) is ~20 times as potent a GHG as CO₂.**
- **Reducing 1 ton of methane emissions is equivalent to reducing ~20 tons of CO₂ emissions.**



Energy Efficiency

- *Near-term voluntary commitment to reduce customer demand by 2,250,000 MWh/yr (~1% of load) by 2012 across AEP system.*
- *Additional internal commitment to reduce energy consumption of AEP's facilities by 20% by 2012.*
- *Several state with existing EE Mandates: OH, IN, MI, TX & VA (opt)*
- *Efficiency programs will be rolled out as economically viable.*
 - *General Education / Training*
 - *Refrigerator / Freezer Recycling*
 - *Compact Florescent Lighting Subsidies*
 - *Commercial & Industrial Lighting, Motors & HVAC Upgrades*
- *Portions of initial energy efficient investment will be aligned with gridSMART program.*

Ohio gridSMARTSM

- ***Goal:***

Make the utility grid smarter and make people that use it more energy smart.

- ***How:***

Provide multitude of smart grid technologies that provide consumers greater control of their energy usage, enhanced energy conservation opportunities, improved customer services and greater service quality and reliability.



Ohio gridSMARTSM

■ Program Scope

- 110,000 customers
- 150 square miles
- \$150 million total investment
 - \$75 million in federal funding

■ Energy / Cost Goals

- Reduce 18,000 MWh
- Reduce peak demand by 15 MW
- Reduce consumer costs by \$5.75 million
- Reduce CO₂ emissions by 16,650 tons



Technologies to Be Tested

- Smart Meters
- Wireless Communications Network
- Distribution Automation
- Integrated Volt Var Control
- Community Energy Storage
- Cyber Security and Interoperability
- Simulation Tools
- Plug-In Hybrid Vehicles
- Smart Appliances
- Programmable Controllable Thermostats
- Direct Load Control Devices
- In-Home Displays
- Web Portal
- Time Differentiated Pricing

The plan is based on the evaluation of a large number of technology and consumer business model combinations, and on the viability and practicality of scaling the demonstration results to the AEP Ohio service area and the nation.

New Technology: Ultra-Supercritical Coal

- *Turk Plant currently under construction in Hempstead County, Ark.*
- *AEP will own 73% share of the ultra-supercritical coal fired plant's 600 MW, or 440 MW.*
- *One of first projects in U.S. to use ultra-supercritical steam conditions.*
 - *Reduced fuel use*
 - *Reduce emissions*
- *Construction of the \$1.6 billion plant is 22% complete.*
- *Commercial operation: Oct. 1, 2012.*



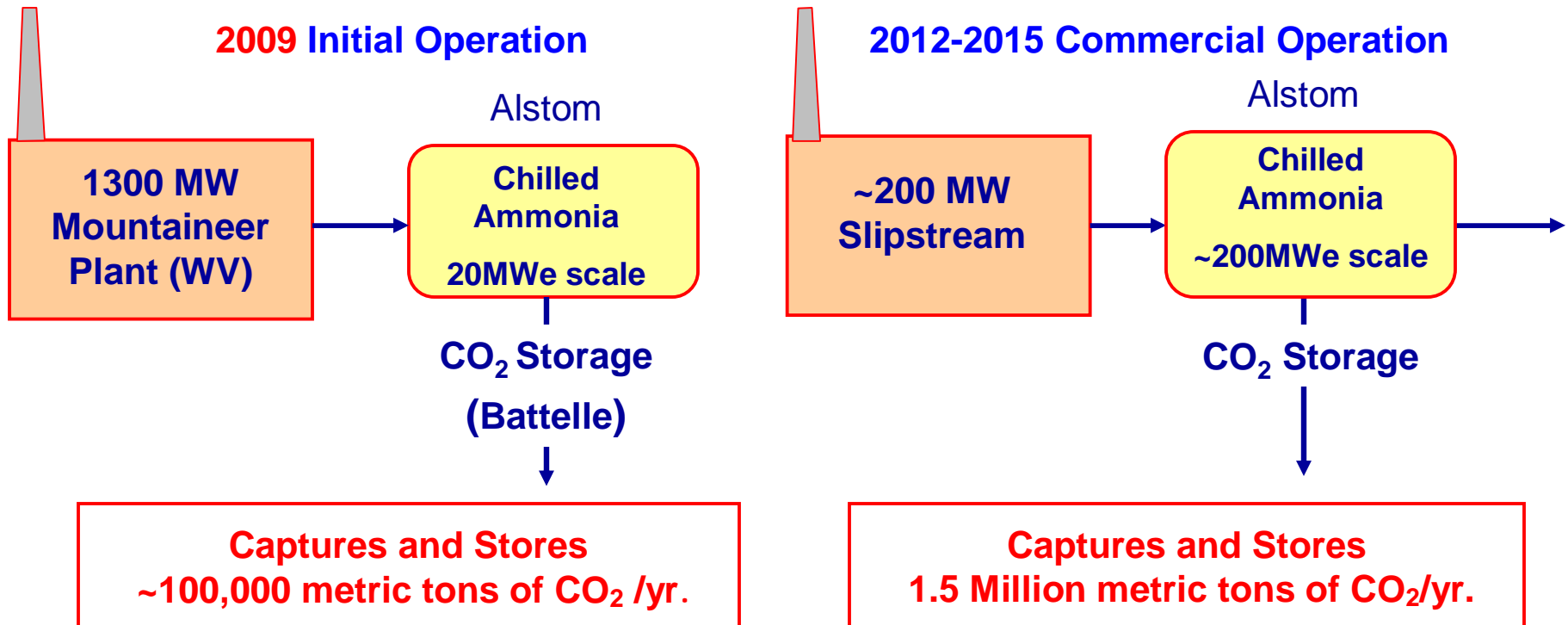
New Technology: Chilled Ammonia CCS

Phase 1

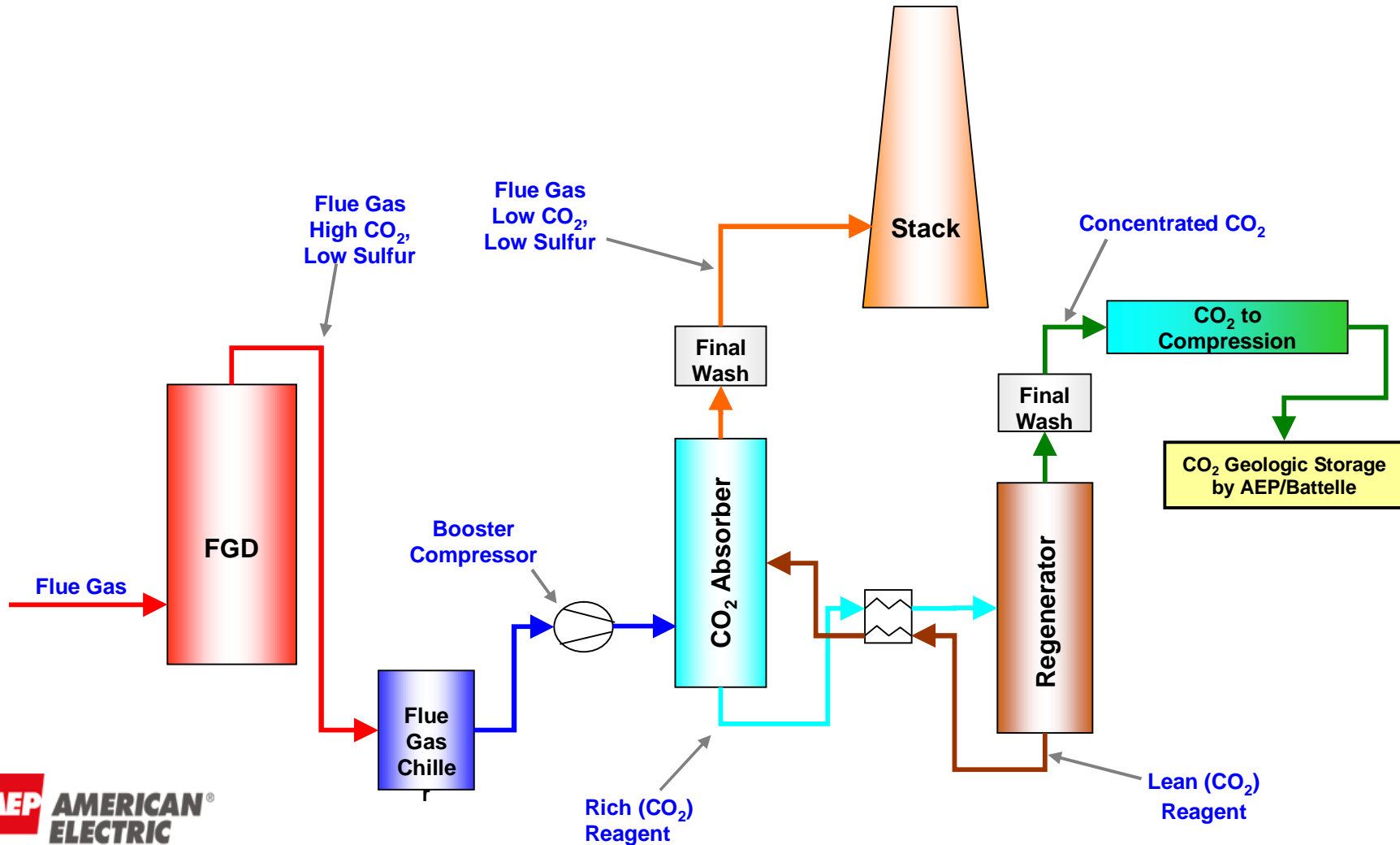
Phase 2

2009 Initial Operation

2012-2015 Commercial Operation



Alstom's Chilled Ammonia Process



Why is CCS critical?

- *Studies of federal cap and trade legislation (e.g., EPA, EIA analyses of Waxman-Markey) indicate that the vast majority domestic CO₂ reductions will come from electric sector.*
- *The promise of widespread CCS provides a large amount the electric sector's potential abatement opportunities.*
- *Unlike renewables, there is no maximum penetration rate for CCS.*
- *Without early and significant CCS deployment, consumer costs will be significantly higher.*

Key CCS Policy Issues

■ *Technical*

- *Current technology not ready for widespread deployment.*

■ *Financial*

- *Supplemental funding needed for the initial capital investment and on-going O&M costs.*

■ *Regulatory*

- *Long term liability, project permitting, reservoir ownership and monitoring standards remain unresolved.*