

The Politics of Climate Change

Fertilizer Outlook and Technology Conference

Tampa, Florida
October 28, 2009

Ford B. West
TFI President



Outline

- Brief overview - Global actions on climate change
- Cap and Trade
- “Legislation” - Selected country comparisons
- Evolving U.S. climate change policy
- Implications for the Fertilizer Industry
- Concluding Remarks



Global actions on Climate Change

- Kyoto Protocol
 - International agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC)
 - **Goal:** achieve “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”¹
 - **Target:** reduce greenhouse gas (GHG) emissions 5.2% on average from 1990 levels by the year 2012
 - **When:** Adopted in December 1997, enforcement starting in February 2005
 - **Who:** by August 2009, 189 parties have ratified the protocol²

1. UNFCCC http://unfccc.int/kyoto_protocol/items/2830.php

2. UNFCCC http://unfccc.int/files/kyoto_protocol/status_of_ratification/application/pdf/kp_ratification_20090826corr.pdf



More on Kyoto Protocol

- Calls for cuts in the following gases
 - Carbon dioxide (CO₂)
 - Methane (CH₄)
 - Nitrous oxide (N₂O)
 - Hydrofluorocarbons (HFCs)
 - Perfluorocarbons (PFCs)
 - Sulphur hexafluoride (SF₆)
- Conditions for protocol to come into force
 - 55 industrialized countries required to reduce GHG emissions to target levels 5.2% below that of 1990
 - If GHG emissions can not be reduced countries must purchase emission credits from countries that are under these levels
- Categories of countries
 - Annex I countries – industrialized countries
 - Annex II countries – developed countries
 - Developing countries
 - These categories of countries have "common but differentiated responsibilities," with greater responsibility for reducing greenhouse gas emissions in the near term on the part of developed/industrialized countries



Greenhouse Gas Reductions

	Percent of total U.S. GHG Emissions in 2007	Percent Change from 1990 levels	
		<u>2006</u>	<u>2007</u>
<i>Total United States</i>		15.6%	17.1%
<u>U.S. Fertilizer Production</u>			
Ammonia Production and Urea Consumption	0.2%	-26.8%	-17.9%
Nitric Acid Production	0.3%	-9.0%	8.5%
<i>Nitrogenous Fertilizer Manufacturing *</i>	0.5%	-17.1%	-3.5%
Phosphoric Acid Production	0.02%	-20.0%	-20.0%
<i>Total Fertilizer **</i>	0.5%	-17.2%	-4.2%

*Ammonia Production and Urea Consumption, Nitric Acid Production

** Ammonia Production and Urea Consumption, Nitric Acid Production, Phosphoric Acid Production



COP 15 – U.N. Climate Change Conference

Copenhagen, Denmark, Dec. 7-18, 2009

- **COP 15** – 15th Conference of Parties to the UNFCCC
- **Goal:** deliver a new binding global climate agreement that will apply to the post-Kyoto period after 2012¹
- **Participants:** Government representatives, United Nations bodies, specialized agencies and related organizations, and observer organizations²
- **Central Issues**³:
 - Agreement on the structure of the global system that will regulate emissions reductions in the future.
 - which countries are committed to quantitative emissions reductions, if such a system is agreed on.
 - the system should not be based on quantity, but on national climate action plans.
 - Agreement on how the developing countries are integrated in the global emissions reduction system.
 - Agreement on the basis year of the calculations of emissions reductions. EU wants it to be 1990 as a continuation of the Kyoto Protocol. Others - like the US - prefer 2005
 - Substantial financing of mitigation and adaptation to climate change to the poorest developing countries from the industrialized nations.

1. Copenhagen Climate Council <http://www.copenhagenclimatecouncil.com/get-informed/climate-intelligence/climate-agencies/cop15-copenhagen/printview.html>
2. COP15 Copenhagen: <http://en.cop15.dk/about+cop15/going+to+cop15/register+for+cop15>
3. COP15 Copenhagen: <http://en.cop15.dk/news/view+news?newsid=2178>



Cap and Trade Legislation¹

- **Goal:** to cost effectively reduce greenhouse gas emissions
- **Cap:**
 - Defined limit to the amount of greenhouse gas emitted
 - Emitters must have “emissions permits” for every ton of CO₂ released
 - The permits set an enforceable cap on CO₂ emissions and the limits become stricter over time until the ultimate reduction goal is met (e.g. reduce emissions 20% by 2035)
- **Trade:**
 - Refers to the trading of emissions permits in an open market;
 - *Why:* easier for some companies to reduce their emission than others;
 - Companies, who emit less than their allowance, can sell their extra permits to companies that are not able to make reductions as easily;
 - System guarantees set level of overall reduction;
 - Rewards efficient companies;

1. Center for American Progress: <http://www.americanprogress.org/issues/2008/01/pdf/capandtrade101.pdf>



Cap and Trade Legislation¹

- **Potential Benefits:**
 - Reduces “domestic” emissions;
 - Creates revenue stream for federal government
 - Federal Government can auction emissions permits
 - Companies could receive “some” free allowances
 - Federal Government can allot free allowances to industries which are Energy Intensive or Trade Exposed or for other reasons
- **Potential Drawbacks:**
 - Could result in a significant rise in costs (in the form of a tax on CO₂ or CO₂ equivalent);
 - Could result in a significant increase in input (energy and feedstock) costs;
 - Would result in a competitive disadvantage for a company if similar legislation is not adopted in other countries

1. Center for American Progress: <http://www.americanprogress.org/issues/2008/01/pdf/capandtrade101.pdf>



Selected Country Comparison

- United States (Ford West, TFI)
- Australia (Nick Drew, FIFA)
- European Union (Esa Harmala, EFMA)
- Canada (Roger Larson, CFI)
- New Zealand (Hilton Furness, NZFMRA)



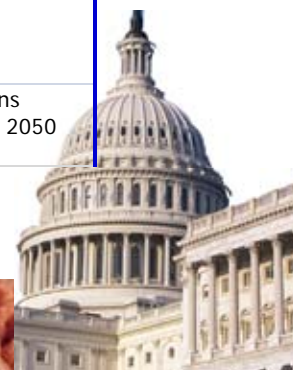
Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
Association:	TFI	EFMA	FIFA	CFI	NZFMRA
2. Proposed Legislation to reduce CO2 Emissions	• Cap and Trade	• Cap and Trade	• Cap and Trade	• Cap and Trade likely	• Current legislation Cap and Trade
	• free emissions allowances are given to energy and trade intensive industries	• emissions rights are auctioned	• official name - Emission Trading Scheme (Carbon Pollution Reduction Scheme (CPRS))	• wants to align with US targets	• This will be modified later this year to include an intensity based component
	• nitrogenous fertilizer manufacturing part of energy and trade intensive sector		• failed to pass in the senate in August 2009	• fertilizer industry part of Energy Intensive Trade Exposed (EITE)	• Agricultural sector included in ETS
	• house has passed new legislation, if senate passes new legislation then differences must be worked out and voted on again		• will be re introduced for voting in November 2009	• minister considering sub-sector proposals of less than 20% reduction targets	
	• economy wide cap on emissions			• separate regulations for transportation fuel efficiencies	
				• plan proposes separating energy section from manufacturing	



Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
Association:	TFI	EFMA	FIFA	CFI	NZFMRA
3. Timeline for proposed legislation	2011 - March 31 - entities emitting over 25,000 tons of CO2 must begin reporting emissions for CO2 emitted in 2010	• 2013 and on - manufacturing is covered	• 2011 - cap and trade system to commence	• 2014 - targets for EITE take effect	• Current timeline for entry into ETS - Stationary Energy 1 Jan 2010 - Industrial Processes 1 Jan 2010 (includes fertiliser manufacturers) - Liquid Fossil Fuels 1 Jan 2011 - Agriculture 1 Jan 2013
	• 2014 - first year U.S. fertilizer industry subject to ghg reduction requirements	• 2013-2025 - emissions rights available will decrease 1.74% per year for covered industries	• 2015 - agriculture to be included in scheme (still to be decided by 2013)	• 2020- reduce over all emissions 20%	• Proposed amended timeline - Stationary Energy 1 July 2010 - Industrial Processes 1 July 2010 (includes fertiliser manufacturers) - Liquid Fossil Fuels 1 July 2010 - Agriculture 1 Jan 2015
	• 2020 - reduction in overall emissions by 17%	2020 - all other sectors (transportation, construction, agriculture, services) must reduce emissions on average by 10%	• 2009 - October, policy paper to be released (will aid in decision to include agriculture emissions - decision made by 2013)		• 10% - 20% emissions reduction by 2020
	• 2050 - reduction in overall emissions by 83%				• 50% emissions reduction by 2050

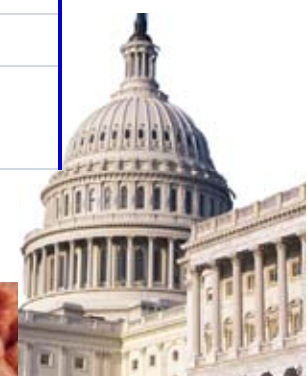


Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
Association:	TFI	EFMA	FIFA	CFI	NZFMRA
4. Method proposed to reduce cost of compliance	<ul style="list-style-type: none"> Fertilizer is part of energy and trade intensive sectors 	<ul style="list-style-type: none"> Fertilizer is part of general system (considered energy intensive) 	<ul style="list-style-type: none"> Fertilizer is part of emission intensive trade exposed activities 	<ul style="list-style-type: none"> by Processed gas emission exemption (protects ammonia production) 	<ul style="list-style-type: none"> Free allocation of 90% of 2005 emissions
	<ul style="list-style-type: none"> nitrogen fertilizer manufacturing specifically receives some allowances as part of the energy intensive umbrella 	<ul style="list-style-type: none"> fertilizer as part of a larger group will get free emission rights up to a bench mark level (bm level = average of the 10% best performing plants) 	<ul style="list-style-type: none"> emission intensive and trade exposed industries gain free permits to cover emission - 94.5% if highly intensive, 66% if moderately intensive 	<ul style="list-style-type: none"> an allocation of allowances for growth of potash and nitrogen industries 	<ul style="list-style-type: none"> Phase out of free allocation from 2015 by 1.3% per year
	<ul style="list-style-type: none"> size of annual free allocation declines leading to a complete phase out by 2035 	<ul style="list-style-type: none"> with the benchmark, 5% of the plants get free emission rights and others have to buy 	<ul style="list-style-type: none"> permit coverage reduces 2.5% a year, could be more 	<ul style="list-style-type: none"> fund that would provide credits for investment in reduction or sequestration technology or research 	<ul style="list-style-type: none"> Align phase-out with governments -50% by 2050 and Australia's proposed CPRS
		<ul style="list-style-type: none"> cost to emit - 30 euro a ton 	<ul style="list-style-type: none"> assistance received is based on Aus industry average efficiencies 	<ul style="list-style-type: none"> special recognition for fertilizer industry investment in a science cluster for the reduction of GHG-CO2 and N2O emissions, on Canadian farms 	<ul style="list-style-type: none"> Support for trade exposed/emissions intensive industry on a production based, industry average approach
			<ul style="list-style-type: none"> Ammonia and AN production = highly intensive 		
			<ul style="list-style-type: none"> Urea production = moderately intensive 		
			<ul style="list-style-type: none"> Phosphoric acid production = will not receive assistance currently 		

Some features used:

- Some free allowances/permits, which decline over time;
- Processed gas exemption;
- Credits for investment



Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
Association:	TFI	EFMA	FIFA	CFI	NZFMRA
5. Does the Fertilizer Industry stand alone in the proposed legislation?	<ul style="list-style-type: none"> No, part of a larger group of energy intensive industries 	<ul style="list-style-type: none"> No, part of the general system 	<ul style="list-style-type: none"> Production - part of total industry 	<ul style="list-style-type: none"> Part of EITE sector, but fertilizer-specific targets/measure would be developed under the EITE umbrella 	<ul style="list-style-type: none"> No, part of industry sector (manufacturing) and agricultural sector (use)
			<ul style="list-style-type: none"> ag emissions - separate 		

No – part of industry, energy intensive or trade intensive sectors!



Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
Association:	TFI	EFMA	FIFA	CFI	NZFMRA
6. Is there a border adjustment mechanism?	<ul style="list-style-type: none"> Yes, in the House passed bill 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> No
	<ul style="list-style-type: none"> if no broad multinational agreement on climate change is reach by Jan 1 2018, president shall establish an international reserve allowance program for imports in eligible industrial sectors by Jan 1, 2020 			<ul style="list-style-type: none"> Canadian government in strong opposition to trade distorting measures such as border adjustments 	
	<ul style="list-style-type: none"> Countries can be exempt from border adjustment if they have GHG regulations in place or if defined by the U.N. as "least developed of developing countries" 				

Not really!



Selected Country Comparison

	U.S. TFI	EU EFMA	Australia FIFA	Canada CFI	New Zealand NZFMRA
Association:					
7. Are Ag field emissions included in cap and trade legislation?	• No	• No	• No	• No	• Yes - but will be subject to above amendments and decision as to point of obligation
		• Ag field emissions are part of binding reduction target of 10% by 2020	• to be decided by 2013 using October 2009 policy paper		
			• Inclusion will not take place before 2015		
			• Government funding research to determine feasibility of including agriculture		

Mostly, No!



Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
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8. Can farmers earn offset credits?	Yes	No	Yes	Yes	Yes
	<ul style="list-style-type: none"> farmers can participate in carbon capture and sequestration practices approved by USDA to earn emissions allowances 		<ul style="list-style-type: none"> Only by planting forests currently 	<ul style="list-style-type: none"> Farmers will be allowed to sell certified offset credits by adopting best management practices that reduce N2O emissions 	
	<ul style="list-style-type: none"> farmers can sell emissions allowances to industries in need 		<ul style="list-style-type: none"> issue remains a focus of opposition 		
			<ul style="list-style-type: none"> Government funding research investigating biosequestration 		

So far, farmers can earn limited offsets, except in the EU



Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
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9. Is there specific protection available for Nitrogen Manufacturers from fuel switching?	No	No	No	No	No

No specific protection from fuel switching!
 Fuel switching from coal to natural gas has the potential to drive up domestic natural gas demand and prices.



Selected Country Comparison

	U.S.	EU	Australia	Canada	New Zealand
Association:	TFI	EFMA	FIFA	CFI	NZFMRA
10. Associations position on climate change	<ul style="list-style-type: none"> • TFI opposed the House passed bill 	<ul style="list-style-type: none"> • Accept the general 20% reduction target 	<ul style="list-style-type: none"> • Individual fertilizer production facilities will deal with issue on own 	<ul style="list-style-type: none"> • CFI opposes imposition of targets that are technically unachievable 	<ul style="list-style-type: none"> • Concern that New Zealand is currently only country that has included agricultural sector in ETS
	<ul style="list-style-type: none"> • TFI is working in the senate to be sure the fertilizer industry receives 100% free allowances in energy and trade intensive sector 	<ul style="list-style-type: none"> • Support binding International agreement to level the playing field 	<ul style="list-style-type: none"> • Only two fertilizer companies are affected 	<ul style="list-style-type: none"> • CFI countering by proposing a reduced target below 20% for fertilizer industry combined with scientific programs 	<ul style="list-style-type: none"> • Concern that if point of obligation is not at the individual farm level, ETS will be nothing more than a tax
			<ul style="list-style-type: none"> • FIFA is a member of the Ministerial Round Table on the CPRS in which farmers (producer groups) have taken strong position that Agriculture not be included 	<ul style="list-style-type: none"> • CFI advanced funding proposal for agronomic research and extension on reducing GHG 	<ul style="list-style-type: none"> • Industry organisation is a member of a number of government climate change/ETS working groups
			<ul style="list-style-type: none"> • FIFA awaiting research results of government position paper before taking position 	<ul style="list-style-type: none"> • CFI working with government and farmers to develop a Reduction Protocol for Nitrous Oxide emissions (N2O-E) to certify and sell offset credits for adopting best management practices that reduce N2O emissions 	<ul style="list-style-type: none"> • Manufacturing sites dealt with by individual companies

Positions vary!



United States – Evolving Policy

- What has already happened?
 - House of Representatives bill - H.R. 2454
 - => The American Clean Energy and Security Act of 2009
 - => Passed by narrow margin on June 26, 2009
- What's next?
 - A bill must be passed in the Senate



H.R. 2454: House-passed climate change bill

- The bill sets an economy wide cap on CO₂ Emissions
- In 2014 the economy-wide cap will be 5.099 billion tons of CO₂ Equivalent
- Covered entities must acquire and hold an allowance for each ton emitted during the year
- The economy wide cap will reduce over time all the way down to 1.035 billion tons of CO₂ Equivalent in 2050
- Some covered entities will receive some of their required emissions allowances as a free allocation from EPA; otherwise, covered entities will be responsible for purchasing the allowances they need each year.



House passed bill cont.

- 15% of the total allowances in 2014 (765 million allowances in 2014) will be distributed as a free allocation to eligible energy intensive and “trade vulnerable” industries.
 - Nitrogenous Fertilizer Manufacturing (325311) is considered an energy intensive and trade vulnerable industry according to criteria specified in the bill
 - There could potentially be more than 40 energy intensive and trade vulnerable industries who must share the 765 million allowances
 - Other energy intensive and trade vulnerable industries include:
 - Steel
 - Iron
 - Aluminum
 - Glass
 - Cement
 - Basic Chemicals
 - The size of the annual free allocation will decline leading to a complete phase out by 2035



House passed bill cont.

- It is **impossible** for anyone to predict exactly how many free allowances a particular entity may get => Uncertainty!
- The number of free allowances available to an eligible entity depends on:
 - The emissions of that entity AND
 - The emissions of all other eligible entities in all other eligible industries (steel, iron, aluminum, glass, cement, basic chemicals, etc.)
- All of the trade vulnerable industries will be seeking free allowances from a limited and defined pool and that pool will shrink each year.
- Emissions that aren't covered by free allowances will need to be purchased!



The Fertilizer Institute

Nourish. Replenish. Grow.

Potential Costs of Cap & Trade to U.S. Fertilizer Manufacturers

Nitrogen Fertilizer production would be impacted in four major ways:

1. Through the **direct cost of allowances** the industry would need to purchase to offset emissions, net any free allowances;
2. Through the **indirect increase in electricity costs** (through suppliers' purchases of emission allowances and through cogeneration of electricity);
3. The unknown impact of fuel switching which **could raise the price of natural gas**
- Nothing in the current bill to cover this;
4. 1. – 3. above place the domestic industry at a **competitive disadvantage** relative to foreign producers from countries with no climate change laws because these foreign producers do not have to deal with these cost increases!



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Potential Costs of Cap & Trade to U.S. Fertilizer Manufacturers

Phosphorus and Potash Producers Will Also Be Impacted:

Phosphorus:

1. Through the **direct cost of allowances** the industry would need to purchase to offset emissions from the production of phosphoric acid;
2. Through the **indirect increase in energy costs** (primarily electricity), through suppliers' purchases of emission allowances.

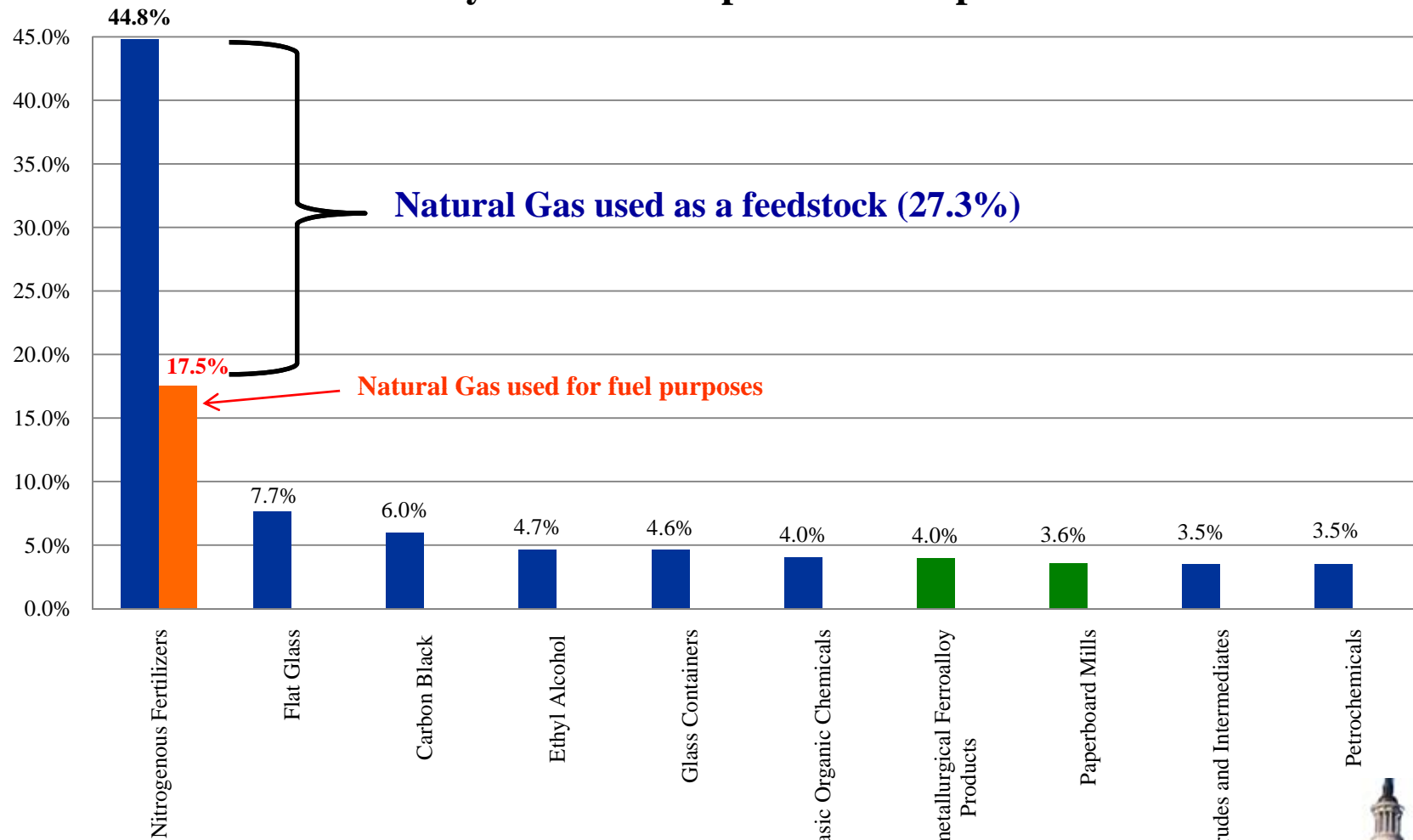
Potash:

1. Through the unknown impact of fuel switching which **could raise the price of natural gas** used in the drying process.

Nothing in the current bill to cover ANY of these costs!



Purchased Natural Gas (fuel and non-fuel use) as a percent of industry's value of shipments - Top 10



Source: EIA Manufacturers Energy Consumption Survey - 2002

Formula used: ((natural gas fuel use + natural gas non-fuel use) * Price)/Value of Shipments

Data years used: Prices - 2002 (latest data available)

Total fuel use - 2002 (used to make fair comparison)

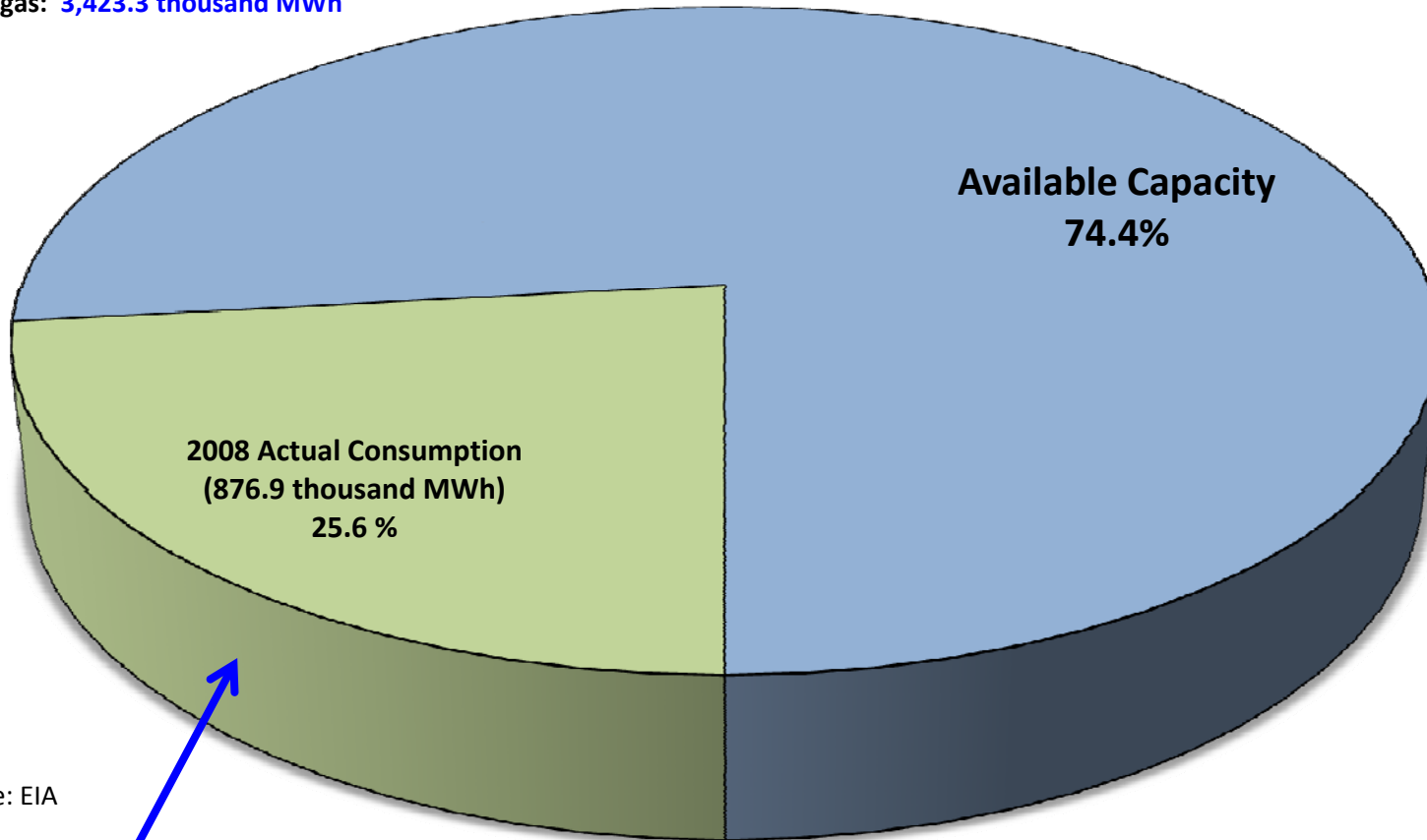
Value of Shipments - 2002 (used to make fair comparison)

Note: Green bars represent industries that are not listed in EPA's list of presumptively eligible sectors



U.S. capacity to generate electricity from natural gas 2008 Ave. Net Summer/Winter

Total electricity generation capacity from natural gas: **3,423.3 thousand MWh**

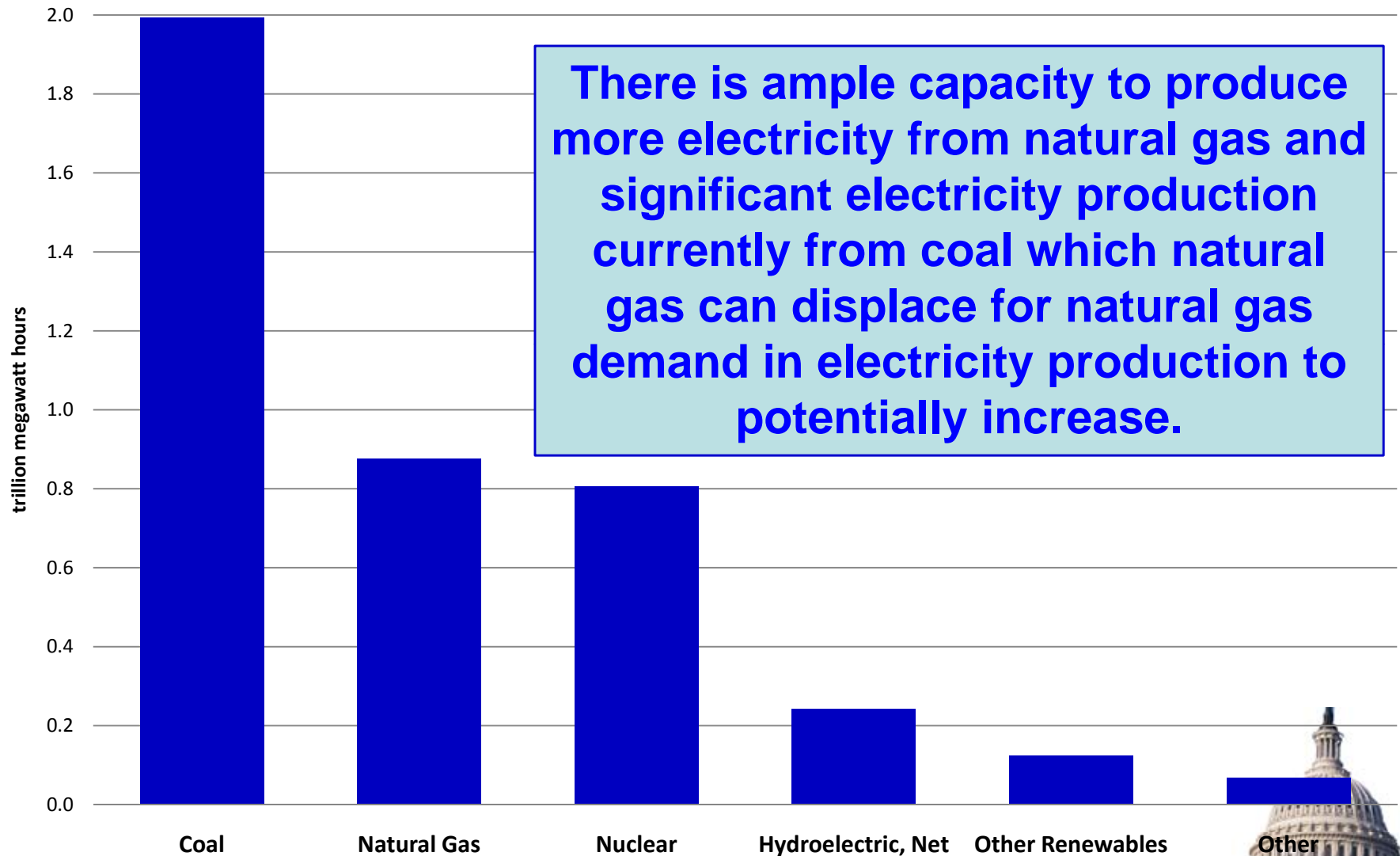


Source: EIA

Required 6.66TCF – 29% of total U.S. – Natural Gas Demand!



Net Generation of Electricity by Energy Source: 2008



Source: EIA



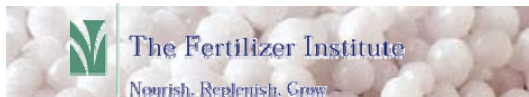
Planned Capacity Additions

Table 2.4. Planned Nameplate Capacity Additions from New Generators, by Energy Source, 2008 through 2012

(Megawatts)

Energy Source	2008	2009	2010	2011	2012
Coal	1,131	6,082	4,996	4,514	6,624
Petroleum	90	1,045	55	720	--
Natural Gas	9,780	12,334	8,911	6,919	10,156
Other Gases	--	--	--	--	--
Nuclear	--	--	--	--	1,270
Hydroelectric					
Conventional	18	6	6	204	2
Wind	9,821	3,661	1,045	90	--
Solar Thermal and Photovoltaic	23	127	315	1,050	880
Wood and Wood Derived					
Fuels	32	60	68	14	114
Geothermal	138	30	87	128	--
Other Biomass	173	129	1	122	2
Pumped Storage	--	--	--	--	--
Other	22	--	--	--	--
Total	21,226	23,475	15,484	13,762	19,049

Source: EIA



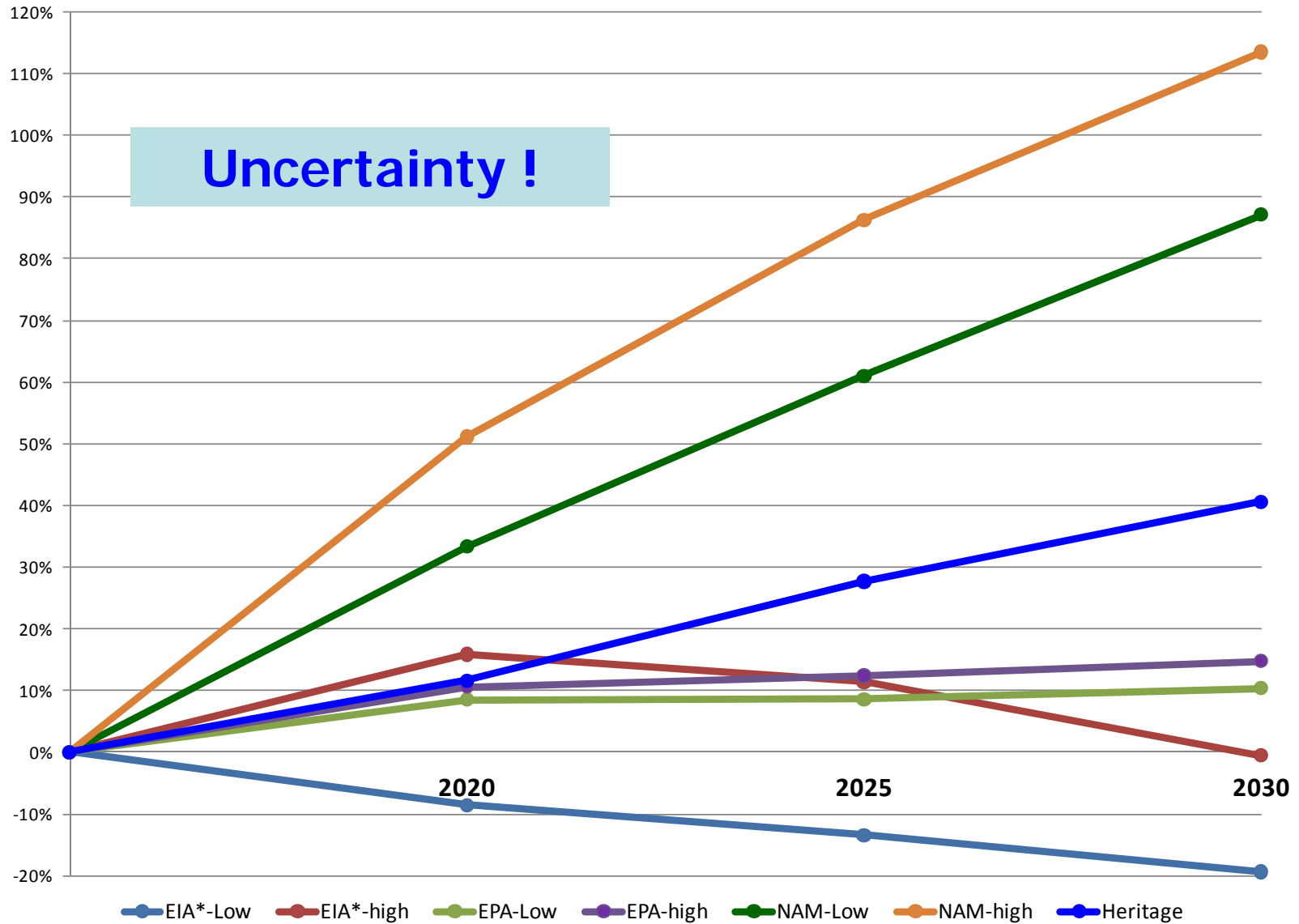
Snippets from EIA's Annual Energy Outlook 2009 with projections to 2030

- “In addition to ongoing uncertainty with respect to future demand growth and the costs of fuel, labor, and new plant construction, it appears that capacity planning decisions for new generating plants already are being affected by the potential impacts of policy changes that could be made to limit or reduce GHG emissions.”
- “Instead of relying heavily on the construction of new coal-fired plants, the power industry constructs more new natural-gas-fired plants, which account for the largest share of new power plant additions, followed by smaller amounts of renewable, coal, and nuclear capacity.”

Stage is already being set for a potential increase in natural gas demand!



Estimated Natural Gas Price Impacts of the U.S. House Passed Bill



Thank you!

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