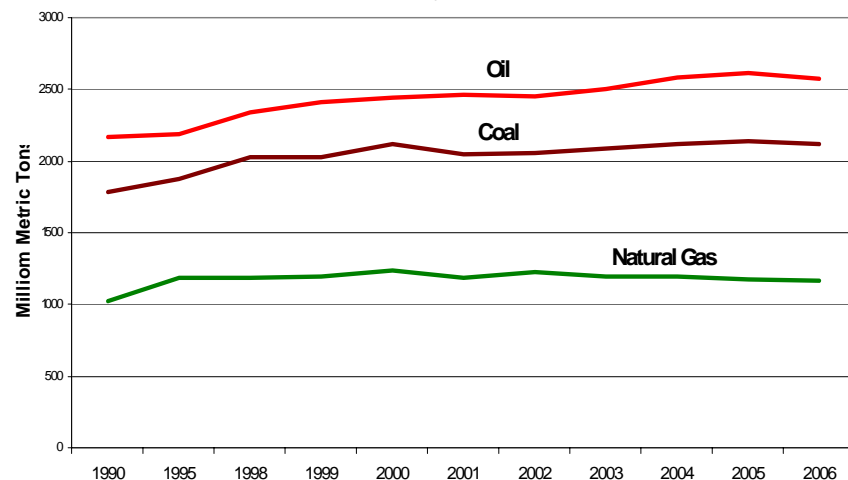


## ADDRESSING GREENHOUSE GAS EMISSIONS

*Natural gas is a contributor to greenhouse gas emissions, but at a rate far less than other fossil fuels, and as a result, natural gas is increasingly seen as a positive energy source for the environment. Utility companies are implementing efficiency programs to reduce usage and emissions. Furthermore, natural gas companies are striving to reduce their emissions of methane, which is a greenhouse gas. Companies at all levels of the natural gas production and transmission chain are striving to reduce pipeline leaks, fugitive emissions, and impacts from venting. One highly successful program has been the "Natural Gas STAR" program of the U.S. EPA. Now in its 15th year, the program invites voluntary participation from industry segments to reduce methane emissions. Over 577 billion cubic feet (Bcf) of methane emissions have been reduced by participating U.S. companies. NGA and a number of LDCs also participate in the "Natural Gas STAR" program. EPA reports that "through employing Natural Gas STAR methane emission reduction recommended technologies and practices, these [NGA-member] companies have collectively achieved almost 129 Bcf of methane emission reductions worth over \$903 million since 1993."*

**U.S. CO<sub>2</sub> Emissions from Energy and Industry, 1990-2006**



Source: U.S. Energy Information Administration

# FOSSIL FUEL AIR EMISSIONS COMPARISONS

*Natural gas technologies for electric generation provide substantial clean air benefits over other fuel systems. The combustion turbine and combined-cycle technologies remain probably the most highly-favored generating technology in the nation and region today; while the fuel cell technology holds great promise for future development. Concern over climate change is also leading to a greater interest in renewables, nuclear and efficiency investments.*

<b>Comparison of Air Pollution from Fossil Fuels</b>			
(average emission rates measured in pounds for air pollutants produced per megawatt hour of electricity generated, U.S.)			
	<u>SO<sub>2</sub></u>	<u>NO<sub>x</sub></u>	<u>CO<sub>2</sub></u>
<i>Natural Gas</i>	0.1	1.7	1,135
<i>Oil</i>	12	4	1,672
<i>Coal</i>	13	6	2,249
<i>Source: U.S. Environmental Protection Agency</i>			

## Comparing Oil and Natural Gas Emissions

		<i>Pounds per MMBtu</i>	
		<b>Oil</b>	<b>Natural Gas</b>
SO <sub>x</sub>	✓ Higher with Oil	0.203	0.001
NO <sub>x</sub>	✓ Higher with Oil	0.129	0.092
CO	✓ Higher with Gas	0.036	0.039
Particulates	✓ Higher with Oil	.003	.002
TOC's	✓ Higher with Oil	0.18	0.11
Organics	✓ Higher with Oil	<b>Multiple Sources</b>	<b>Multiple Sources</b>
Metals	✓ Higher with Oil	<b>Multiple Sources</b>	<b>Multiple Sources</b>

*Source: GTI, "Oil and Gas Options in the Northeast: Creating the Scientific Basis for Comparing Fuel Differences," July 2003*