The Economic Impact on Italy of Implementing the Kyoto Protocol and Additional Greenhouse Gas Reductions Planned for the Post-2012 Period

2003

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GLOBAL INSIGHT

The Economic Impact on Italy of Implementing the Kyoto Protocol and Additional Greenhouse Gas Reductions Planned for the Post-2012 Period

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FOREWORD

Scope

This study assessed the impact on the Italian economy of meeting its Kyoto emission target during the first budget period of 2008-2012 and a more stringent target thereafter.

Sponsor

This study was prepared for the International Council for Capital Formation [www.iccfglobal.org] although the views expressed are strictly those of the authors.

Contributors

This study was prepared under the direction of Mary H. Novak, Managing Director, Energy Services. Study participants included Dr. Joyce Brinner and Mr. Raj Badiani.

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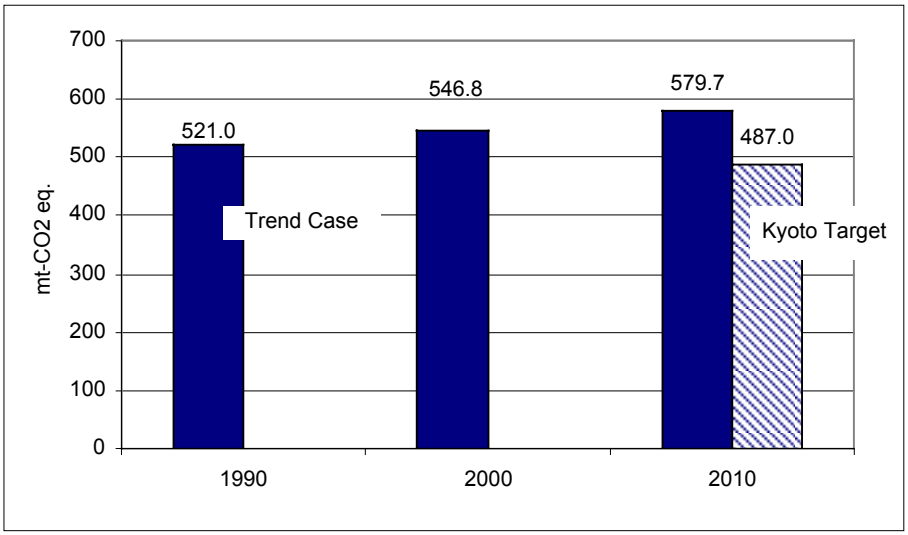
Executive Summary

In December 1997, the Kyoto Protocol was agreed to by the Conference of the Parties to the Framework Convention on Climate Change. Under this Protocol, the 38 Annex B countries agreed to reduce their greenhouse gas emissions in aggregate to about 5% below 1990 levels for the period 2008–2012. Italy's commitment is to reduce its emission 6.5% below 1990 levels.

To meet the Kyoto Protocol target, Italy will have to reduce its greenhouse gas emissions 17% below levels currently projected by the Italian government in the Trend Case.

Exhibit 1: GHG Emissions – Italy (million tonnes of CO2 eq.)



Italy recently published its climate change action plan. The plan lays out a series of steps that have already been initiated by the Italian government[1]. These actions, including an increased reliance on imports of natural gas and electricity, are projected to meet 43% of the required GHG reduction during the first budget period (2008-2012).

The action plan lays out two strategies to meet Italy's full commitment: (1) a series of programs and measures that would be initiated across the economy to extract small GHG reductions in many sectors, and (2) buying emission credits from approved JI and CDM participants[2]. Since a plethora of programs and measures can be expensive to fund with uncertain success, Italy is likely to rely

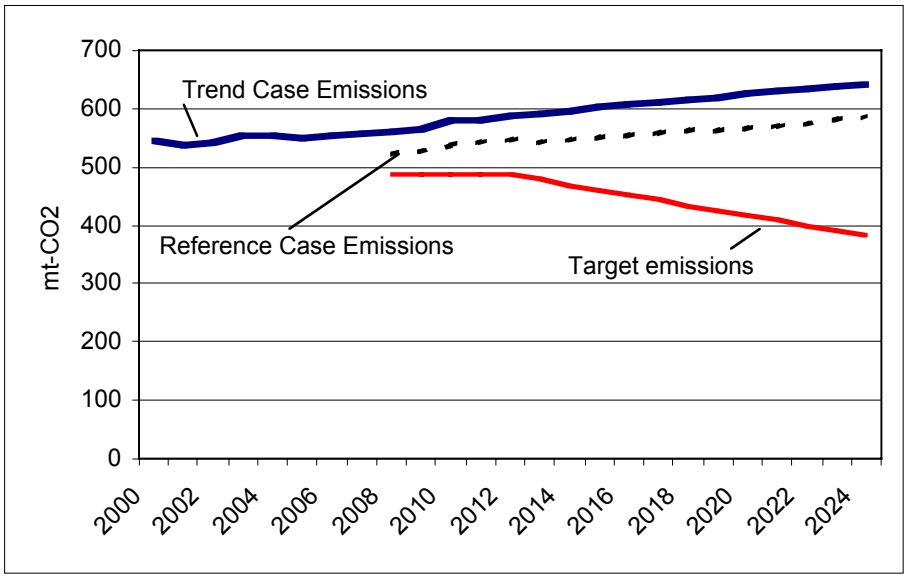
[1] The EU and its member countries are discussing various mechanisms that would be implemented before 2008 to meet their Kyoto commitment. Currently, the EU is promoting the creation of a 'large emitter' group of industries that would participate in a trading program to meet its 'share' of the commitment. The non-large-emitter group would meet its share of the country's emission reduction commitment through country-specific policies and measures or through the purchase of credits.

[2] The recent EU proposal to limit a country's use of purchased credits from JI and CDM participants to only 6% of the total required reduction is a significant constraint on a country's options. Italy in its climate change action plan had proposed using these credits to meet at least 13% of their target.

heavily on buying approved credits, which may be as expensive or even more expensive, but the outcome is certain.

This study analyzed the impact on Italy's economic performance of meeting its Kyoto Protocol target during the first budget period (2008-2012) and further reductions over the post-2012 period through the purchase of approved credits. It was assumed that the target is the Kyoto defined reduction for Italy for 2008-2012 followed by continuous reductions in the target to 70% below 1990 levels by 2050.

Exhibit 2: Italian GHG Emissions (million tonnes of CO_2)



Note: The Reference Case includes the estimated impact of recent legislation. Target Emissions are the Kyoto target through 2012 plus continuous reductions to 70% below 1990 levels by 2050.

Further, it was assumed that current actions can meet 43% of the Kyoto target reductions by 2010, but all further reductions are met through the purchase of credits from either other countries or JI/CDM participants under three credit price assumptions:

(1) €20 per tonne of CO_2 (equivalent to €73 per tonne of carbon)

(2) €50 per tonne of CO_2 (equivalent to €183 per tonne of carbon)

(3) €100 per tonne of CO_2 (equivalent to €366 per tonne of carbon).

The range of price assumptions reflect the European Union's expectation of a low price (€20) up to the maximum compliance penalty for countries that do not meet the specified target reduction (€100).

Economic and Employment Losses are Significant

To meet its Kyoto target, Italy has committed to programs and measures that will significantly reduce its GHG emissions from its Trend Case. The Reference Case includes the impact of these programs and measures, which are projected to prevent 39.6 million tonnes of GHG emissions by 2010. However the remaining emissions – projected to be in excess of 50 million tonnes – will need to be offset by purchases of credits from the international market (see Exhibit 3). It was assumed for this analysis that the purchase of these 50 million tonnes would primarily be financed by an increase in economy-wide taxes rather than a direct tax only on energy. The credits will cost more than 5 billion euros in 2010 if the price rises to 100 euros per million tonne of carbon dioxide (see Exhibit 4).

Exhibit 3: Derivation of Required Emission Reductions to Meet the Kyoto Target in 2010 (mt-CO_2 equivalent)

	2010 **Mt-CO2 equiv.**
Trend Case	579.7
Reductions expected from recent legislation	39.6
Reference Case	540.1
Kyoto Target	487.1
Required Reductions that can be met through additional costly programs and measures or purchases of credits from other countries or JI/CDM	**53.0**

Post-2012, emissions are projected to continue to increase. While the programs and policies recently passed will continue to reduce emissions beyond the 39.6 million tonnes anticipated for 2010, the incremental effect will be small. Thus, Italy will need to invest in further programs and measures and buy more credits from the international market. Global Insight estimates that Italy will have to purchase credits to offset nearly 150 million tonnes of emissions by 2020. Again, for this assessment, it was assumed that the credits were financed through an increase in economy-wide taxes.

Exhibit 4: Annual Italian Expenditures on Credits (million Euros, constant)

	2010	**2020**	**2025**
Emission Credits to be Purchased (mt-CO_2 eq.)	53.0	148.5	212.5
	Annual Expenditure on Credits (billion 2001 Euros)		
Credit Price Scenarios (2001 euros)			
€20 per tonne of CO_2 equiv.	€1.1	€3.0	€4.3
€50 per tonne of CO_2 equiv.	€2.6	€7.4	€10.6
€100 per tonne of CO_2 equiv.	€5.3	€14.9	€21.3

For the three credit price scenarios, Global Insight assessed the impact on Italy's economic performance and employment. The results of the analysis show that real GDP would fall 0.5% below Reference Case levels during the 2008-12 budget period, and would be 1.9% and 2.9% lower in 2020 and 2025, respectively under the assumption that emission credits would cost 100 euros per tonne (see Exhibit 5). The annual employment reductions from the Reference Case in Italy would be as high as 51,000 jobs in 2010, rising to 280,000 by 2025.

Exhibit 5:
The Economic Impact on Italy of Implementing the Kyoto Protocol and Additional Greenhouse Gas Reductions Planned for Post-2012

	2010			2020			2025		
Case (Constant Euros):	**€20**	**€50**	**€100**	**€20**	**€50**	**€100**	**€20**	**€50**	**€100**
Real GDP (% Difference from Reference Case)	-0.02	-0.09	-0.52	-0.42	-0.88	-1.92	-0.65	-1.46	-2.88
Employment Change (Thousands) (Difference from Reference Case)	-1.8	-10.3	-51.4	-52.1	-97.7	-189.5	-82.1	-152.2	-276.5

Economic and Employment Losses Could be Greater

The economic and job losses may be greater than shown. The analysis included the 39.6 million tonne reduction in greenhouse gas emissions that is anticipated by the Italian government from policies and measures recently approved. However, the likelihood that all of these policies and measures will be fully funded and successfully implemented is small. This would imply that Italy would need to purchase even more emission credits, and that the economic impact would be correspondingly greater. Offsetting this concern is the prospect for some relief in emission reduction if Italy's identified domestic sinks are credited.

Introduction

In December 1997, the Kyoto Protocol was agreed to by the Conference of the Parties to the Framework Convention on Climate Change. Under this Protocol, the 38 Annex B countries agreed to reduce their greenhouse gas emissions in aggregate to about 5% below 1990 levels for the period 2008–2012. Specific targets were set for each Annex B country with the exception of the European Union countries that agreed to a single group target. Subsequently, the European Union agreed to the quantified targets shown in Exhibit 6.

Exhibit 6
Quantified Emission Limits Established in the Kyoto Protocol
Percentage of 1990 (or Base Year) GHG Emissions Allowed during the Budget Years 2008-2012

OECD Non-European		Transitional Economies		Europe, Western	
OECD North America		Former Soviet Bloc		European Union**	92%
US	93%	Russian Federation	100%	Austria	(87%)
Canada	94%	Ukraine	100%	Belgium	(92.5%)
				Denmark	(79%)
OECD Pacific		Eastern Europe*	107%	Finland	(100%)
Japan	94%	Bulgaria	92%	France	(92%)
Australia	108%	Croatia	95%	Germany	(79%)
New Zealand	100%	Czech Republic	92%	Greece	(125%)
		Estonia	92%	Ireland	(113%)
		Hungary	92%	Italy	(93.5%)
		Latvia	92%	Luxembourg	(72%)
		Lithuania	92%	Netherlands	(94%)
		Poland	94%	Portugal	(127%)
		Romania	92%	Spain	(115%)
		Slovakia	92%	Sweden	(104%)
		Slovenia	92%	UK	(87.5%)
				Other European Countries	
				Iceland	100%
				Monaco	92%
				Liechtenstein	92%
				Norway	101%
				Switzerland	92%

Notes:
Several countries have joined the OECD since 1992.
Not As Annex B Countries: Mexico (1994), South Korea (1996)
As Annex B Countries: Poland (1996), Hungary (1996), Czech Republic (1996)
Several countries were designated Annex 1 (of the 1992 FCCC) countries, but are not Annex B (of the 1997 Kyoto Protocol) countries: Belarus and Turkey.

* The Kyoto target for Eastern Europe was recalculated to reflect Article 3.5 of the Protocol, which allows four countries to use base years other than 1990 -- Bulgaria (1989), Romania (1989), Poland (1988), Hungary (average 1985-1987). The result is to allow them a combined multiple of 107% when applied to the 1990 emission level. The country numbers shown are their official multiple of their base year. [Source: US Department of Energy, Energy Information Administration, *International Energy Outlook 1999.]*

** Agreed European Union internal burden sharing arrangement shown in "( )".

The EU and its member countries are discussing various mechanisms that would be implemented before 2008 to meet their Kyoto commitment. Currently, the EU is promoting the creation of a 'large emitter' group of industries that would participate in a trading program to meet its 'share' of the commitment. The non-large-emitter group would meet its share of the country's emission reduction commitment through country-specific policies and measures or through the purchase of credits.

Italy recently published its climate change action plan. The plan lays out a series of steps that have already been initiated by the Italian government. These actions, including an increased reliance on imports of natural gas and electricity, are projected to meet less than half of the required GHG reduction during the first budget period (2008-2012). Actions to meet the full commitment are still under discussion. The action plan lays out two strategies: (1) a series of programs and measures that would be initiated across the economy to extract small GHG reductions in many sectors, and (2) buying emission credits from approved JI and CDM participants. Since a plethora of programs and measures can be expensive to fund with uncertain success, Italy is likely to rely heavily on buying approved credits, which may be as expensive or even more expensive, but the outcome is certain.

Moving beyond the first budget period presents a daunting challenge to all of the economies of the EU. Although technological and infrastructure changes initiated now should play an important role in reducing GHG emissions post-2012, Italy along with other EU countries are still expected to rely heavily on purchased credits created from JI and CDM projects to meet their targets.

Study Parameters

This study analyzed the impact on Italy's economic performance of meeting its Kyoto Protocol target during the first budget period (2008-2012) and further reductions over the post-2012 period through the purchase of approved credits. It was assumed that the target is the Kyoto defined reduction for Italy for 2008-2012 followed by continuous reductions in the target to 70% below 1990 levels by 2050. Further, it was assumed that current actions can meet 43% of the Kyoto target reductions by 2010, but all further reductions are met through the purchase of credits from either other countries or JI/CDM participants under three credit price assumptions:

(1) €20 per tonne of CO_2 (equivalent to €73 per tonne of carbon)

(2) €50 per tonne of CO_2 (equivalent to €183 per tonne of carbon)

(3) €100 per tonne of CO_2 (equivalent to €366 per tonne of carbon).

Implications of the Proposed Limits on Italy's Greenhouse Gas Emissions

The ratification and implementation of the Kyoto Protocol would have a significant impact on the economic performance of Italy. The carbon emission reductions for the first period (2008-2012) are significant, and the reductions required to meet tighter emission caps proposed for the post-2012 period are daunting.

The table below reports the outlook for greenhouse gas (GHG) emissions from Italy's Third National Communication to the United Nations Framework Convention on Climate Change. The Italian government's Reference case includes the impact of recently legislated programs and policies to reduce GHG emissions in the energy, transport and civil sectors. As shown in Exhibit 7, the Italian government has been projecting a significant growth in greenhouse gas emissions through 2010. Legislation establishing various programs and measures to reduce emissions has recently been passed, and is expected to save 39.6 million tonnes of GHG emissions from the energy, transport and civil sectors of the economy. Thus, to meet its Kyoto Protocol commitment Italy will need to either buy 53 million tonnes of approved credits or fund additional measures.

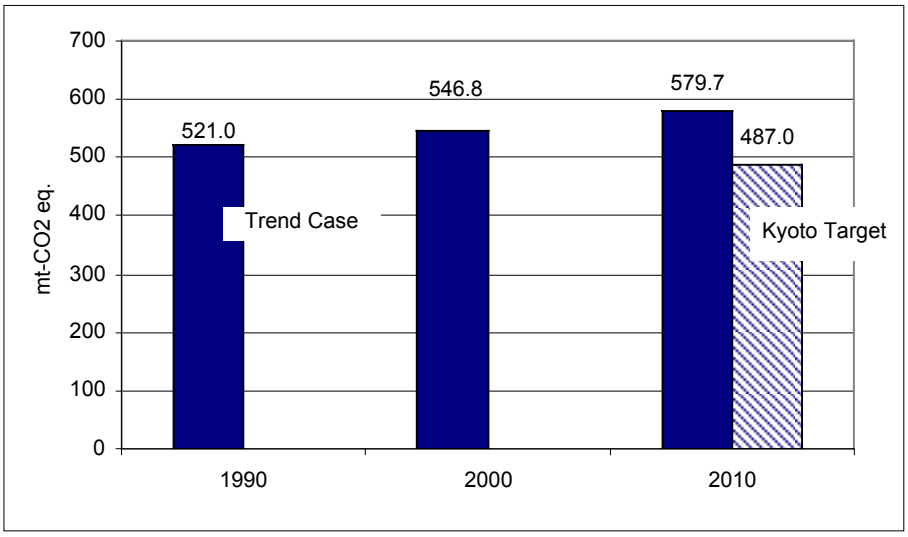
Exhibit 7: Italy's Outlook for GHG Emissions (Mt CO_2 equivalent)

	1990	2000	2010	
			Trend	Reference
From energy industries	147.4	160.8	170.4	144.4
From manufacturing & construction industries	85.5	77.9	80.2	80.2
From transport	103.5	124.7	142.2	134.7
From civil	70.2	72.2	74.1	68.0
From agriculture	9.0	9.0	9.6	9.6
From other (fugitive, military, distribution cos.)	9.3	7.8	7.6	7.6
From **energy use**	424.9	452.3	484.1	444.5
From industrial processes	35.9	33.9	30.4	30.4
From agriculture	43.4	42.6	41.0	41.0
From waste	13.7	14.2	7.5	7.5
From other (solvents, fluorinated)	3.1	3.8	16.7	16.7
From **other sources**	96.1	94.5	95.6	95.6
Total Emissions	**521.0**	**546.8**	**579.7**	**540.1**
Kyoto Target Emission Level				487.1
Required Emission Reduction, Credit from Sinks, or Credit Purchase				53.0

Source: The Third National Communication of Italy to the United Nations Framework Convention on Climate Change. This report is based on the National Action Plan to reduce greenhouse gas emissions, adopted by the Interministerial Committee for Economic Planning on 19th December 2002.

Exhibit 8: GHG Emissions – Italy (million tonnes of CO_2 eq.)

To meet the Kyoto Protocol target, Italy will have to reduce its greenhouse gas emissions 17% below levels currently projected by the Italian government in the Trend Case.

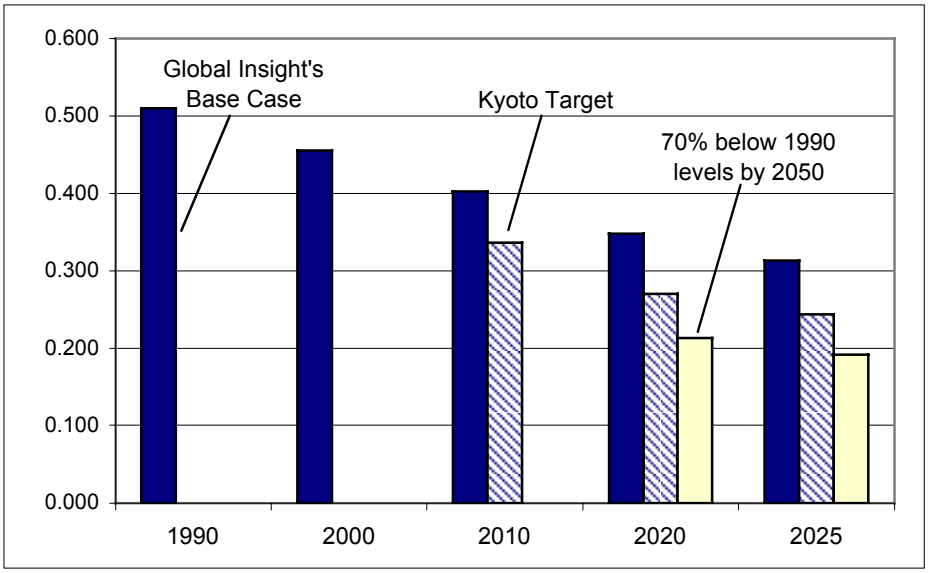


The targets established under the Kyoto Protocol as well as even more stringent restrictions post-2012 will be difficult to achieve as economic performance expands. The outlook for economic growth drives Italian energy use and CO2 emissions. Compared to 2000, real GDP in Italy is expected to be 21% larger by 2010 and 50% by 2020 (see Exhibit 9). The base case projection assumes continued energy efficiency efforts and structural change in the Italian economy, which leads to much smaller increases in energy consumption (see Exhibit 10). Even with these efficiency improvements, Global Insight's outlook for carbon dioxide emissions from energy use shows 7% more emissions in 2010 and 15% more in 2020 compared to 2000 as shown in Exhibit 9.

Exhibit 9: Global Insight's Outlook for the Italy

	1990	2000	2010	2020	2025
Population (million persons)	56.7	57.8	58.7	59.4	59.8
% change from 2000			*1.6%*	*2.8%*	*3.5%*
Real GDP (billions of 2001 euros)	1022	1198	1446	1799	1998
% change from 2000			*21%*	*50%*	*67%*
CO_2 Emissions from Energy Use	415	440	476	520	526
Other GHG Emissions (in CO_2 Eq.)	106	106	106	110	110
GHG Emissions, Total	521	546	582	630	636
% change from 2000			*7%*	*15%*	*16%*
% change from 1990			*12%*	*21%*	*22%*
% change from Kyoto Target (487.1)			*19%*	*29%*	*31%*

Exhibit10: Carbon Intensity of Italian Economy (million tonnes of CO_2 / GDP-2001 Euros)



In this study we have examined the economic impacts of Italy purchasing approximately 50 million tonnes of approved credits to meet the Kyoto Protocol target of 487 million tonnes of CO_2. Under the assumption that continuous reductions in target emissions to 70% below 1990 levels by 2050 is agreed to by the conference of the parties to the Kyoto Protocol, Italy would have to purchase nearly three (3) times that number by 2020 (or almost 150 million tonnes). As shown in Exhibit 11, the cost of the international credits would rise over time. Under the assumption that the cost of the international permits would be 100 euros, Italy's annual expenditure on credits would be more than 5 billion euros in 2010.

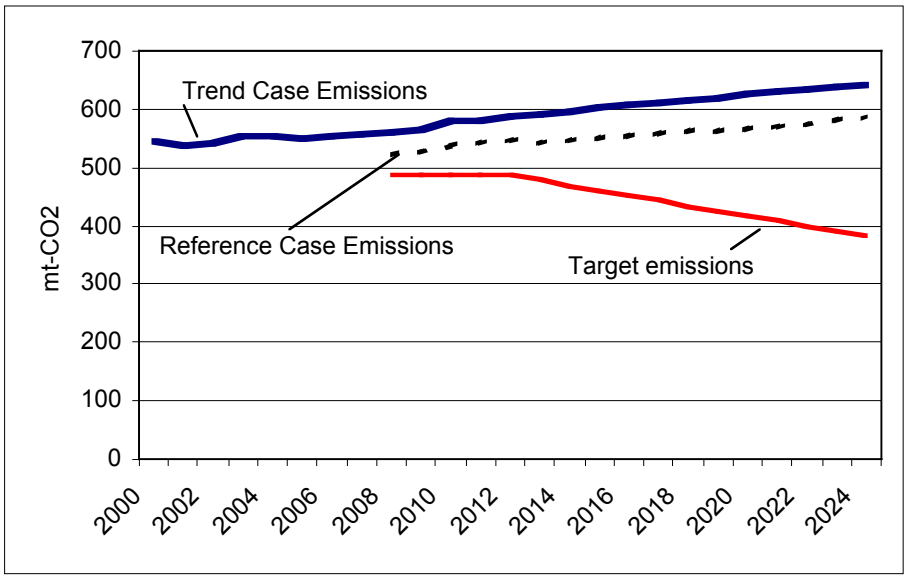
Exhibit 11: Annual Italian Expenditures on Credits (million Euros, constant)

	2010	**2020**	**2025**
Emission Credits to be Purchased (mt-CO_2 eq.)	53.0	148.5	212.5
	Annual Expenditure on Credits (billion 2001 Euros)		
Credit Price Scenarios (2001 euros)			
€20 per tonne of CO_2 equiv.	€1.1	€3.0	€4.3
€50 per tonne of CO_2 equiv.	€2.6	€7.4	€10.6
€100 per tonne of CO_2 equiv.	€5.3	€14.9	€21.3

Study Results

In this study, we have examined the economic impacts of Italy purchasing approximately 50 million tonnes of approved credits to meet its Kyoto Protocol target. Under the assumption that continuous reductions in target emissions to 70% below 1990 levels by 2050 is agreed to by the parties, Italy would have to purchase nearly three (3) times that number by 2020. Alternatively, a plethora of programs and measures could be funded. However, as their success is uncertain, Italy is likely to rely heavily on buying approved credits from *international* sources.

Exhibit 12: Italian GHG Emissions (million tonnes of CO_2)



Note: The Reference Case includes the estimated impact of recent legislation. Target Emissions are the Kyoto target through 2012 plus continuous reductions to 70% below 1990 levels by 2050.

To measure the impact of meeting the GHG target emissions described above, Global Insight prepared the analysis under three authorized credit price assumptions[3]:

(1) €20 per tonne of CO_2 (equivalent to €73 per tonne of carbon)

(2) €50 per tonne of CO_2 (equivalent to €183 per tonne of carbon)

(3) €100 per tonne of CO_2 (equivalent to €366 per tonne of carbon).

[3] The minimum case price (€20) was chosen based on reported results of the PRIMES model referred to in EU documents. The maximum case price (€100 is the designated price that each country will pay for all emissions in excess of a country's target level.

The range of price assumptions reflect the European Union's expectation of a low price (€20) up to the maximum compliance penalty for countries that do not meet the specified target reduction (€100).

It was assumed for this analysis that the purchase of approved credits from international sources would be financed by an increase in economy-wide taxes rather than a direct tax only on energy. This assumption imposed the burden of meeting the country's GHG commitment on all sectors of the economy.

Impact on Italy's Economic Performance

To meet its Kyoto target, Italy has committed to programs and measures that will significantly reduce its GHG emissions from the Trend assessment. These programs and measures are projected to prevent 39.6 million tonnes of GHG by 2010. However the remaining emissions – projected to be in excess of 50 million tonnes – will need to be offset by purchases of credits from the international market. It was assumed for this analysis that the purchase of these 50 million tonnes would primarily be financed by an increase in economy-wide taxes rather than a direct tax only on energy.

Post-2012, emissions are projected to continue to increase. While the programs and policies recently passed will continue to reduce emissions beyond the 39.6 million tonnes anticipated for 2010, the incremental effect will be small. Thus, Italy will need to invest in further programs and measures and buy more credits from the international market. Again, for this assessment, it was assumed that the credits were financed by an increase in economy-wide taxes.

The results of the analysis show that the increase in indirect taxes will result in all goods and services costing more, hitting both real disposable income and private consumption growth (see Exhibit 13). As a result, both industrial production and employment are projected to grow at a slower rate. These affects are partially offset by an increase in equipment investment, as business respond to inducements and public pressure to invest in capital that would reduce the country's GHG emissions.

Output and employment losses would be expected under the Kyoto Protocol as indirect taxes are increased to raise funds to purchase international emission credits (see Exhibit 13.) Consumption and residential fixed investment would be the hardest hit components of real GDP because of the direct loss in real disposable income. Imports would strengthen relative to base case levels, spurred by the competitive price advantage of the US, other non-participating Annex B countries, and non-Annex B countries.

Real GDP would fall a maximum 0.5% below Base Case levels during the 2008-12 budget period, and would be 1.9% and 2.9% lower in 2020 and 2025, respectively under the assumption that emission credits would cost 100 euros per tonne.

Annual employment losses in Italy would be as high as 51,000 jobs in 2010, rising to 280,000 by 2025. The percentage reduction in employment relative to the base case levels would be less than the drop in output. This will result in an increase in the labor-to-output ratio (or a decline in labor productivity) as

adjustments to employment levels tend to lag changes in output. Only as investment grows and the capital stock is expanded would productivity begin to improve.

Exhibit 13: The Economic Impact on Italy of Implementing the Kyoto Protocol and Additional Greenhouse Gas Reductions Planned for Post-2012 (Percent Difference from Trend Case unless otherwise noted)

	2010			2020			2025		
Case (Constant Euros):	**€20**	**€50**	**€100**	**€20**	**€50**	**€100**	**€20**	**€50**	**€100**
Economic Activity									
Real GDP	-0.02	-0.09	-0.52	-0.42	-0.88	-1.92	-0.65	-1.46	-2.88
Private Consumption	-0.01	-0.10	-0.51	-0.39	-0.95	-2.07	-0.64	-1.66	-3.23
Business Investment	0.01	0.10	0.18	0.00	3.00	6.08	0.00	5.25	10.62
Industrial Production	-0.02	-0.09	-0.56	-0.44	-0.93	-2.04	-0.69	-1.55	-3.06
Disposable Income, Real	-0.03	-0.09	-0.54	-0.44	-1.07	-2.27	-0.69	-1.82	-3.54
Employment									
Employment, Total	-0.01	-0.04	-0.25	-0.2	-0.43	-0.93	-0.32	-0.72	-1.41
Diff. from Base (Thousands)	-1.8	-10.3	-51.4	-52.1	-97.7	-189.5	-82.1	-152.2	-276.5
Inflation									
Private Consumption Deflator	0.05	0.25	1.07	0.82	2.31	4.55	1.16	3.45	6.51

Could Employment Losses be Greater?

The assessment reported above assumes that the programs and measures to reduce 39.6 million tonnes of carbon will be both funded and successful. Many of the current set of measures are very specific. Global Insight expects these measures to be successfully implemented. However, it is also highly unlikely that all of the measures will be successful. As a result, it is likely that more credits will be required to meet Italy's commitment under the Kyoto Protocol.

It should also be noted that the Italian government has also identified sinks that it would like to include in its emission count. While the total number of emission credits from sinks is not sufficient to meet the Kyoto target, these credits would reduce the impact of the Kyoto Protocol on economic performance and job creation.

Appendix A: Global Insight's Outlook for Italy

Italian economic growth is projected at 1.0% for 2003, accelerating to 1.9% in 2004. Global Insight remain cautious about this year, partly due to modest at best growth prospects for both Germany and France this year, key Italian export markets, and real domestic spending. The outlook for private consumption remains uncertain, hampered by very low consumer confidence. Eventually, domestic demand should increasingly be supported by this year's tax cuts, relatively low interest rates, and reasonable real wage growth. The global economic backdrop will start to improve significantly from late 2003, helping to underpin a stronger global economy. Consequently, real GDP growth is forecasted to accelerate to 1.9% in 2004. The medium-term growth profile remains largely unaltered, with Italian economic recovery expected to peak in 2005 in line with the Eurozone economy's recovery cycle. Activity is likely to expand by a brisker 2.5% in 2005.

Global Insight projects real GDP growth to range between 2.1% to 2.4% over the long term, below the 3.0% target rate that the new government is hoping to achieve in order to boost long-term trend growth by 2006 (see Exhibit 14). The aging population will start claiming its toll on the labor force, and will impose increasing pressures on public finances, intensifying the need for major pension reform. Growth in the labor supply is expected to slow; low birth rates over the last 10-15 years will offset the impact of a projected rise in participation rates. However, productivity is expected to benefit modestly over the coming decade from greater benefits accruing from the "new economy." It is important that wage moderation continues over the long term, or Italy risks a sustained damaging loss of competitiveness against its Eurozone fellow members, given that currency devaluation is no longer an option.

Exhibit 14
Global Insight's Outlook for the Italian Economy

	2000	2010	2020	2025
Economic Activity *(Billion 2001 Euro)*				
GDP	1198.4	1446.0	1799.0	1998.4
Private Consumption	691.6	837.7	1045.9	1164.1
Business Investment	168.0	223.1	281.4	313.3
Industrial Production	136.2	157.9	196.6	217.8
Disposable Income	951.2	1424.0	2108.6	2583.5
Employment *(millions)*				
Employment, Total	23.5	25.1	25.7	25.9
Inflation *(1990=100.0)*				
Private Consumption Deflator	119.4	149.3	181.3	199.4