



# IT for a sustainable World

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Telvent Environment

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Climate change is “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”

## Today's debate focus on...

Is the climate changing or it's something cycling not generated by the human kind?

Is the human contribution substantial enough to worry us?

Sir Nicholas Stern and Mr. Al Gore are pretending fame and richness

## When should be around...

Do we have doubts that there's something impacting and changing in our world today?

Is our way of life sustainable forever?

Makes sense preserving our natural environment?

Is the economic growth against sustainability?

Do we have to concerns about the origin or take care of its current and future impacts?

Is it illegal or absolutely untrue?

Are they gaining responsiveness and awareness all around the world?

**There is a Challenge to be tackled affecting profoundly the patterns of human settlement, the routine of daily life, the health of national economies and the quality of our natural environment; so we'd better focus the discussion...**

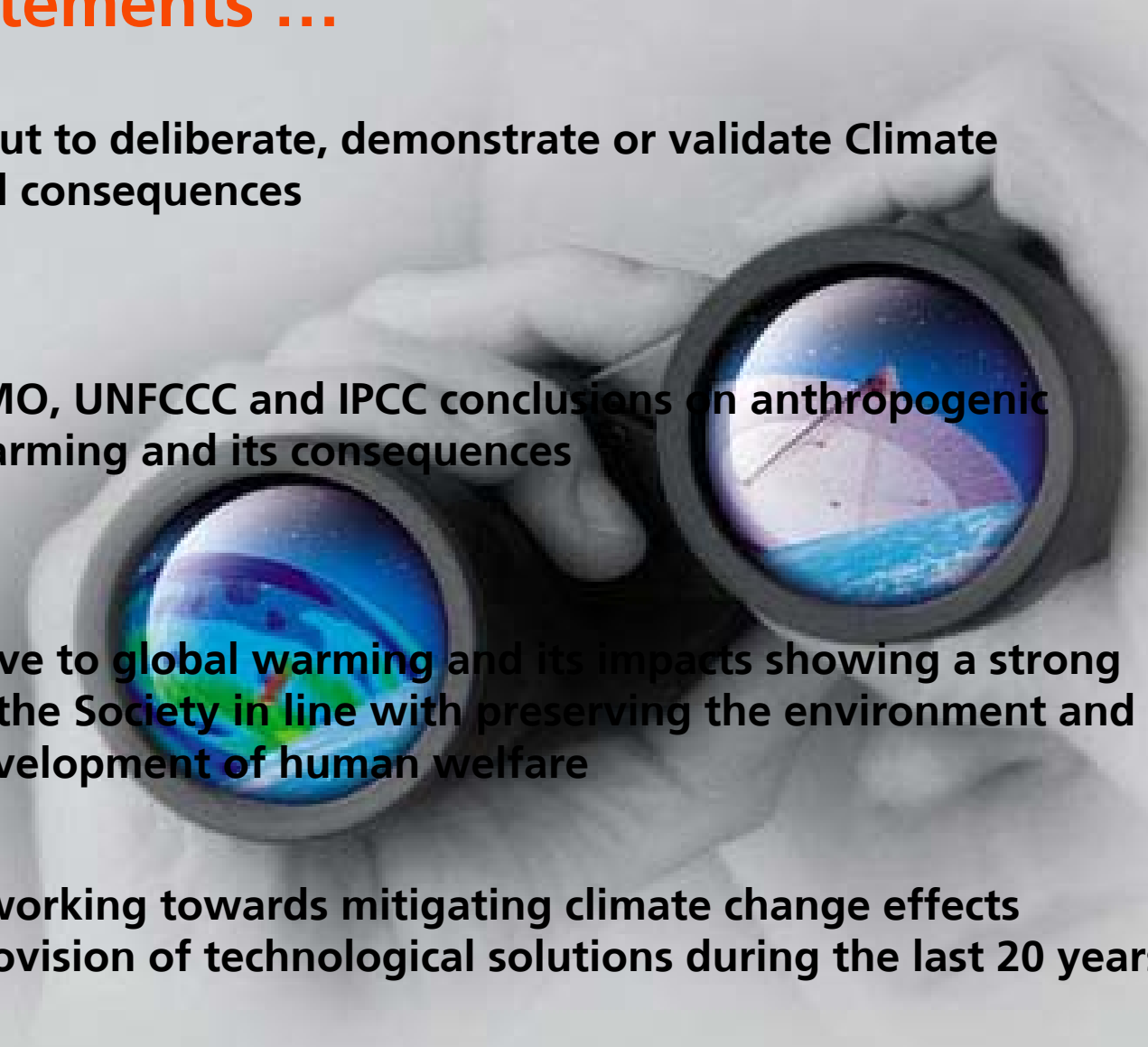
## Telvent statements ...

**Telvent is not about to deliberate, demonstrate or validate Climate Change origin and consequences**

**Telvent admits WMO, UNFCCC and IPCC conclusions on anthropogenic origin of global warming and its consequences**

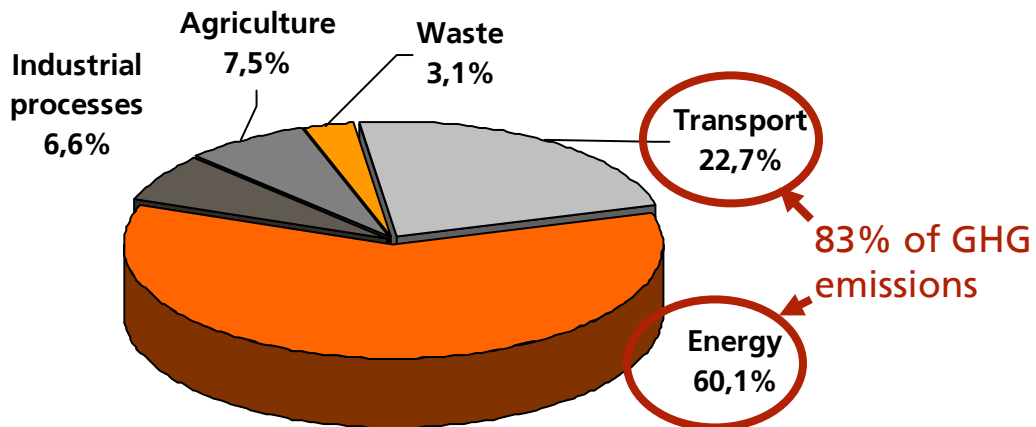
**Telvent is responsive to global warming and its impacts showing a strong commitment with the Society in line with preserving the environment and the sustainable development of human welfare**

**Telvent has been working towards mitigating climate change effects throughout the provision of technological solutions during the last 20 years**

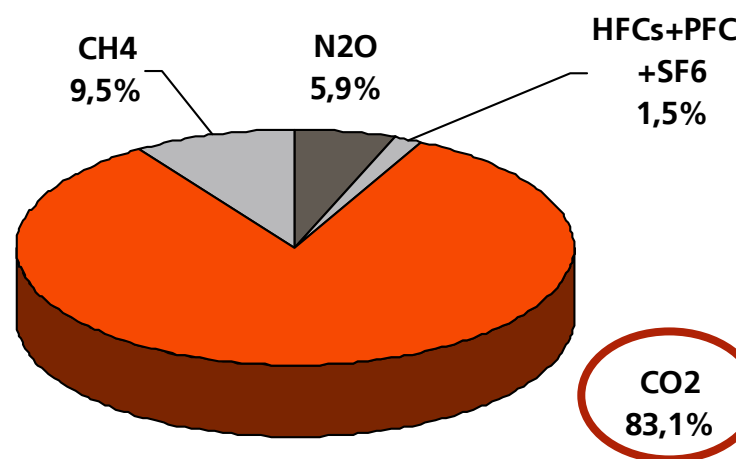


# GHG emissions profiles from Annex I Parties, 1990-2004

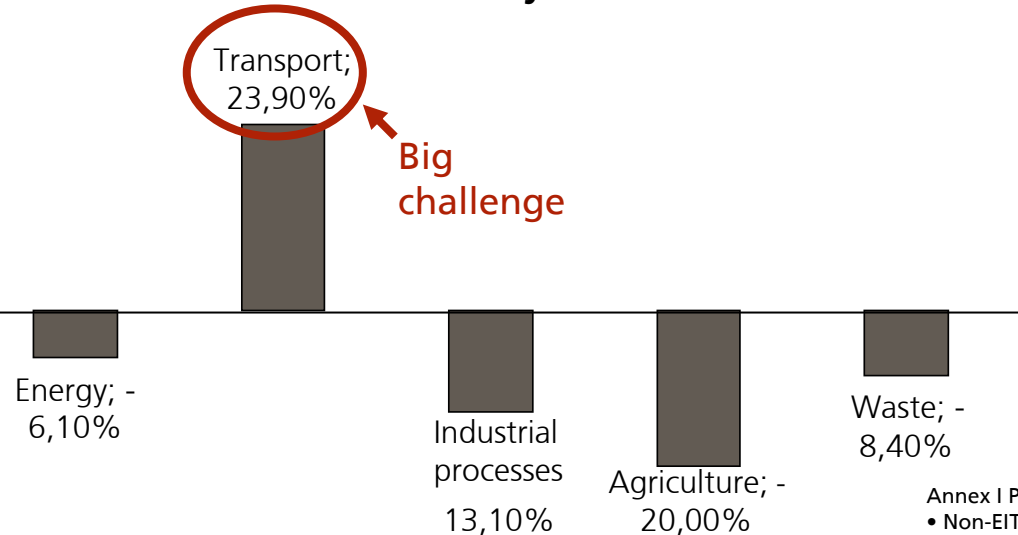
## Emissions profile by sector, 2004



## Emissions profile by gas, 2004



## Variation in GHG emissions by sector 1990-2004



## Annex I Parties in 2004

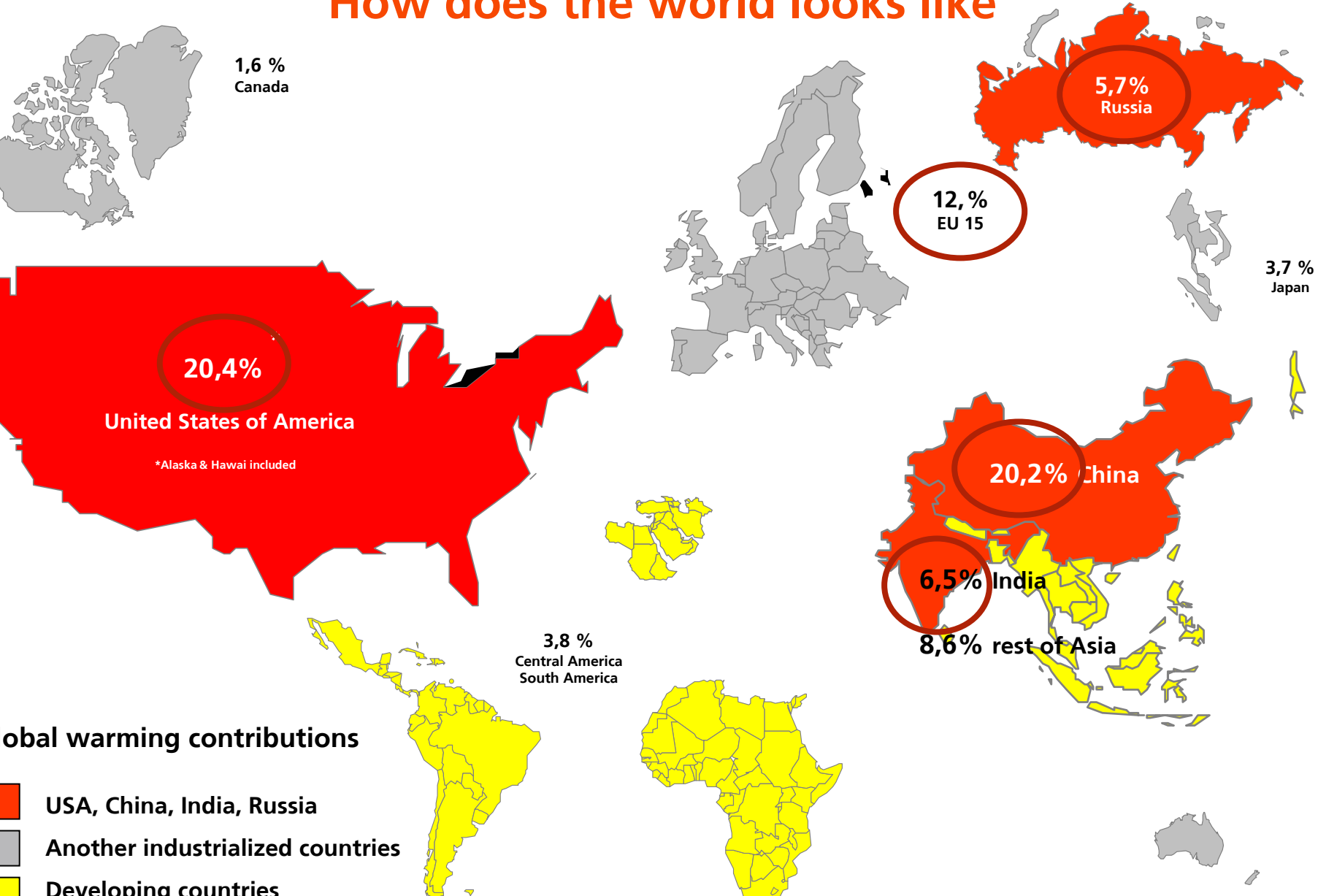
GHG Emissions Billion tCO <sub>2</sub> /year e	17.9
Population, millions	1.253
GDP	29.644

	Population	GDP	Emissions
EIT	25%	10%	20%
Non-EIT	75%	90%	80%

### Annex I Parties:

- Non-EIT: France, Denmark, Monaco, Sweden, Iceland, UK, Germany, Luxemburg, Switzerland, Belgium, Netherlands, Norway, Italy, Finland, Austria, Liechtenstein, Ireland, Greece, Portugal, Spain, Australia, New Zealand, USA, Japan, Canada
- EIT: Turkey, Slovenia, Croatia, Czech Republic, Slovakia, Poland, Hungary, Russia, Romania

# How does the world looks like

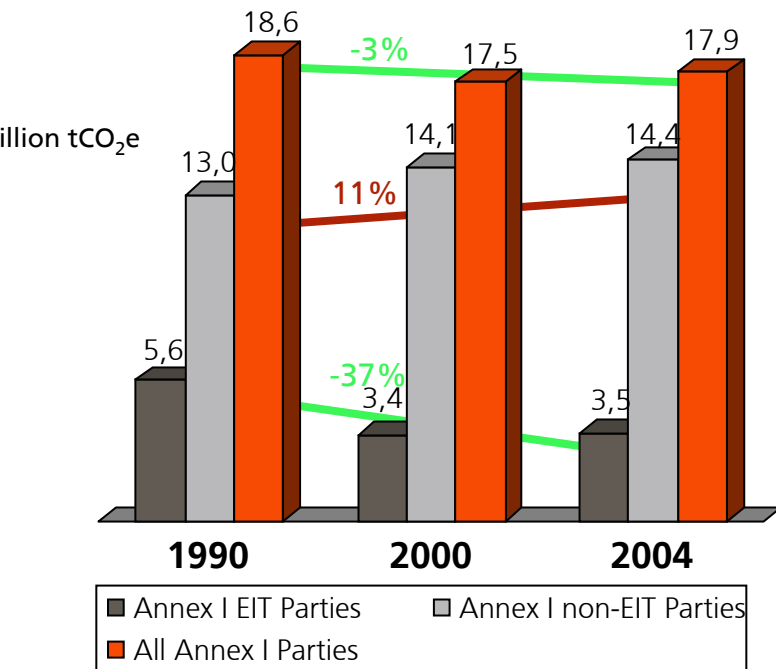




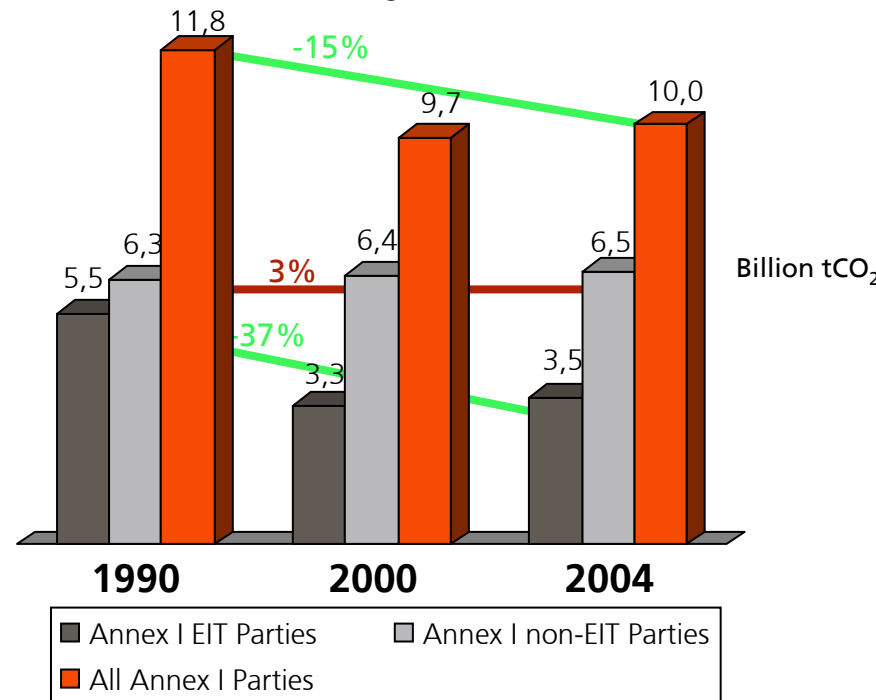
# Kyoto Protocol start looking promising as a measure to reduce emissions although its future is still uncertain beyond 2012

1. Those Parties joining Kyoto protocol have substantially decreased their emissions by 15%
2. All EIT joined Kyoto protocol and made the biggest contribution to reduce emissions (-37%)
3. Developed economies grew 39% GDP and joined Kyoto, increasing their emissions only 3% compare to those not joining Kyoto that increased their emissions in 18%

**GHG emissions Annex I Parties**



**Parties to the Kyoto Protocol**



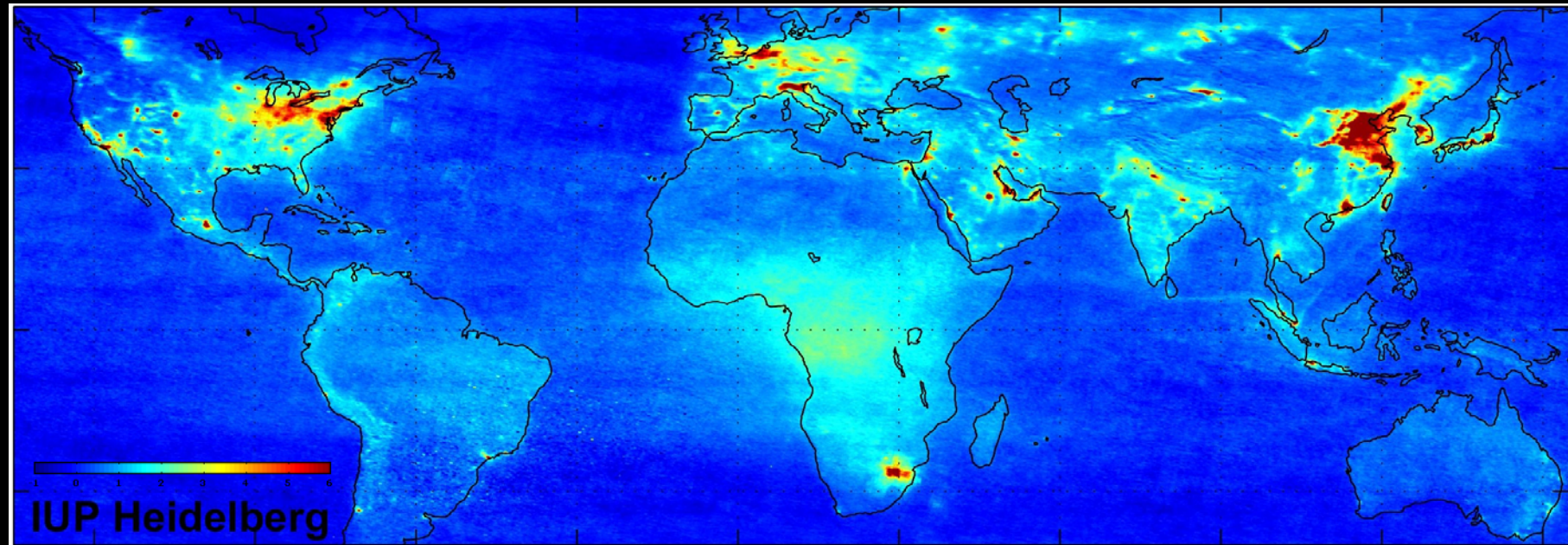


# Technology becomes crucial to mitigate GHG emissions and stabilize global warming as IPCC states

“Government support through financial contributions, tax credits, standard setting and market creation is important for effective technology development, innovation and deployment. Transfer of **technology** to developing countries depends on enabling conditions and financing”.

“The range of stabilization levels assessed (temperature increase and GHG concentration stabilization level) can be achieved by deployment of a portfolio of **technologies** that are currently available and those that are expected to be commercialized in coming decades. This assumes that appropriate and effective incentives are in place for development, acquisition, deployment and diffusion of **technologies** and for addressing related barriers”





**“One Euro investment in measurements for preventing risk associated to climate phenomena can avoid paying seven in expenses related to disasters”  
(WMO General Secretary)**



# Energy and transportation are the key areas to focus in to substantially reduce emissions

Consensus achieved shows the ways to decrease emissions while economies keep growing and their needs increase. Europe is leading some initiatives and many countries are coming onboard supporting the guidelines defined as many evidences can be found.

## Stern report. January 2007. Promoted by UK Government

1. Reduce energy consumption
2. De-carbonizing energy production
3. Promote use of renewable energies
4. Avoid deforestation

## EU energy policy. March 2007 (Rule of 20%)

1. Improve energy efficiency in 20% (equal to reduce consumption in 20%)
2. Aiming at ZEP for coal power plants after 2020
3. Use 20% of renewable energies
4. 10% use of bio-fuels
5. Reduce GHG emissions by 20% in 2020

## New York leading the group C40

40 large cities around the world join to find out solutions to common problems related to pollution, traffic congestion, energy consumption, water supply and waste management. Metropolitan areas occupy 1% of surface while mean 75% of energy consumption and 80% of total GHG emissions. (15 May)

13.000 NY taxis will become green, reducing emissions in 200.000 tCO<sub>2</sub>e per year. Bloomberg (23 May)

Capital rising increases around renewable energies and clap recent UN measures against CC (10 March)

Germany considering to keep nuclear reactors beyond 2020. It might save 45% emissions, 60MM tCO<sub>2</sub>e (10 March)

The cleanest energy is the one not used



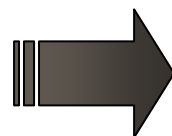
**Telvent has been contributing to sustain our world for many years...**

**“Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (The Brundtland Commission definition)**

## 83% of total GHG emitted in sectors where Telvent generates more than 70% revenues

Pathways to mitigate GHG emissions:

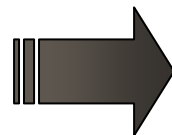
1. Energy efficiency and CO2-free energies promotion



60% GHG emissions

Energy x%

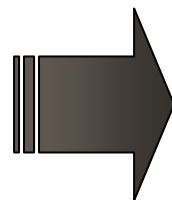
2. Build and promote clean transportation



23% GHG emissions

Transportation x%

3. More efficient building  
4. Industry efficiency in energy consumption



~2% GHG emissions from IT

Global Services x%

5. Improve crops and land management

6. Reduce deforestation

7. Reduce waste and promote energy recovery



# Telvent helps preventing key disasters and impacts of CC

Impacts of CC within 21st. Century:

**1. Water scarcity**



2. Biodiversity and ecosystems damaged

3. Food shortage

**4. Extreme meteorological and hydrological events more radical and more frequent**



**5. Increasing social conflicts worldwide**



**6. Huge affection to the health of world population**





## Today Telvent actively contributes to the reduction of GHG emissions and moderates future environmental impact

### Telvent's contribution

#### Energy

1. Reduce energy consumption
2. Efficiently manage electrical consumption in residential markets
3. Adjust energy production to real demand
4. Efficient management of renewable energy plants, other electricity generation sources and transportation networks
5. Minimize the effects of accidental leakages into the environment

GDO	GMAS	OASys®
Smart Meter Management		
Distribution Management System		
Liquid Management System		
SimSuite	RealTime Gas	ArcFM

#### Transportation

1. Enhance traffic management in cities reducing direct emissions from vehicles
2. Substantially reduce fuel consumptions through the use of training simulators
3. Making public transport more efficient
4. Increase detection, control and forecasting yielding a decrease in fuel consumption on highways

Itaca - Optimus	Odyssey / Sicotie
MoviSmart	WebPark
Vessel Traffic Simulation	
MobiFast	Red-eye
Smart-Toll	Open Toll Roads

#### Environment

1. Monitor pollutants (gases and particles) in urban and industrial areas
2. Improve treatment and transport of water and wastewater
3. Mitigating the effects of natural disasters forecasting the weather, monitoring the climate and providing early warning systems for populated areas
4. Increase efficiency in airport LTO operations monitoring the weather conditions

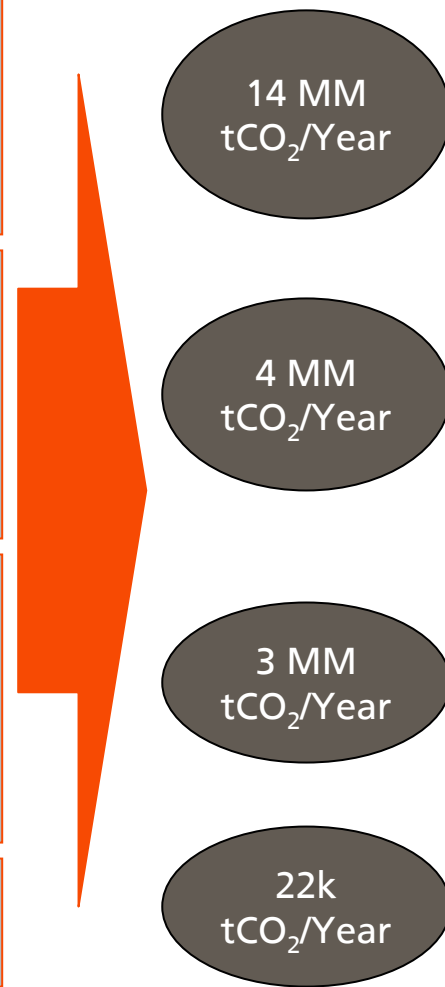
AQMN/CEM	WMSuite
RWIS	RiverFlow
Metconsole®	

#### Global Services

1. Optimization and reduce energy consumption through the application of efficient IT solutions

Data Centers
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### Potential GHG emissions reductions





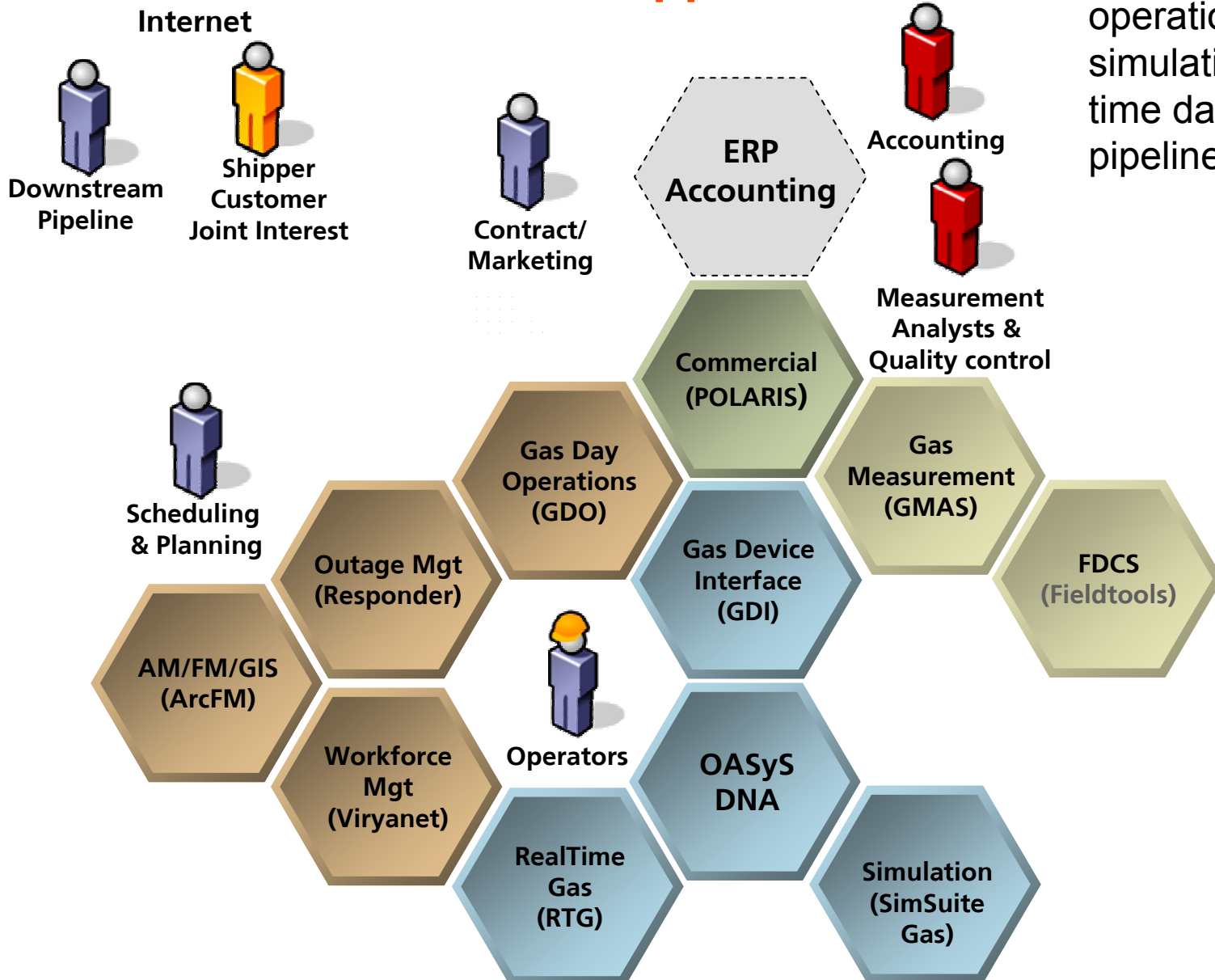
## Distribution Management System

Our DMS solution makes electric transmission and distribution networks more efficient through on-line monitoring



# Gas Suite Applications

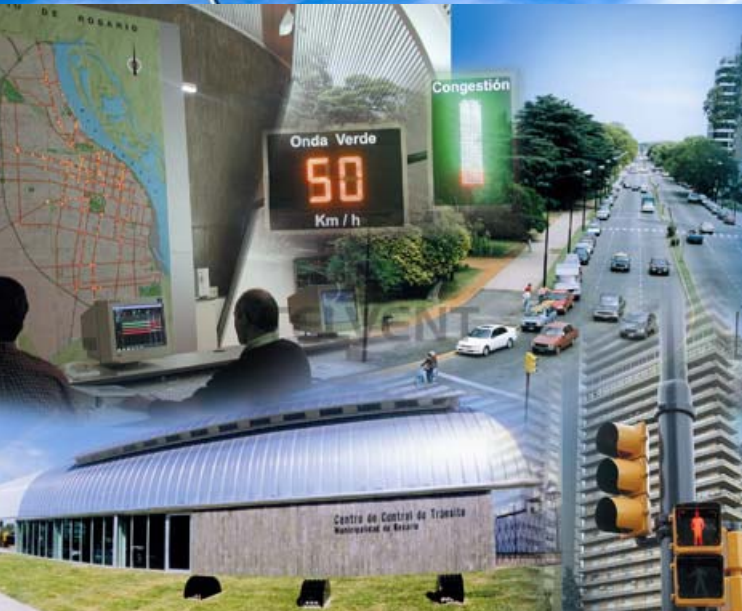
GasSuite improve operation through simulation and real-time data in gas pipelines







## Open Tool Roads



Freeflow highways increase highway efficiency avoiding unnecessary detentions of vehicles and real-time urban traffic management substantially reduce the fuel consumption in urban areas both redundant in less emissions

**ITACA**



## Airport Weather Systems




aviation is a high CO2 pollutant sector.  
Improvement of LTO operations reduce enormous  
quantity of GHG.

Real-time weather forecast and modeling allows  
generation of early warning against natural  
disasters caused by global warming.

## RiverFlow: flooding management systems



A photograph of a data center aisle. The aisle is filled with rows of dark grey server racks. The floor is made of light-colored square tiles with a grid pattern. The ceiling has recessed lighting. A fire extinguisher is visible on the right side of the aisle.

The ITC is gaining weight in our life and is highly dependant on energy. Its efficient management becomes crucial nowadays

**Data Centers**



# In summary, how Telvent helps reducing GHG emissions



**83% GHG emissions**

**Global warming**

**Impacts**

1. Water scarcity
2. Biodiversity and ecosystems damaged
3. Food shortage
4. Extreme meteorological and hydrological
5. Increasing social conflicts worldwide
6. Huge affection to the health of world population

Applying Technology to reduce emissions

- 22 MM tCO<sub>2</sub>/Year

Applying Technology to mitigate impacts

## What does Telvent?

Managing more efficiently the transportation needs

Increasing energy efficiency, helping reducing consumption and providing innovative solutions to manage renewable energies and IT infrastructures

Real-time tracking and forecasting the weather and monitoring the climate, contributing to generate early warning against natural disasters

Avoiding hazardous leakages to the environment

Optimizing and helping to better manage the water resources

**It's a significant contribution to a worldwide concern**



## Building a strategy around Sustainability

**“The evidence is now overwhelming: climate change is a serious global threat, and it demands an urgent global response. There is still time to avoid the worst impacts, if we take strong action now”. (Stern Report, UK Feb 2007)**



## Telvent's business ambition

Become a active player worldwide researching, developing and implementing state-of-the-art technology with a view to reduce GHG emissions, mitigating global warming, preserving the environment, ecosystems and natural resources

### Energy

1. Efficiently manage energy production and transportation helping to reduce energy consumption
2. Encourage technology applied to renewable energy sources
3. Help the world better using coal for energy making it cleaner

### Transportation

1. Encourage technology as it is applied to 'green' public transport
2. Improve efficiency to manage urban transportation
3. Increase security and reduce consumption applied to mobility through integrated solutions for roads and highways

### Environment




1. Improve efficient management, treatment and transport of water resources
2. Provide state-of-the-art technology to monitor the climate, forecast extreme weather events and generate early warning in real-time
3. Develop and deploy solutions and services aimed at monitoring and reduction GHG emissions

### Global Services

1. Help ITC to achieve the key role of providing security while being less energy dependant
2. Improvement of virtual solutions for multi-hosting
3. Improve energy management and reduce consumption in data centers

1. Technology
2. Services (engineering, consulting, outsourcing, maintenance, etc.)

# What opportunities Climate Change provides in Energy

Technological contribution	Current position	Some experiences	R&D efforts
<p>1. Substantial reduction in energy consumption</p>		<ul style="list-style-type: none"> <li>• Smart Meter Management</li> <li>• Gas consumption forecasting</li> </ul>	<p>BOSS: Gas supply Business Operation Support System</p>
<p>2. Increase efficiency in energy production and transport</p>		<ul style="list-style-type: none"> <li>• Smart Networks</li> <li>• Oil pipeline pumping power optimization</li> <li>• GIS Asset management</li> </ul>	<p>D E N I S E</p>
<p>3. Helping renewable energy sources by providing sustainable and manageable energy</p>		<ul style="list-style-type: none"> <li>• Solucar PS-20</li> <li>• Bioenergy plants</li> </ul>	<p>CONSOLIDA</p>

In order to keep customer confidentiality we can't disclose the name, location or scope of the job done



# What opportunities Climate Change provides in Transportation

## Technological contribution

### Current position

### Some experiences

### R&D efforts

1. Substantial reduction in GHG emissions throughout traffic management



- 40 cities with UTC
- 25 roads ITS/tunnels
- Traffic-Info
- Open Road Toll

- Adaptive traffic regulation
- Artificial vision in UT
- Incidents management

2. Public transport usage promotion and management improvement



Ticketing for multimodal transport. Spain

Public transport & emergency services prioritizing





# What opportunities Climate Change provides in Environment

Technological contribution	Current position	Some experiences	R&D efforts
1. Climate and weather forecasting applied to key economical sectors and activities		<ul style="list-style-type: none"> <li>• Alberta RWIS</li> <li>• Piedrafita RWIS</li> </ul>	<p>TERWIS 2 TSMAT</p>
2. Early warning systems (atmospheric and hydrologic extreme events)		<ul style="list-style-type: none"> <li>• CEDEX hydraulic modelling</li> <li>• Bolivia Senamih</li> <li>• Guadalquivir watershed management</li> </ul>	<p>THMDT</p>
3. Weather real-time observation and climate monitoring		<ul style="list-style-type: none"> <li>• Weather Radar</li> <li>• Satellite imagery</li> </ul>	<p>Nowcasting algorithm satellite</p>
4. Substantial improvement in Water efficient management, usage and treatment		<ul style="list-style-type: none"> <li>• Kahramaa Water dist</li> <li>• East Bay Municipal D.</li> <li>• Emasesa</li> </ul>	<p>Water Meter Rea BEFTEL</p>
5. Fire forest early detection and extinguishing systems to avoid deforestation		<ul style="list-style-type: none"> <li>• Mobile Coordination Units</li> </ul>	<p>GESIIF</p>

**Telvent fully committed with a  
sustainable and more secure world**

**Thank you**