

1. Introduction

● POSCO at a glance

Crude Steel Production (tons)

Year	Production (tons)	Event
1968	68	Foundation
1983	83	Pohang works Constructed
1992	92	Gwangyang works Constructed
1994	94	Listed on NYSE
2000	00	Privatized
2007	07	FINEX Commercialized

POSCO Overview ('10)

- ❑ Steel Production : World's top 4-5th (33.7Mt)
- ❑ Employment: 16,500 employees
- ❑ Sales : 30 bn USD (2.8% of GDP)

Acknowledgement

- ❑ World Steel Dynamics recognized POSCO as the world's most competitive steel company (WSD 2010)
- ❑ Dow Jones Sustainability Index included POSCO as a sustainable leading company for 6 consecutive years (Sep. 2010)

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Steel Solution for Green Growth

● Steel Industry is highly vulnerable to GHGs regulation

- The vast majority of CO₂ emissions in the entire steelworks are coming from iron making process.
- In 2010, we produced 33.7 million tons of crude steel and emitted 71.7 million tons of CO₂.

$Fe_2O_3, Fe_3O_4 + Carbon(Coal) \rightarrow Fe + CO_2$

Iron making (CO₂ 82%)

Steelmaking

Hot Rolling

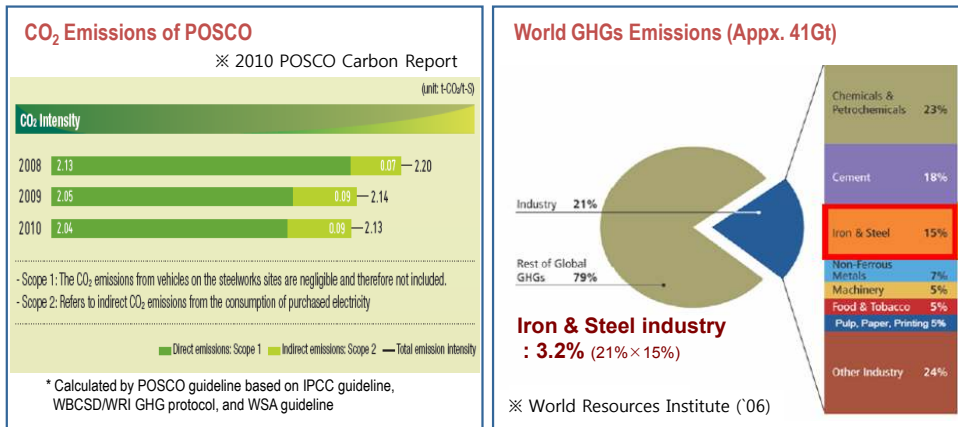
Cold Rolling

Steel Products

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Steel Solution for Green Growth

Steel Industry emits twice the amount of CO₂ for every ton of steel produced

- Carbon footprint of global iron & steel industry occupies 3.2% of the total GHG emissions
- Korea's steel industry accounts for 11% of national GHG emissions. Carbon dioxide intensity per tons of crude steel is 2.13 in 2010.



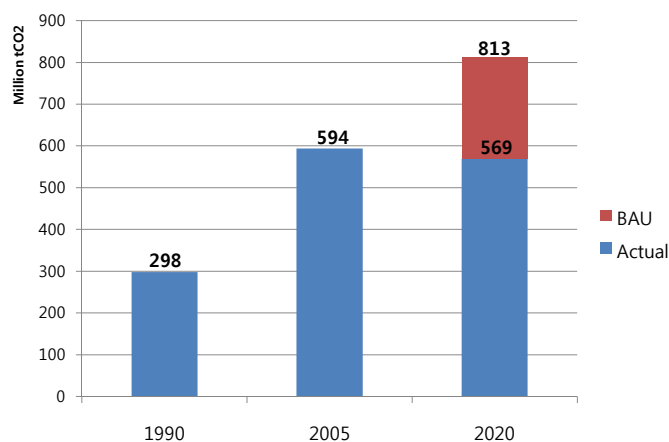
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Steel Solution for Green Growth

2. Korean Govt. Polices on Climate Change

Reduce CO₂ emissions by 30% by 2020 compared to the BAU

- In July 2009, Korean government launched National strategy for Low Carbon, Green Growth and its 5 year implementation plan. It needs public investment of \$86 billion for next 4 years.
- In November 2009, Korean gov. announced National GHGs Emission Reduction Target.

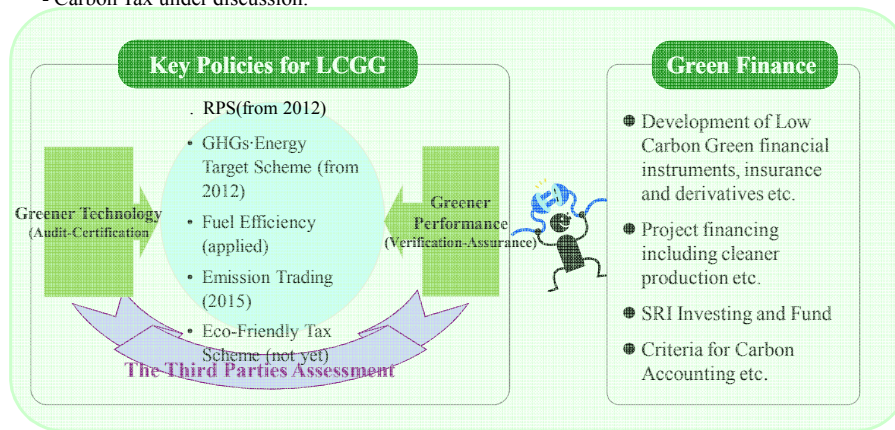


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Steel Solution for Green Growth

● **Framework Act on Green Growth and its Enforcement Decree enacted in 2010**

- It includes Fuel Efficiency and Green Certificate System
- From 2012, Energy/GHG Target Management Scheme and Renewable Portfolio Standard
- Emission Trading System will be introduced in 2015.
- Carbon Tax under discussion.



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Steel Solution for Green Growth

● **CO2 emissions in Korea will peak in 2014**

Potential for CO2 emissions reduction by sector:

- 18.2% industrial,
- 26.9% buildings,
- 34.3% transportation,
- 5.2% agriculture,
- 12.3% wastes,
- 26.7% energy, etc.

In 2020

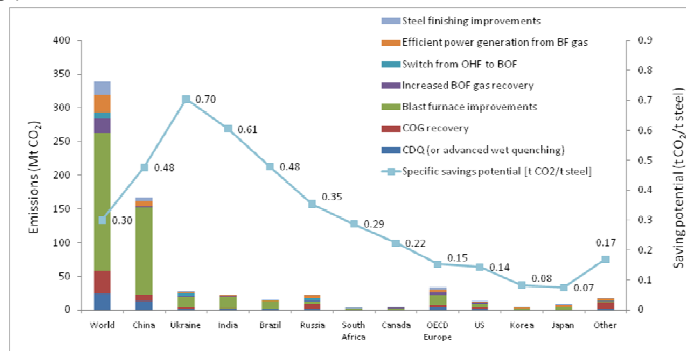
- CO2 emission per capita will be 11.5t, down from 12.7 in 2007.
- GDP per ton of CO2 emission will grow from \$1,300 in 2007 to \$2,400.
- Market share of green cars will be 10.7%.
- The ratio of renewable in power sector will be 6.8%.

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Steel Solution for Green Growth

The lowest GHGs reduction potential in Korean steel industry

- Improving energy efficiency over the last 10 years, Korean steel industry are now at the upper limit of the improvements that can be gained from currently available processes.
- IEA(2008) has estimated that Korea and Japan have a lowest GHG reduction potential based on Best Available Technologies(BAT) in the steel industry.
- As we have recognized that current existing technology has its limitation to reduce CO2 emission, POSCO has made efforts to develop additional breakthrough technologies, namely, hydrogen steelmaking process without coal.

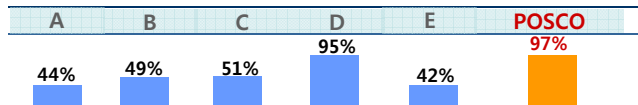


Source: IEA(2008), Tackling Industrial Energy Efficiency and CO2 emissions

3. POSCO's Efforts for GHGs Mitigation

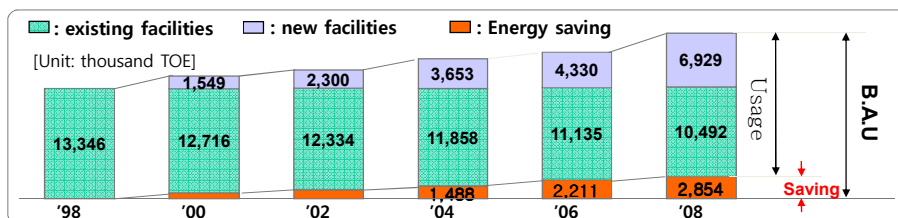
- Invested 1bn USD in energy recovery facilities from 1999 to 2008

[Installation rate of energy recovery facilities at world's leading steel companies]



* Calculated by the installation rate of 8 major energy recovery facilities including CDQ (Coke Dry Quenching), TRT (Top Gas Pressure Recovery Turbines).

- Saved 2.9M TOE (equivalent to 7M ton of CO₂ emission) through voluntary energy reduction agreement with the government since 1999



※ Reduction agreement by phase : 1st (1999-2003), 2nd (2004-2008), 3rd (2009-2013)

● **Launched a company-wide Carbon Management System since 2006**

Phase 1
Inventory Management
Calculate GHGs emissions by process

Phase 2
Project Management
Evaluate reduction project based on inventory level

Phase 3
Strategy Management
Design decision-making tools in consideration of reduction potential and economic feasibility

● **Conduct various GHGs reduction projects**

CDM Projects

- Small hydroelectric power plant (Sueo Dam, 2008)
- UNFCCC registered for earning 26,000 tons of credit over the next 10 years
- RHF (Rotary Hearth Furnace) project is in process with Nippon Steel

National GHG Reduction projects

- Has been operating the project registered by KEMCO since 2005
- Secured 776,000 tons of credits from 12 projects in 2009

11 Steel Solution for Green Growth

4. Vision and Strategy of POSCO for Green Growth

Global Green Growth Leader

- Last year, POSCO announced the vision of low carbon green growth with voluntary GHGs reduction target such as **9% Reduction** in CO₂ emission per ton of steel production by 2020 (with reference to the levels recorded in the past 3 years)
- Then we will contribute to **14M tons of CO₂ reduction** through high-efficiency steel products and green business
- In order to achieve this vision, we launched 4 corporate strategies at POSCO and plan to invest 7 bn USD

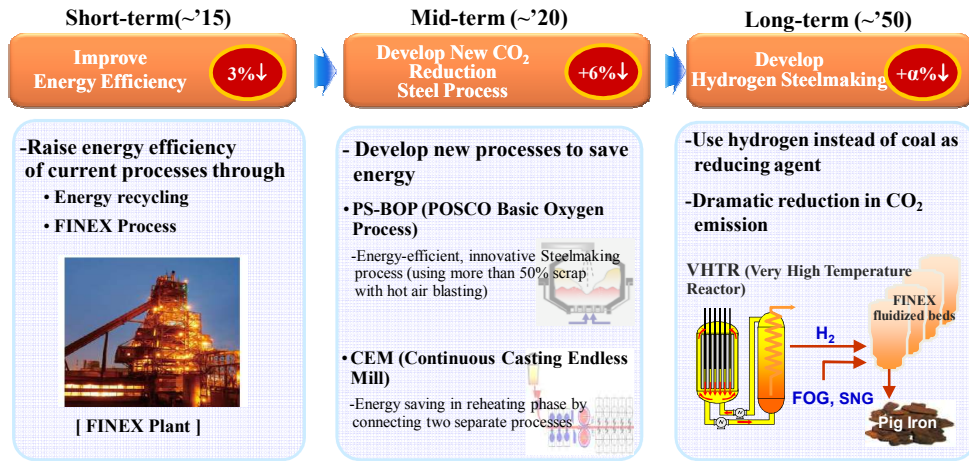
Green Steel	Green Business	Green Lifestyle	Green Partnership
<ul style="list-style-type: none"> • Steel process Innovation • Development of AHSS* and ultra-light steel, etc. 	<ul style="list-style-type: none"> • Fostering new green businesses in POSCO and our subsidiaries 	<ul style="list-style-type: none"> • Green workplace • Green people & community • Carbon offset program 	<ul style="list-style-type: none"> • Cooperate in carbon reduction programs (steel division of APP*, world steel association) • Transfer eco-friendly technology to SMEs

※ AHSS: Advanced High Strength Steel, APP: Asia-Pacific Partnership on Clean Development and Climate

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Green Steel

Strengthening Steel Competitiveness through development of energy-efficient breakthrough technology

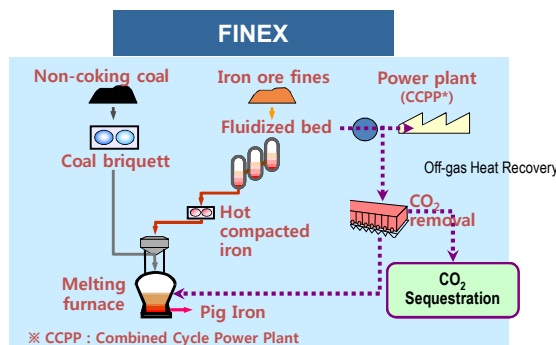


※ FOG: FINEX Off Gas, SNG: Synthetic Natural Gas

Green Steel

FINEX, the world's first commercialized innovative steel process (May 2007) will pioneer the way to a new low-carbon steel making process

- ✓ Eco-friendly iron-making process which enables direct use of cheap iron ore fines and non-coking coal as feedstock without pre-treatment
- ✓ High energy efficiency and reduction in air pollution by using pure oxygen
 - Reduction: SO_x 19%, NO_x 10%, and dust 52% compared to blast furnace
- ✓ Easier application of CCS (Carbon Capture & Storage) thanks to the use of pure oxygen



Green Steel

● Social GHG Reduction through Energy-Saving Materials

Super-strength Steel Plates

- **Lighter plates with higher fuel efficiency**
- Secure same strength level with thinner sheets
- **Supply volume reached 330,000 ton as of 2008, reducing 260,000 tons of CO₂ per year**
- CO₂ reduction per ton: 0.8 ton



Energy-Efficient Magnetic Steel Plates

- **Higher energy efficiency of transformer, electric motor and generator**
- **Supply volume reached 0.3 million ton as of 2008, reducing 1.7M tons of CO₂**
- 5.7 ton CO₂ reduction per ton of sheet



Lighter Materials

- **Started magnesium plate production since July 2007**
- Production capability : 3,000 ton/year
 ※ Weight of magnesium : 23% of Steel, 67% of aluminum
- **Titanium : To be used for airplanes, lighter vehicles, and ocean plants (from 2013~)**



Green Business

● Path to success in green business building on POSCO's network with affiliates



- POSCO POWER installed a stationary fuel cell plant in Sep. 2008
- About 0.4bn USD will be invested in developing new SOFC (Solid Oxide Fuel Cell) technology by 2018



- POSCO E&C built a wind power plant on Mt. Taegi in Gangwon Province (Dec. 2008, 40MW)
- POSCO E&C plans to invest around 0.5 bn USD in wind power and ocean energy areas by 2018



- Smart Grid is one of 10 transformative technologies announced at MEF (Major Economies Forum on Energy and climate) in Copenhagen ('09.12)
- Korea and Italy presented technology roadmap of Smart Grid
- POSCO ICT will invest 40M USD in smart grid technologies focusing on energy-intensive industries by 2018

Green Business



- Produce synthetic gas from low-quality coal
 - In parallel with projects to turn CO₂ into resource
- Invest 0.9bn USD in SNG plant with 0.5M ton/yr production capacity by 2013
 - * SNG : Synthetic Natural Gas



- Create marine forests with steel-slag (from 2000)
 - Use steel slag generated from the steel making process
 - Marine forests absorb CO₂ through photosynthesis
- Produce bio-fuel from seaweeds
- Develop technology to extract raw materials such as magnesium & lithium from the ocean (from 2009)



- Construct plants to generate electricity from waste incineration
- Projects using sewage sludge (Suwon and Busan) and RDF (Busan and Pohang) are in process

Green Lifestyle & Partnership

- Encourage Voluntary Participation of POSCO Employees and Cooperate with Relevant Organizations



5. Conclusion

“Facing the new paradigm of low carbon and green growth, **POSCO** endeavors to take a leap forward to be a leader in the era of climate change. As part of the effort, we are shifting our focus to **Low carbon steel processes** and **Green businesses**.”

- (1) Around 10bn USD of sales in green businesses are expected and POSCO plans to create 87,000 jobs in green sectors with 7bn USD investment by 2018
- (2) Reduce 9% of CO₂ emission per ton of steel production by 2020 (based on the average track record in the past 3 years)
- (3) Make a contribution to 14M ton of social CO₂ reduction through high-efficiency steel products and green businesses

