

24<sup>th</sup> International Conference on

**SMiRT**  
**STRUCTURAL**  
**MECHANICS**  
**in REACTOR**  
**TECHNOLOGY**

**BEXCO Busan, KOREA**

27~31 August 2017



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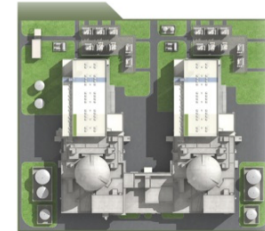
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# Introduction

**Nuclear Safety First,  
Last and Always**

- 🌐 Korea was a pioneer of nuclear power plant engineering among developing countries. The first Korean commercial nuclear power plant has started its operation since 1978 in Busan. Korea constantly developed nuclear power plant design technology and realized the technology self-sufficiency by designing Korean Standard Nuclear Power Plant, OPR 1000. Since then, Korea also developed Advanced PWR, APR 1400 and is currently applying the design to Shin-Kori units. The flagship reactor APR 1400 was exported to the United Arab Emirates in 2009 and Barakah nuclear power plants are currently under construction as scheduled.



# Introduction

**Nuclear Safety First,**  
*Last and Always*

- 🌐 In 1999, Korea hosted SMiRT 15 in Seoul, promoting the excellence of Korean nuclear power plants to the world, 15 years have passed since then and Korea now became an exporter of nuclear power plants. In this regard, Korea will take SMiRT 24 as a good opportunity to share its advanced technology with the world nuclear industry.
- 🌐 One of the progresses that Korea would like to re-encourage among SMiRT conference participants is nuclear safety enhancement activities initiated in the wake of Fukushima accident. As 2017 will be the time when each country's safety enhancement measures implemented on the heels of Fukushima accident would come to an end, Korea wants to re-emphasize the importance of nuclear safety enhancement activities.

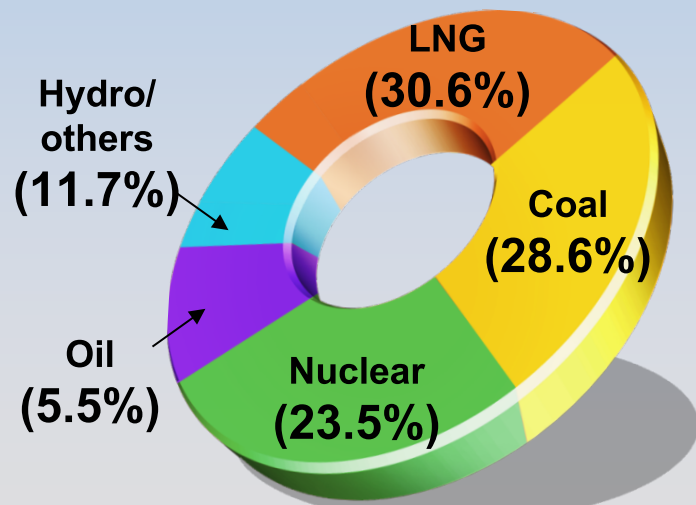


## Energy Projections in Korea

### Power Generation Capacity

- Nuclear accounts for 23.5% of installed capacity, following coal-fired plants (28.6%) and LNG generators (30.6%)
  - Nuclear capacity: 20,716MW, 5<sup>th</sup> in the world (IAEA PRIS 2013.06.30)
- Deficiency in base-load facility to grow highly in LNG-fired plants.

### Capacity ('14.04)



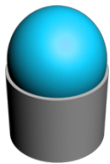
Total: 88,178 MW

### Share of generation capacity by source

	1980	1990	2014
Oil	62.3	18.4	5.5
Coal	8.0	17.6	28.6
LNG	0	16.1	30.6
Nuclear	6.3	36.2	23.5

# Introduction

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In operation  
23 units



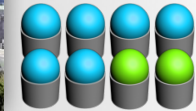
Under construction  
5 units



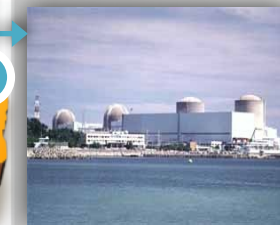
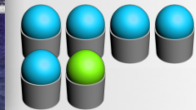
Low and Intermediate  
Level Radioactive  
Waste Disposal Facility  
(Under construction)



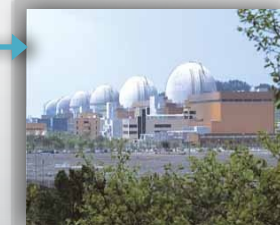
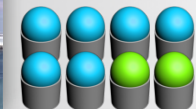
**Ulchin**  
8 units



**Wolsong**  
6 units



**Kori**  
8 units



**Yonggwang**  
6 units



Design Phase	APR1400 2 units
Under Construction	OPR1000 1 units APR1400 4 units
Operation	OPR1000 11 units
Partial Participation	600MW WEC PWR 900MW WEC PWR 900MW French PWR 600 MW PHWR (CANDU)

# Co-operating organisations

- Cooperating organizations have not been decided yet since Korea recently determined to participate in the bidding to host SMiRT 24. However, around 4 organisations are expected to collaborate to ensure Korea's successful hosting of SMiRT 24 in 2017. A brief summary of cooperating organizations' role is provided as follows. We believe that the division of role will improve work efficiency and enable the organization to promptly respond to various requests made by participants. Also, IASMiRT will have more confidence in the preparation process because responsibilities of each organization are clearly described in the proposal.



Korean Atomic Forum  
(KAIF)



KEPCO ENC



Korean Society of  
Pressure Vessels and Piping  
(KPVP)



Korean Institute of  
Nuclear Safety  
(KINS)



Korean Nuclear Society  
(KNS)



KEPCO Institute of  
Nuclear Graduate School  
(KINGS)

# Venue and dates

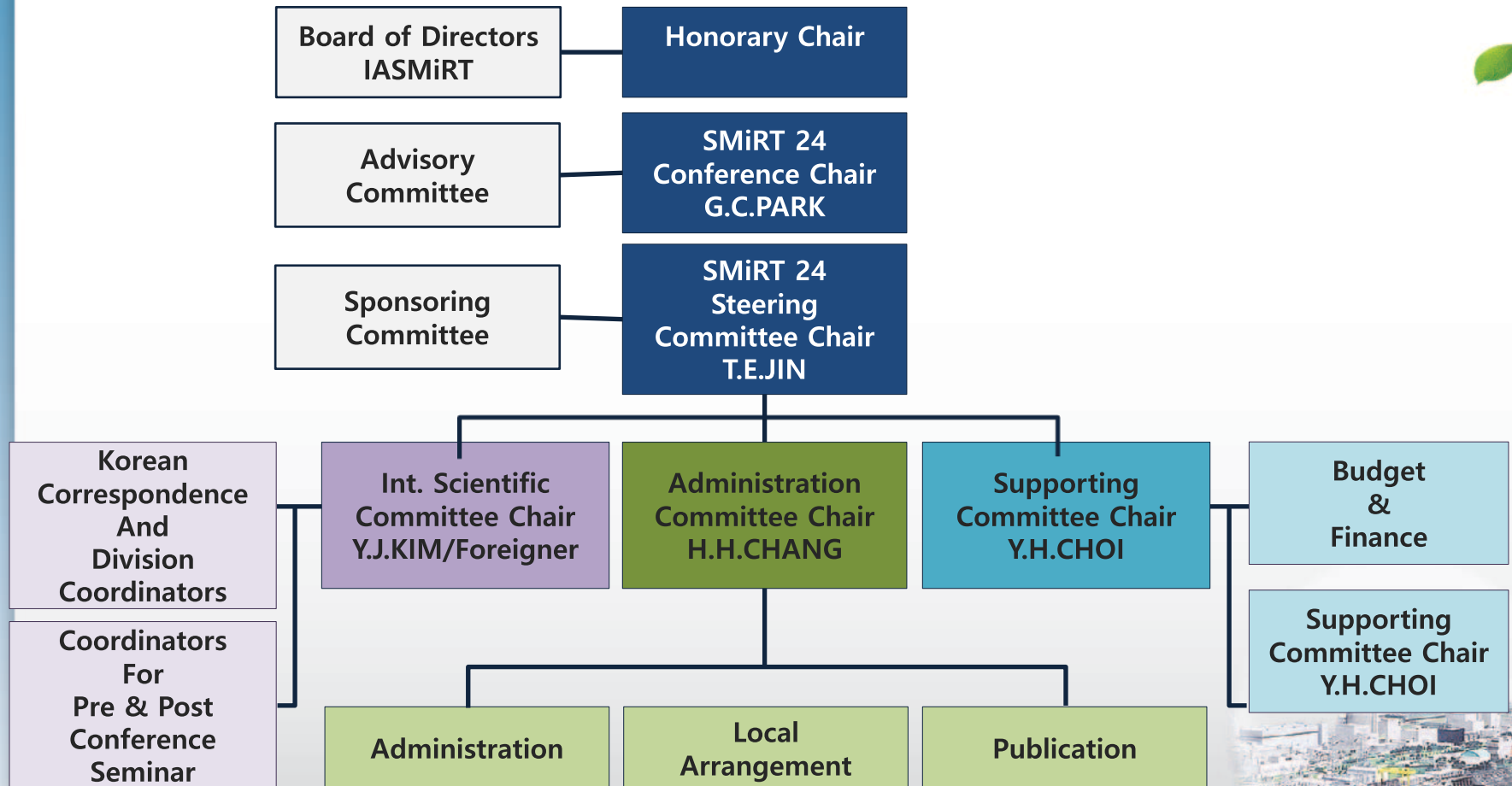
- The conference will be held at **BEXCO** (Busan Exhibition & Convention Center), **a landmark of famous port city of Busan**, BEXCO is the largest exhibition hall in Korea with a size of 26,400m<sup>2</sup>. It offers large scale conference facilities, spacious exhibition halls and other multi-purpose halls. The center has been the main venue for a variety of international events including 2005 APEC Summit, 2004 ITU Asia and 2002 FIFA World Cup Final Draw Ceremony.
- It usually takes **around 3 hours from Seoul to Busan by KTX high-speed train**. Busan, so-called 'summer capital', is the no.1 spot for summer vacation in Korea. Conference participants would not have any problem in reserving accommodations or visiting tourist attractions because the conference is slated to be held after high season.
- **SMiRT conference** has traditionally been held in August, the best time to visit Busan in terms of weather and availability of infrastructure. And **SMiRT24 is planned from**  
**Best Option : August 27 to 31, 2017.**  
**Alternative : August 20 to 24, 2017.**

















# Conference organisation

- The conference will be organised under the guidance of a local steering committee composed of the representatives from KEPCO ENC, KHNP, KPVP, and Korea University.



# Timeline

 <b>November 2014</b>	<b>Location of SMiRT 24 to be confirmed</b>
 <b>December 2014</b>	<b>Preliminary contract with venue and hotels</b>
 <b>August 2015</b>	<b>Board meeting in Manchester</b>
 <b>August 2015</b>	<b>Planning meeting for SMiRT 24 in Manchester</b>
 <b>January 2016</b>	<b>Board meeting in Manchester</b>
 <b>August 2016</b>	<b>First announcement for SMiRT 24 Preliminary meeting of ISC</b>
 <b>March 2016</b>	<b>Second announcement, Collection of abstracts</b>
 <b>September 2016</b>	<b>Deadline for abstracts</b>
 <b>March 2017</b>	<b>Planning and Board meetings in Busan</b>
 <b>April 2017</b>	<b>Deadline for papers, third announcement, and registration</b>
 <b>June 2017</b>	<b>Early registration</b>
 <b>August 2017</b>	<b>SMiRT 24</b>



# Budget

Unit \$ 1000

Income		Expenditure	
Paid delegates-250 assumed at \$1200	375	Venue	150
Early bird delegates-200 assumed at \$ 850	240	Catering	100
Student delegates-50 assumed at \$350	17.5	Conference dinner	50
Sponsorship	100	AV equipment	70
Loan from IASMiRT	50	Management-conference planning and administration	80
		Insurance	20
		Printing and advertising	70
		SMiRT website	15
		SMiRT dues	40
		Miscellaneous office and conference expenses(CDs, delegates packs etc)	20
		January 2016 Board meeting	20
		March 2017 Planning meeting	40
		Contingency	52.5
		SMiRT loan repayment plus interest	55
<b>Total</b>	<b>782.5</b>	<b>Total</b>	<b>782.5</b>

\*Based on the assumption of 500 delegates

# Pre and post conference seminars and technical visit

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- Pre and post conference seminars will be invited on a self-funding basis. Topics most likely to be discussed during the seminars include Remedy Action for Fukushima Accident and Safety Cultures of Nuclear Power Plants. The pre and post conference seminars will be held in Busan. (and Jeju Island)
- Busan is within reasonable travelling distance from Kori and the Shin-Kori sites. It is also 1 1/2 hour's drive from Busan to the radioactive waste disposal facility in Kyungju. The organization is arranging a technical visit to one of these sites.



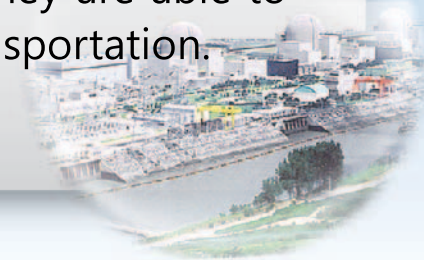
# Social programme

- As described in Annex 3, Busan has excellent tourist attractions for delegates and their families. It is easy to travel between Seoul and Busan by taking KTX high-speed train. In addition, Kyungju city, a repository of historic treasures, is within reasonable driving distance from Busan. Conference participants can also visit Jeju Island by taking either plane or ferry. Jeju Island is the most iconic travel destination during the summer holiday season in Korea.
- Along with arrival and departure receptions and conference dinner, visits to ○○○○ are planned as part of the social program. The local committee is due to provide entertainment events every evening during the conference period for conference participants and their family members. Social committee will be available to provide best travel advice and recommendations for anyone who wants to visit tourist attractions near Busan. The travel destination should be within 2 hour trip by train and one hour trip by plane from Busan.



# Conference facilities

- The committee will provide first class venue for the conference at a convenient and vibrant location. More details of BEXCO are provided in annex 3.
- Busan offers a large variety of hotels and amenities that cater to the different needs and taste of conference participants. Delegates can choose from a wide range of accommodations, from luxury five-star hotels to budget rooms. Increasing number of visitors are staying in serviced apartments. The city provides the best selection of hotels near Haeundae beach. Haeundae features a wide range of leisure facilities and breathtaking ocean views. Visitors can easily get to Haeundae by inter-city bus or subway(Refer to Annex 3). Delegates can reserve a block of hotel rooms via our hotel booking agents.
- If participants want to stay right next to Busan BEXCO, our booking agent will recommend best accommodation options. Since a wide range of hotels are available in Busan, delegates can stay in a hotel located just across the street from the conference venue or away from downtown.
- If delegates want to stay away from the central part of Busan city, they can have a broader array of choices for accommodation such as rural retreat. They are able to have easy access to downtown and tourist sites by using public transportation.



# Annex 1. Letter of support (preliminary V.)

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## Korean Society of Pressure Vessel and Piping

19 Gusung, Yusung, Daejeon, 305-338, Republic of Korea  
TEL: +82 (42) 868-0167 / FAX: +82 (42) 868-0730

November 12, 2014

PARK, Goon-Cherl

Chairman of Bidding Committee for SMiRT-24  
President of KINGS  
(KEPCO Int. Nuclear Graduate School)

Subject : Request for Cooperation

Dear Professor Park,

Korean Society of Pressure Vessel and Piping (KPVP) is proud to support your bid to host the 24<sup>th</sup> Structural Mechanics in Reactor Technology (SMiRT 24) conference in 2017 in Korea.

This prestigious international conference has supported both safety and integrity improvement of the nuclear technology since the early seventies, which have helped both safety and plant operations worldwide. Noting the recent positive developments in relation to new nuclear build in Korea, I feel that it is particularly relevant at this time to support your bid to host SMiRT 24.

In anticipation that the International Association of SMiRT will also support your bid to host SMiRT 24 in Korea please note that KPVP, in collaboration with other organization and the local organizing committee are happy to support the successful outcome of the conference itself.

I trust this letter of support will be sufficient to help secure the Korea bid to host the SMiRT 24 in 2017.

Best Regards,

Young Hwan Choi  
Secretary General  
Korean Society of Pressure Vessel and Piping (KPVP)



KEPCO Engineering & Construction Company, Inc.

2354, Yonggudaero, Giheung-gu, Yongin-si, Gyeonggi-do, 446-713 Korea  
TEL: +82 (0)31 8021 6400 / FAX: +82 (0)31 8021 6438

November 12, 2014

PARK, Goon-Cherl

Chairman of  
Bidding Committee for SMiRT-24  
President of KINGS  
(KEPCO Int. Nuclear Graduate School)

Subject : Request for Cooperation

Dear Professor Park,

KEPCO E&C, as the leading nuclear engineering company supporting nuclear generation in Korea, is proud to support your bid to host the 24<sup>th</sup> Structural Mechanics in Reactor Technology (SMiRT 24) conference in 2017 in Korea.

This prestigious international conference has supported both safety and integrity improvement of the nuclear technology since the early seventies, which have helped both safety and plant operations worldwide. Noting the recent positive developments in relation to new nuclear build in Korea, for which KEPCO E&C is taking a leading role, I feel that it is particularly relevant at this time to support your bid to host SMiRT 24.

In anticipation that the International Association of SMiRT will also support your bid to host SMiRT 24 in Korea please note that KEPCO E&C, in collaboration with other organization and the local organizing committee are happy to support the successful outcome of the conference itself.

I trust this letter of support will be sufficient to help secure the Korea bid to host the SMiRT 24 in 2017.

Best Regards,

Tae Eun JIN  
Senior Vice President  
Power Engineering Research Institute  
KEPCO E&C

# Annex 2. Brief Summary of Local committee

**Nuclear Safety First,**  
Last and Always

## **Goon-cherl PARK ,President,KINGS**

- **Goon-cherl PARK** is the President of KEPCO International Nuclear Graduate School(KINGS). Formerly, Mr. Park was Professor of Nuclear Engineering at Seoul National University and Head of the Regional Energy Research Institute. He received his Ph.D. degree at the Rensselaer Polytechnic Institute in 1983 and his Master's (1979) and Bachelor's (1975) degrees in Nuclear Engineering from the Seoul National University. His research topics include the thermal-hydraulic design, safety analysis of nuclear power plants, and development of next generation reactors such as VHTGR for hydrogen generation. The president has been a member of the Nuclear Safety Expert Committee in the Ministry of Science and Technology of Korea, a member of Board of Directors in Korea Hydro and Nuclear Power Co. (KHNP), and Vice Dean of the Engineering School at his university.

## **Tae Eun JIN, Senior Vice President, KEPCO ENC**

## **Yun Jae KIM, Professor, Korea Univ.**

## **Young Hwan CHOI, Senior Vice President, KINS**

## **Ho Hyun CHANG, General Manager, KAIF**



# Annex 3. BEXCO

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- **BEXCO** (92,761m<sup>2</sup>) is a large international exhibition/convention center with eight floors (1BF-7F). It offers spacious exhibition halls as large as three football fields combined, multi-purpose halls, and outdoor exhibition halls. Equipped with advanced equipment, the convention center is ideal venue for holding international conferences, seminars and exhibitions.



## **BEXCO**

**Busan Head Office**

#55 APEC-ro, Haeundae-gu, Busan (Postal Code 612-704)

TEL. 82+51-740-7300 FAX. 82+51-740-7320 E-mail.

[bexco@bexco.co.kr](mailto:bexco@bexco.co.kr)

## **Seoul Office**

#1905 Trade Tower 159-1 Samseong-dong, Gangnam-gu, Seoul  
(Postal Code 135-729) TEL. 82+2-6000-6644 FAX. 82+2-6000-6647

# Annex 3. BEXCO

## 🌐 Conference Facilities

- **Multi-functional Hall**

2nd & 3rd floors  
: 15 seminar rooms with  
natural lighting

- **Convention Hall**

1st & 2nd floors  
: 21 conference rooms  
3rd floor  
: main conference hall with  
2,400 seats

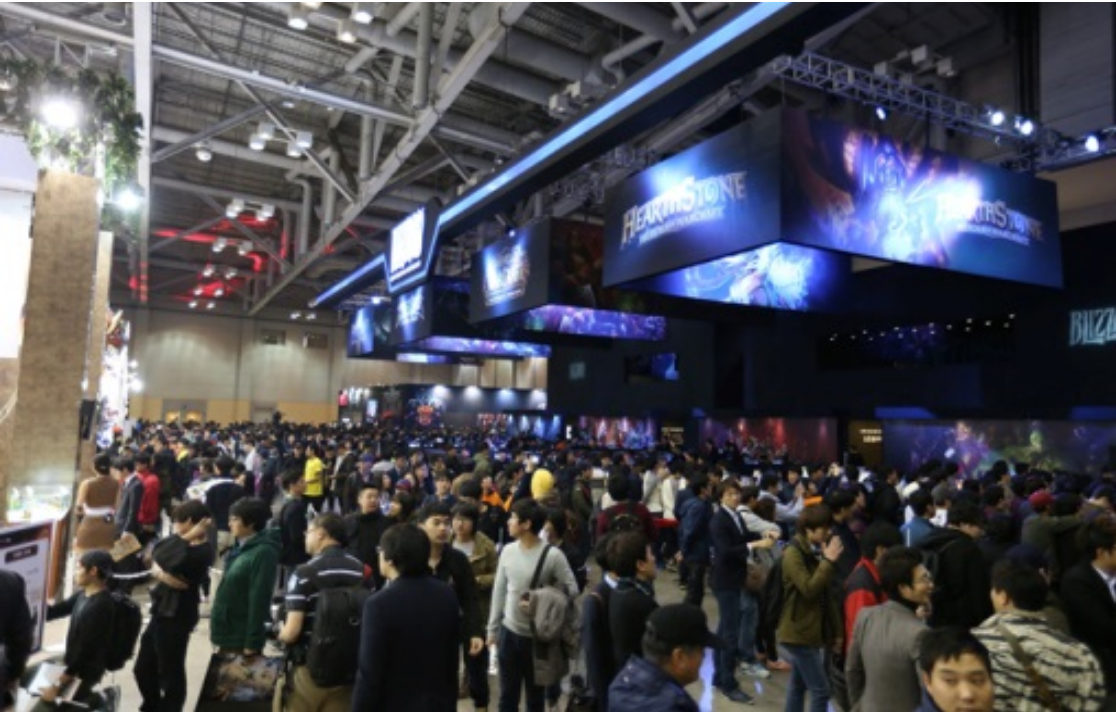
- **Multiple Conference Features**  
: theater, classrooms and  
reception

- **Presentation Equipment**  
: air conditioners, international  
video conference systems,  
OS screens, high technology  
A/V systems with simultaneous  
interpretation system in  
8 languages.



# Annex 3. BEXCO

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## 🌐 Exhibition Facilities

- **Existing Exhibition Hall**(26,508m<sup>2</sup>)
  - single-story pillar-free exhibition hall which can be divided into 5 separate spaces.
- **New Exhibition Hall**(20,000m<sup>2</sup>)
  - two-story hall which can be divided into maximum of 11 halls.
- **Auxiliary Facilities**
  - Glass Hall: Mostly used as a lobby for registration desk and coffee breaks
  - Multi-functional Space-offices: Generally used for seminar rooms, mid/small- sized exhibition halls, and restaurants
  - Outdoor Exhibition(13,223m<sup>2</sup>) : suitable for large-scale exhibitions, outdoor concerts, and other kinds of events



# Annex 3. BUSAN

- 🌐 **Busan is South Korea's second largest metropolis** after Seoul, with a population of approximately 3.6 million. The city is located on the southeastern-most tip of the Korean peninsula. Its geography includes a coastline with superb beaches and scenic cliffs, mountains which provide excellent hiking and extraordinary views, and hot springs scattered throughout the city. Busan enjoys four distinct seasons and a temperate climate that never gets too hot or too cold.
- 🌐 The Busan metropolitan area is divided into 15 major administrative districts and a single county.
- 🌐 Busan serves as the economic and logistics hub of Korea's Southeast Economic Belt where Korea's leading industries are located. A total of 90% of national output in shipbuilding, 90% of ship parts, 45% of automobile, and 40% of machinery is produced in the region.



# Annex 3. BUSAN

**Nuclear Safety First,**  
Last and Always



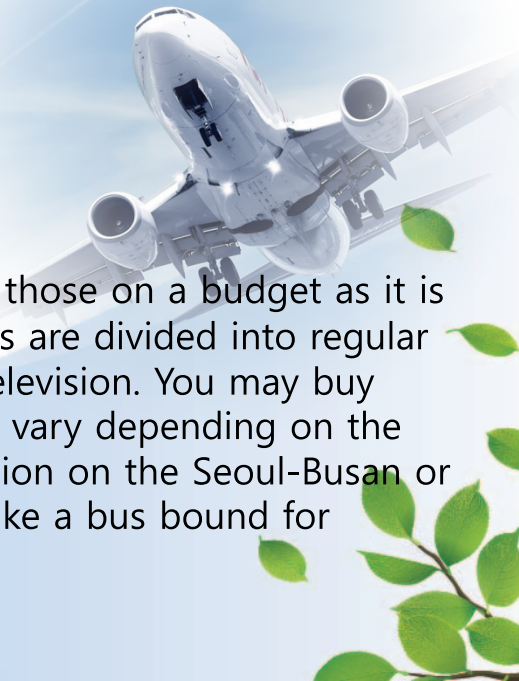
- 🌐 **The city is the fifth busiest seaport in the world**, with transportation and shipping among the most high profile aspects of the local economy. Busan has one of the world's largest ports and can handle up to 13.2 million TEU shipping containers per year. Busan is the home of the headquarters of Renault Samsung Motors, Hanjin Heavy Industries, Busan Bank, Air Busan, Hi Investment & Securities, Woori Aviva Life Insurance, Korea Technology Finance Corporation, Korea Asset Management Corporation.
- 🌐 **Busan has an excellent transportation system** combining air, sea and land, with an established network linking its international port and airport, expressways, high-speed KTX train stations and international ferry terminal, thereby providing easy access to all corners of Korea and the world.  
The metropolitan area also provides a superb road system, in addition to a convenient public transportation connecting subway lines, bus lines & taxi services.
- 🌐 **Busan is ranked the fourth best city** after Singapore, Seoul and Tokyo among Asia's top convention cities in a 2011 global ranking by the International Congress and Convention Association (ICCA). Busan was the host city of the 2002 Asian Games and APEC 2005 Korea. It was also one of the host cities for the 2002 FIFA World Cup, and is a center for international conventions in Korea.

# Annex 3. BUSAN

## Arriving Busan

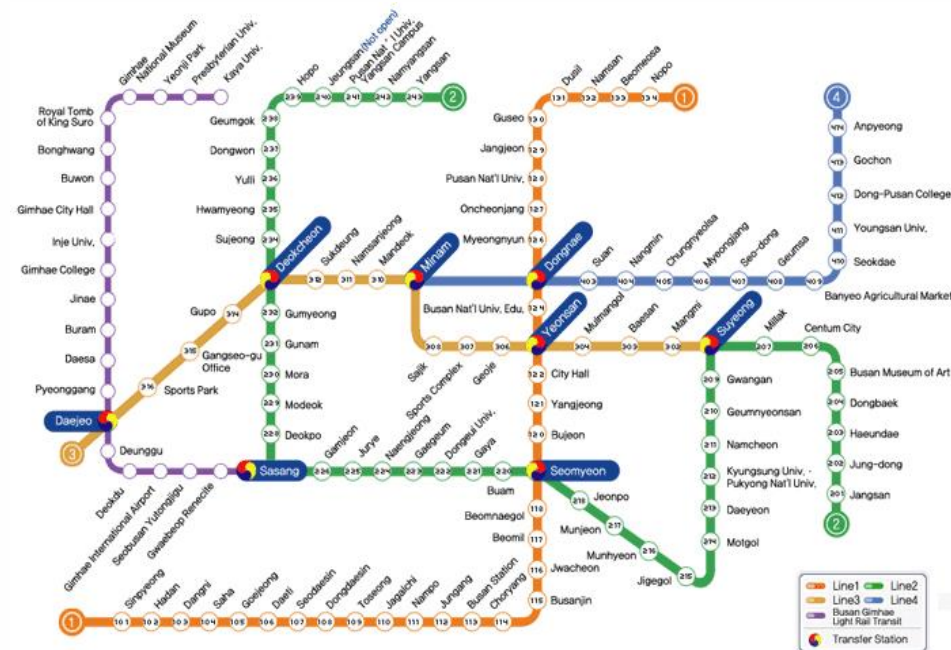


- **KTX high-speed train** to travel from Seoul to Busan is cheaper than taking plane. The train operates from Seoul Station to Busan Station. It also stops at Daejeon and Daegu. Time travel from Busan to Seoul/Seoul to Busan takes about 3.5 hrs. KTX is faster than taking the bus since it will take you 6-8 hrs of time travel. You should reserve seats in advance since trains are often full, especially on Sundays. There is a special desk where foreigners can buy tickets, and avoid the long queues, to the right of the main ticket counter. You can also book online via **www.korail.com**.
- **Flights from Seoul to Busan** are cheap and convenient. There are some 20-30 flights each day between Seoul's Gimpo Airport and Busan's Gimhae Airport. The flight only takes an hour and costs around 100,000 Won, even for a last minute flight. City buses and limousine buses also run from the airport to downtown area.
- **Traveling by express bus** is recommended for long distance trips for those on a budget as it is less expensive than the KTX high-speed train. Long-distance express buses are divided into regular and deluxe express buses, which have more spacious seats and satellite television. You may buy tickets at the Seoul Express Bus Terminal website. Departure terminal may vary depending on the destination. Go to Seoul Express Bus Terminal to catch a bus to a destination on the Seoul-Busan or Yeongdong lines. Go to the Honam Line Bus Terminal at Central City to take a bus bound for Gwangju or Jeonju.



# Annex 3. BUSAN

- 🌐 **The subway** is the most convenient mode of transport to travel around Busan. It operates from 5:30am-1am. 5 subway lines are operating around the city. You won't get lost since the stations are labeled in Korean, English and Chinese and numbered as well.
- 🌐 A single ride fare (as of 1 June 2014) is 1300 won for a destination within less than 10 km (6.2 mi) and 1500 won for any other destinations. Tickets are sold at "Ticket Vending Machines". Usually most machines will accept 1000 won notes as well as coins. Tickets should be kept since they are required to leave the station once reaching destination, and getting caught "jumping the gate" will result in a hefty fine.



- 🌐 **The use of a metro pass**, either Hanaro Card or a Digital Busan Card will offer a fare discount of 10% to adults and 20% to youth of 13-18 of age. Both the Hanaro and the Digital Busan cards, are available in either card format or a more compact, yet slightly more expensive cell phone accessory format. The passes are equipped with a microchip and are scanned by laying them against sensor plates at the entrance and exit of stations. This makes them more efficient than magnetic stripe cards since they can be detected through a wallet or purse. Hanaro Cards are for sale at all stations for 2000 won. All type of passes can have credit added to them in any station at the "Automatic Charge Machine" ; the instructions are available in both English and Korean. The passes can also be used to pay for bus fares and for purchases on specially equipped vending machines throughout the city.

# Thank you and See you in Pusan!!!

