

# An Overview of CGN & Collaboration on the Romania Project



# **Contents**

#### 01 Our Business

— development and technical innovation in nuclear power and renewables

#### 02 Our Performance

— to achieve the highest level and best performance in safety, economy and environmental protection

#### 03 Our Presence in Romania

— to enter into win-win cooperation with Romanian Partners



# 01 Our Business

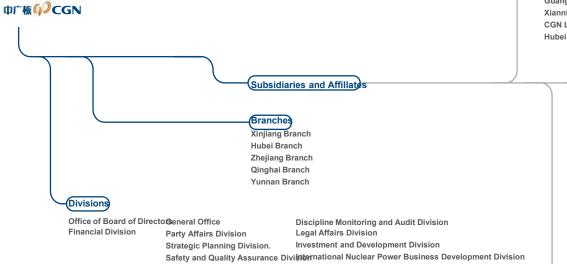
— development and technical innovation in nuclear power and renewables



Established in September, 1994 with a registered capital of RMB 10.2 billion, China General Nuclear Power Group (CGN), formerly known as China Guangdong Nuclear Power Corporation, is a large State-owned Enterprise growing up in tandem with China's Reform and Opening-up drive, and the country's overall nuclear power program.

# China General Nuclear Power Corporation





Capital Operation Division Human Resources Division **CGN University** 

**Culture and Publicity Center** 

29.000

CGNPC International Financial Leasing Co., Ltd.
CGN Industrial Investment Fund Management Co., Ltd.
China General Nuclear Power Services Corporation
CGN (Beijing) NuclearTechnology Application Co., Ltd.
CGN Wind Energy Limited
Maira Power Co. Ltd.

CGN Finance Co., Ltd.

Meiya Power Co., Ltd.
CGN Solar Energy Development Co., Ltd.

CGN Energy Service Co., Ltd.

Nuclear Fue

**Nuclear Pow** 

CGN Uranium Resources Co., Ltd.



CGN Profile		
Total assets	RMB 390.3 billion	
Revenue	RMB 45.1 billion	
Profit	RMB 9.6 billion	

- \* As of the end of 2014
- \* CGN Power IPO on December 10, 2014

Power supply			
	UNITS	Installed Capacity	Ratio in China
In operation	14	14.91 GWe	63%
Under construction	11	13.33 GWe	51%

Non nuclear businesses		
Wind	6.95 GWe	
Solar	5.7 GWe	
Hydro	1.47 GWe	
Gas	2.50 GWe	



## 1.1 Nuclear Power Overview

- 14 units in operation, with a total installed capacity of 11.62 GWe
- 12 units under construction, with a total installed capacity of 15.50 GWe



#### In operation

Daya Bay 1&2,

Ling Ao Phase I(1&2), Phase II(1&2)

Ningde (1-3)

Hongyanhe (1-3)

Yangjiang 1&2

#### **Under construction**

Ningde 4

Hongyanhe (4,5&6)

Taishan Phase I(1&2)

Yangjiang (3,4,5&6)

Fangchenggang Phase I(1&2)

#### **Under review**

Lufeng project

Xianning project

Cangnan project

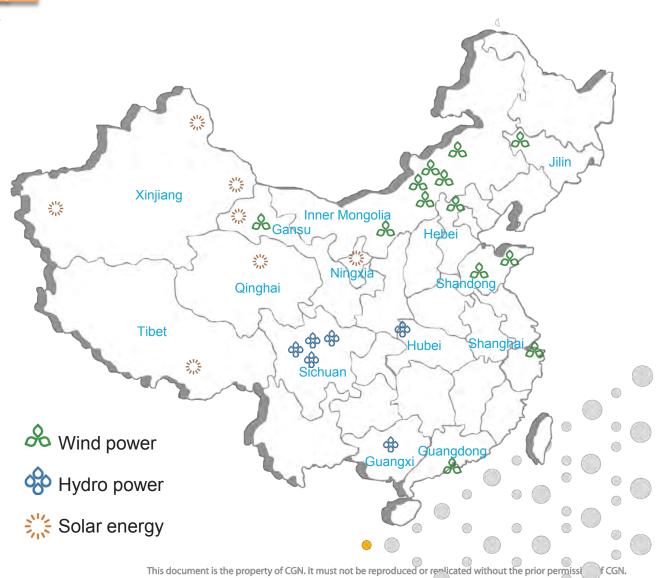
**Huizhou project** 

Fangchenggang Phase II(Hualong)



# 1.2 Renewable Energy

- Wind power an installed capacity of 435 MWe for wind power generators in operation; by 2020, its overall performance in wind power will be at the forefront in China
- Hydro power having a holding capacity of 1.47 million kW in operation; acquired the development right to a number of projects in Sichuan, Guangdong, Guangxi, Hubei etc
- Solar energy photovoltaic power stations with a total capacity of 600,000 kW have been put into operation; by 2020, CGN will develop into a leading solar power enterprise in China
- Energy conservation and nuclear technology application considerable progress has been made in these fields, becoming new economic growth points for CGN





## 1.3 Uranium Resources

- having obtained state-granted franchise for nuclear fuel import and export
- having control over 307,700 tons of uranium resources and secured 79,000 tons of trading volume, which is expected to meet the refueling needs of 30 gigawatt units for 30 years

#### Kazakhstan

CGN and China Nuclear Energy Industry
Corporation (CNEIC) have jointly formed the
Semizbay uranium company limited

continuing to promote the uranium exploitation business in Canada, Africa and Central Asia

#### Uzbekistan

CGN has founded a uranium mine exploitation and survey joint venture company, which is the first foreign company that has obtained a sandstone type uranium deposit in Uzbekistan

Having signed several cooperation agreements with uranium exploration companies in China

#### Namibia

taking over Husab project, which is now the third largest uranium deposit in the world

#### Australia

Having taken over the listed company EME (Energy Metals Limited) and acquired all the qualifications for natural uranium trade in Australia



# 02 Our Performance

— to achieve the highest level and best performance in safety, economy and environmental protection



# 2.1 Guardian of Secure Energy

Safety, **Our Commitment** to Society and Public



20 years of safe operation and **Energy supply powering** 

Rapid development Of Shenzhen

put into commercial operation

1994 2014 By April

2014

Unit 1 of GNPS had operated safely for 4142 consecutive days, ranking the rst among the 64 units of similar design in the world.

Over 20 years, six units of GNPS, Ling Ao Nuclear Power Station (LNPS) Phase I and Since 1999, CGN has been participating in the annual safety performance challenge among units of the same type organized by EDF to contest with over 60 units of the same type from France, China, Germany, South Africa, etc, winning a total of 31 first awards.

#### Localization ratio



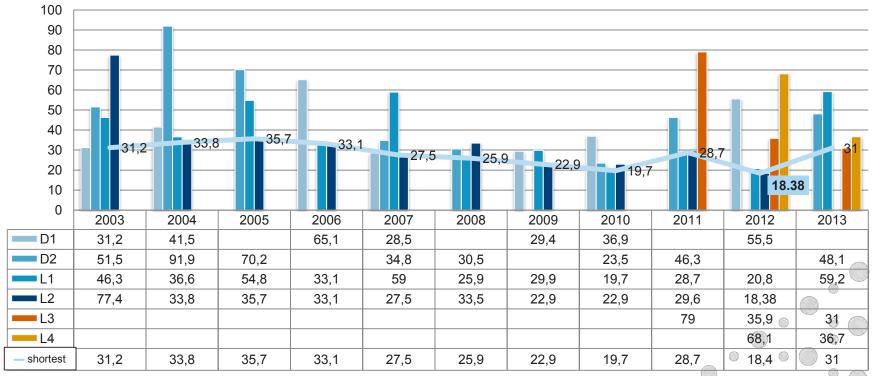
1994.2.1 Phase II were put into operation in Unit 1 of Daya Bay NPP was Succession.



# 2.2 Nuclear Power Operation Performance

- implementing unified management principles, standards, requirements and methods
- building an integrated operation platform for regional operation, outage contracting, spare parts supply, technical support and etc.



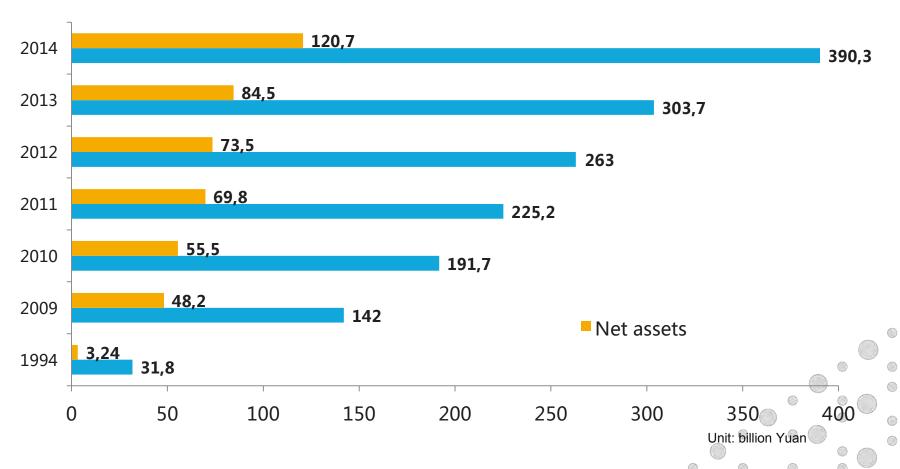


In 2012, Unit 2 of Ling Ao Phase I set a record 18.38-day outage duration.



## 2.3 Economic Performance

#### A yearly comparison between total assets and net assets





# 03 Our Presence in Romania

— to enter into win-win cooperation with Romanian Partners



# 3.1 Our aspirations

**Our Expectation** Developing clean energy to benefit Romania



**Our Core Values Doing Things Right** in One Go



Vision To Build a worldclass clean energy partnership.





Cooperation

Working with Romanian and Canadian partners

Basic principles Safety First **Quality Foremost** Pursuing Excellence





Honesty and transparency, Professionalism, Effective execution, Team spirit

Code of Conduct for Management

Role model, Business savvy, Caring for staff,

Justness and integrity



#### 3.2 Benefits for C3&4

- Restarting C3&4 will significantly contribute to Romania's energy strategy, including carbon emissions and electricity exports.
- Restarting C3&4 makes it possible to reinvigorate valuable existing assets: existing structures, heavy water, and initial fuel load that are estimated to be worth nearly 1 billion euros (according to Romanian estimates). Otherwise, these assets could become permanent sunk costs. Current EN employees and those reserved by SNN will be able to keep their jobs.
- Against the backdrop of China's widening cooperation with Central and Eastern Europe (CEE), the introduction of China's funding and excellent engineering and operation management experience serves as testimony to deepening bilateral cooperation between China and CEE providing opportunities for broader and deeper bilateral partnership, as well as laying a solid foundation for consolidating Romania's political and economic position within CEE.





- Inject tremendous impetus into nuclear industry related businesses to promote revenue increase and overall growth.
  - (1) Around 15% of the assets already invested in or reserved can be brought back to life, and around 20%-30% of C3&4 EPC scope worth around 1.5 billion euros based on current estimates could be awarded to Romanian companies, directly or indirectly.
  - (2) Generate 5000 -- 20000 at the peak -- jobs during the course of construction, directly or indirectly.
  - (3) Generate 5000 jobs, directly or indirectly, during operations phase with operations assigned to SNN.
  - (4) Contribute to Romanian industrial output with an annual production of 11 TWh.
  - (5) Consumption of cooling water, accounting for 8% of operation cost, will boost Romanian government coffers.
  - (6) Around 22 million euros per year will be paid to Romanian government upon the commencement of C3&4 commercial operations for decommissioning and low-and-medium waste treatment.



## 3.3 Win-win



Job Opportunities

1.5-2 billion for subcontracts

**GDP** contributions

# China, Romania & Canada

**Investment Opportunities** 

Equipment export/localization

Financial support





Work together and identify the best way forward to finalize Cernavoda Units 3/4 project in a spirit of mutual benefits and win-win cooperation.

# THANK YOU.

Q&A