The Renewable Energy Development in China

Zhuang Xing
Energy Research Institute
zhuangxing@eri.org.cn

Dec.18, 2006

Contents

1. Resource, Status and Target
2. The Scenario Study on Renewable energy by Provinces
3. Policies and Strategies for Supporting RE Development

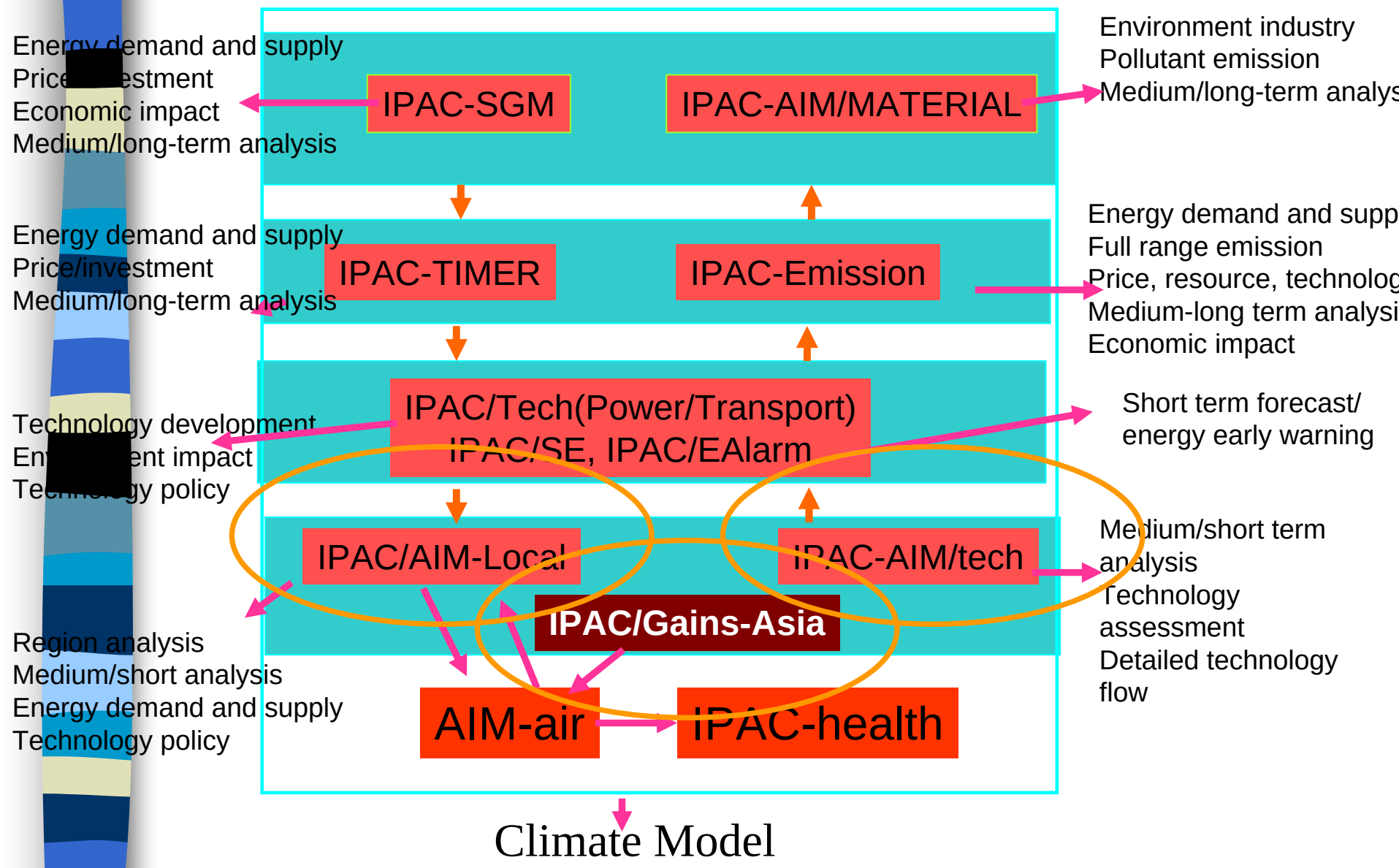
1.1 Resource and Developing Status of RE in China

	Resource	Capacity in 2005
Hydro power	400GW	117GW (34.1GW)
Wind power	1000GW	1266MW
Biomass	800-1500 Mtce	8 B cm. biogas, 500 gas stations
		1.02Mt fuel ethanol, 0.02Mt bio-diesel
	45GW	2000MW
Solar	170Btce	70MW+1MW
		80 Mm^2 (15 Mm^2)
Geothermal	1500MW	32MW
	200Btce	8Mm2

1.2 Target for RE Development in China

	2010	2020
Hydro power	180GW	300GW(70GW)
Wind power	5GW	30GW
Biomass	19B cm.	44 B cm.
	2Mt fuel ethanol, 0.2Mt bio-diesel	10Mt fuel ethanol, 2Mt bio-diesel
	5500MW	30GW
Solar	300MW	1800MW
	150 Mm^2 sqm	300 Mm^2 sqm

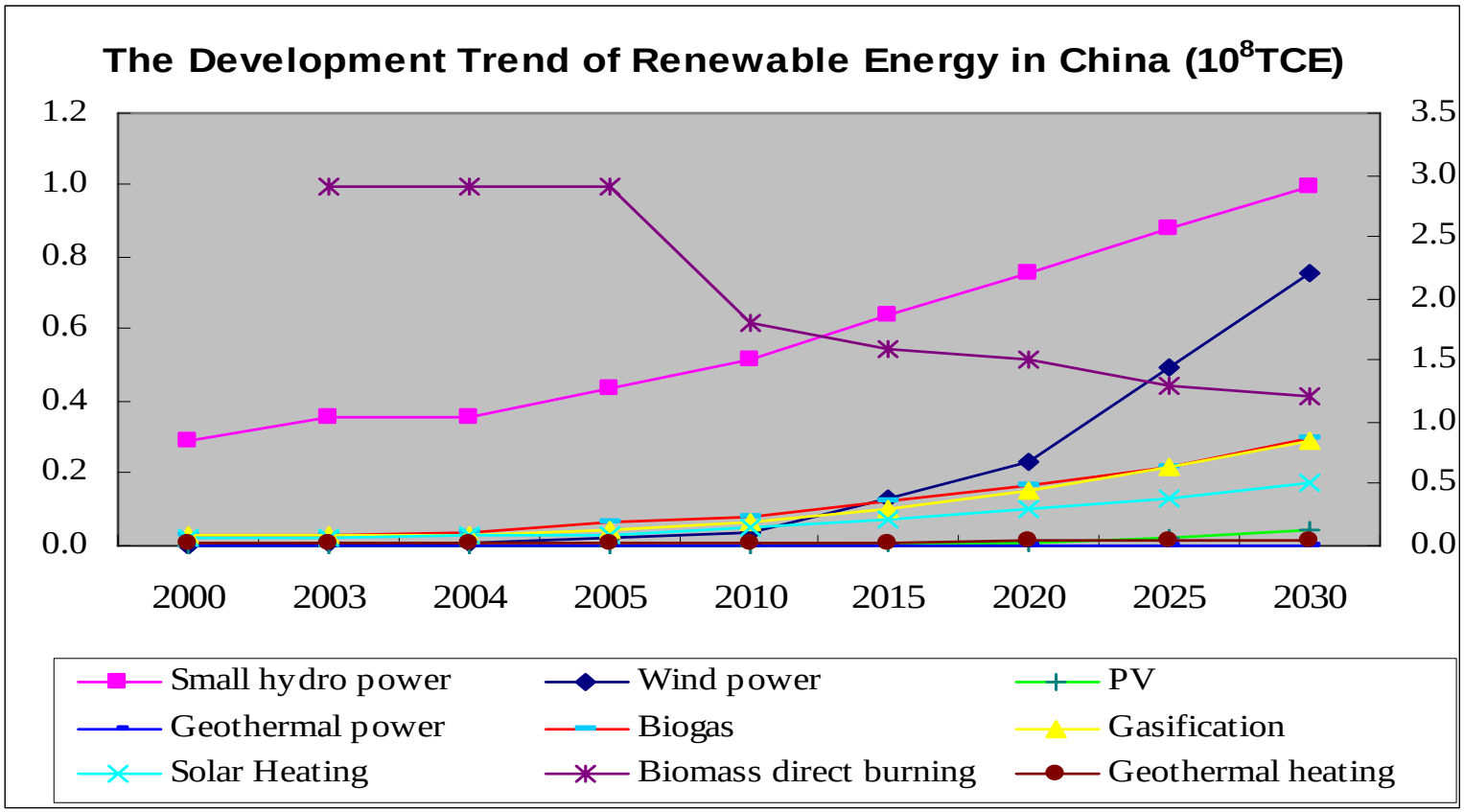
Framework of Integrated Policy Model for China (IPAC)



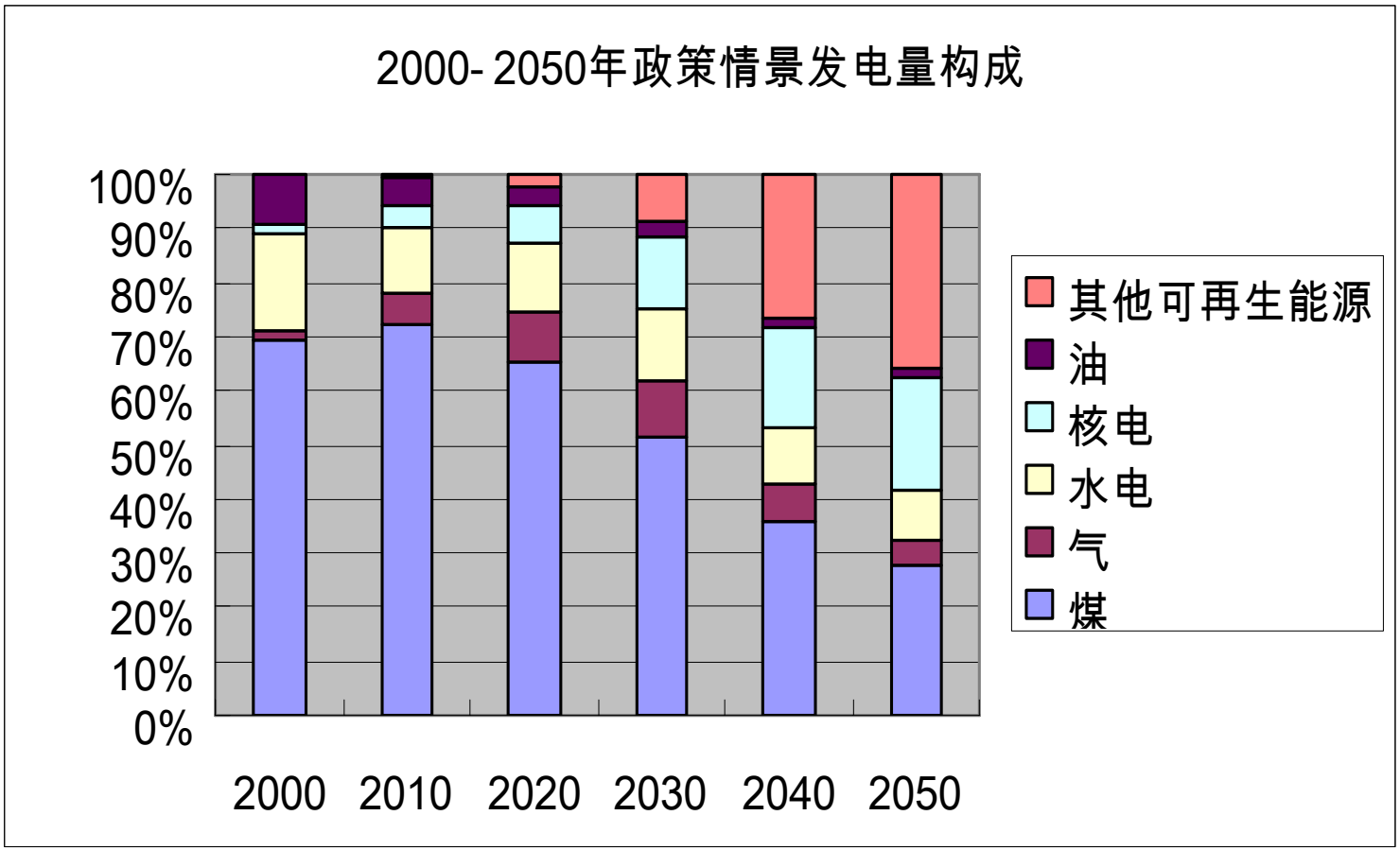
Technology Option of Renewable Energy in IPAC

部门 Sector	技术选择	Technology Option	2020 基准情景 Baseline Scenario	2020 强化情景 Policy Scenario
发电 Power Generation	陆上风电	Onshore Wind Power	14000MW	28000 MW
	海上风电	Offshore Wind Power	500 MW	8000 MW
	生物质直接燃烧发电	Biomass Burning Power	200 MW	5000 MW
	生物质气化发电	Biomass Gasification power		500 MW
	生物质 IGCC	Biomass IGCC	100 MW	1000 MW
	养殖场沼气发电	Biogas Power	200 MW	1500 MW 瓦
	垃圾发电	Garbage Power	500 MW	3000 MW
	太阳能光伏发电	PV	40 MW	100 MW
	太阳能热发电	Solar Thermal Power	200 MW	3000 MW
	地热发电	Geothermal Power	25 MW	200 MW
	小水电	Small Hydro Power	40000 MW	70000 MW
居民生活 Residential	农村生物制气灶	Biomass Oven in rural	13% Denizen	45%Denizen
	农村生物制气采暖	Biomass Heating in rural		10%
	农村生物制气热水	Biomass Hot Water		10%
	农村太阳能热水	Solar Hot Water in rural	20% Denizen	80%Denizen
	城市太阳能热水	Solar Hot Water in urban	10% Denizen	25% Denizen
	地热热水	Geothermal Hot Water		5%
服务业 Service	城市太阳能热水	Solar Hot Water in urban	3%	10%
	地热热水	Geothermal Hot Water		5%
交通 Transportation	乙醇	Fuel Ethanol	2.50MT	12MT
	生物柴油	Bio-diesel	0.50MT	4MT
	生物制二甲醚	Biomass DME		0.2MT

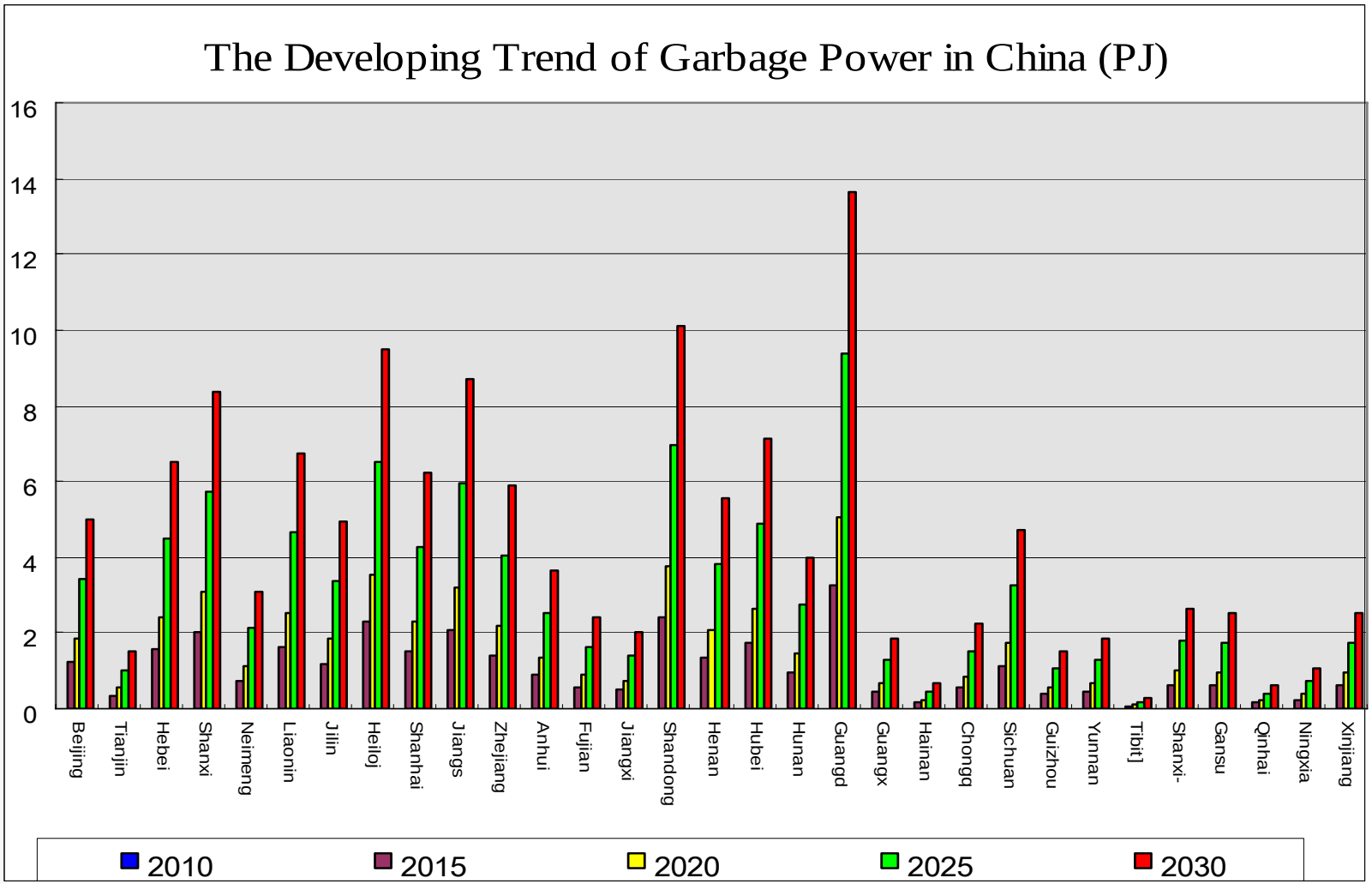
The Development Trend of Renewable Energy in China



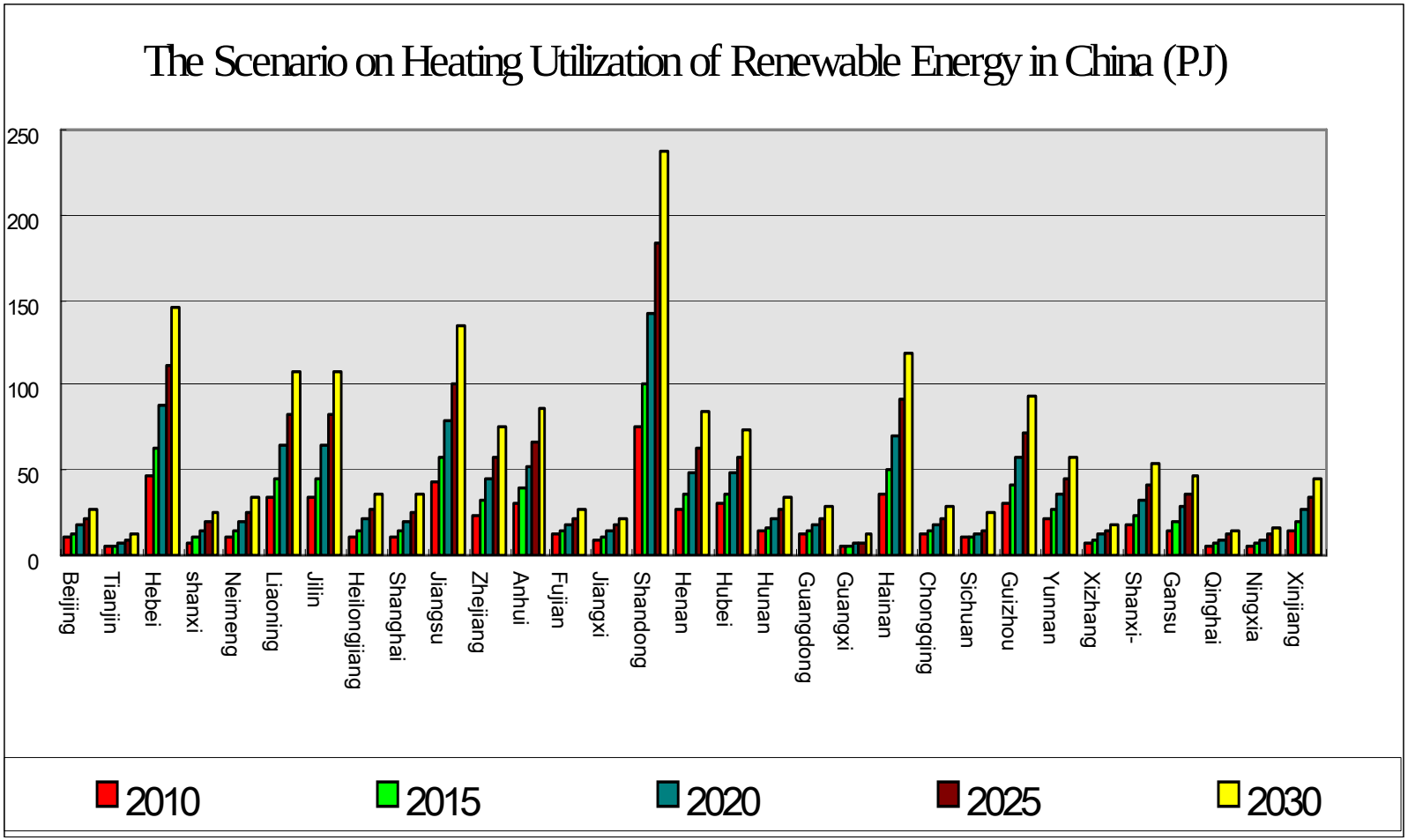
2 The Scenario Study on Renewable Energy



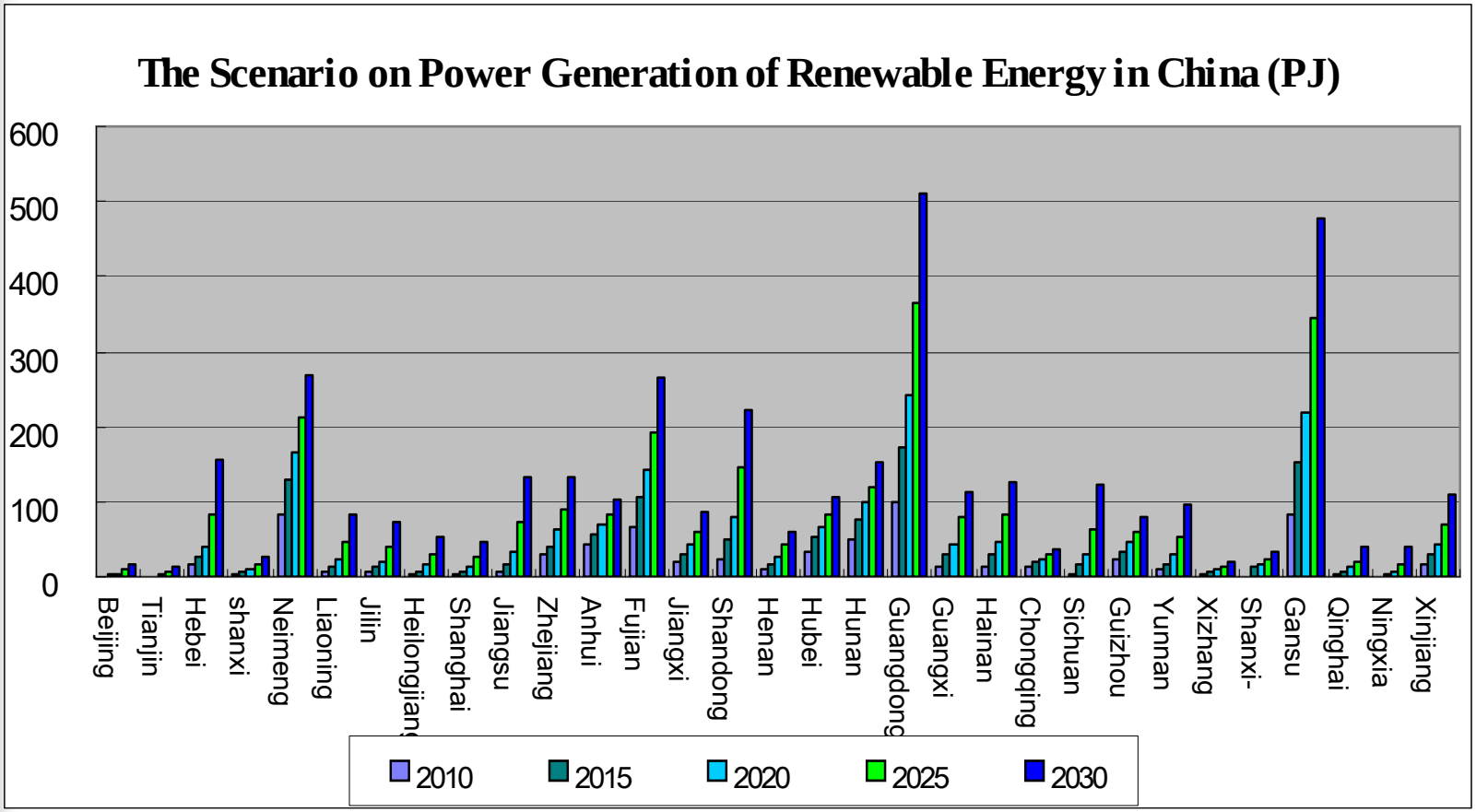
2 The Scenario Study on Renewable Energy by Provinces



2 The Scenario Study on Renewable Energy by Provinces



2 The Scenario Study on Renewable Energy by Provinces



3 Policies and Strategies for Supporting RE(1)

- Policy System under <Renewable Energy Law>
  - The system on constituting national targets
  - The system of grid connection priorities
  - The system of classifying tariffs for RE electricity
  - The system of sharing cost at national level
  - The system of renewable energy special fund.

- The Others Corresponding Policies for the Implementation of RE Law
  - Favorable Tax Polices
  - Technology Criterions and National Standards
  - Capacity Building

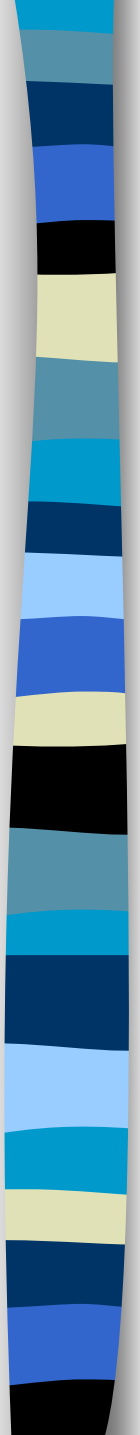
3 Policies and Strategies for Supporting RE(2)

- Major Projects for Renewable Energy Development

PV : The Solar Roof Plan,
Demonstrative power station in desert.
Biomass: Planting of energy crops and energy forestry,
Biomass power generation,
Biology liquid fuel and granular fuel.
Wind power: Wind farm development plans,
Establishment of Wind-power Base of Gigawatt Class.

Establishment of Wind-power Base of Gigawatt Class envisaged from 2010 to 2020

- Inner Mongolia: 10GW
- Heilongjiang: 5GW
- Jilin: 2GW
- Zhangbei: 5GW
- North of Hebei: 1GW
- Gansu: 5GW
- Ninxia: 2GW
- Xinjiang: 1GW
- Liaoning: 500MW onshore, 500MW offshore
- Shangdong: 500MW onshore, 500MW offshore
- Jiangsu & Shanghai: 2GW onshore, 1GW offshore
- Fujian & Zhejiang: 1GW onshore, 1GW offshore
- Guangdong & Hainan: 1GW onshore, 1GW offshore



Thanks!

- **Biomass utilization could have quite large potential in China. In Biomass scenario in this study, Biomass use could be 310Mtce in 2030, with policy support, taking share of 8% in total primary energy demand.**
- **Power generation and transport fuel is biggest potential for biomass use.**
- **Modern biogas utilization in rural household could contribute a lot for clean energy use. This has close link with MDG in rural area.**
- **Technology R&D for modern biomass use is crucial, and need more support from government**