Using BEST & ELITE software to create low-carbon development strategy for Jinan

ELITE Input Data Requirements					
Primary category	Indicator name	Indicator scope	Units	Benchmark	Source
ENERGY/CLIMATE	CO_2 Intensity	Total CO_2 emissions/capita	tons/capita/year	2.19	UN Habitat State of the World 2008/2009, Part 3, p. 135: http://www.unhabitat.org.jo/en/inp/Upload/1051651_Part%20three.pdf; Oslo is picked as benchmark.
	Residential Building Energy Intensity	All residential building energy intensity	kWhe/m2/year	132.7 (Severe Cold); 88 (Cold Climate); 69.7 (Hot summer-cold winter); 54.7 (Hot summer-warm winter); 50 (Moderate)	Jiang Yi, China Building Energy Efficiency Development Report; LNBL expert team
	Public Building Electricity Intensity	Public building electricity intensity	kWh/m2/year	70	Jiang Yi, China Building Energy Efficiency Devleopment Report. Shenzhen data is set as benchmark.
	Share of Renewable Electricity	Renewable energy (excluding nuclear) as a share of total city purchased electricity	% of total electricity purchased	20%	National 12th Five Year Plan for New Energy Devvelopment and Caofeidian.
WATER	Municipal Water Consumption	Municipal water consumption/cap	liter/cap/day	52.1	Hamburg(2009).
	Industrial Water Consumption	Industrial water consumption/industrial GDP	liter/annual 10,000 RMB	80.5	World Bank, TRACE tool.
	Wastewater Treatment Rate	Percentage of waste water receiving at least primary treatment	% of total waste water	100%	LBNL expert team decision.
	Drinking Water Quality	Percentage of total drinking water meeting Grade III or above	% of total drinking water	100%	LBNL expert team decision.
	Recycled Water Use	Percentage of annual municipal water use sourced from water reclamation	% of total municipal water	30%	MoHURD Eco-gardern City Program standard.
	Energy Intensity of Drinking Water	Energy intensity of drinking water	kWhe/l	0.1	World Bank, TRACE tool. Sydney(2009).
AIR	PM_{10} Concentrations	Daily average PM10 concentration	ug/m^3	20	WHO(2006). 24 Hour Mean.
	NO_x Concentrations	Daily average NO_x concentration	ug/m^3	40	WHO(2006). 24 Hour Mean.
	SO_2 Concentrations	Daily average SO_2 concentration	ug/m^3	20	WHO(2006). 24 Hour Mean.
	Air Pollution Days	Proportion of days per year that air quality meets Level II standard ("blue sky" threshold	% of total days per year	100%	LBNL expert team decision.
WASTE	Municipal Waste Intensity	Kg of total collected MSW per capita	kg/capita/year	0.29	Shanghai target. http://www.shanghai.gov.cn/shanghai/12wgh.pdf
	Municipal Waste Treatment Rate	Percentage of collected MSW receiving "harmless" treatment	% of total collected MSW	100%	LBNL expert team decision.
	Industrial Recycling Rate	Comprehensive industrial waste utilization rate	% of industrial solid wastes	100%	LBNL expert team decision.

MOBILITY	Public Transportation Network Penetration	Public transport penetration rate as a proportion of total city area	km/km2	4	Upper end of national target: code for transport planning on urban road.(GB 50220-95): 3.2.2
	Public Transportation Share of Trips	Share of public transportation trips in all trips	% of all trips/year	60%	12th Five Year Comprehensive Plan for Transport System, National target city with 10 million population.
	Access to Public Transportation	Percentage of built area within 500 meters of public transit	% of built area	90%	MoHURD, Public Transport Demonstratin Project, http://www.moc.gov.cn/zizhan/siju/daoluyunshusi/chengxiangkeyun/guanliwenjian/201111/t20111128_1146590.html
	Municipal Fleet Improvement	Proportion of energy efficient and new fuel vehicles (electric, hybrid, biofuel, <1.6 liters and below cars) in the city vehicle fleet and taxi fleet	% of total vehicles	100%	LBNL expert team decision.
ECONOMIC HEALTH	Employment	Registered unemployment rate	% of eligible adults	3%	Chinese City Statistic Yearbook, Chongqing 12th Five Year Plan, 2015 target.
	Environmental Protection Spending Ratio	Ratio of environmental protection spending to GDP	% of annual GDP	3%	National 12th Five Year Plan for Environmental Protection.
	R&D Investment Ratio	Ratio of R&D spending to GDP	% of annual GDP	5.50%	Beijing 12th Five Year Plan
	Organic Certification of Agricultural Land	Percentage of total agricultural land area certified as organic	% of agricultural land	1%	FiBL-IFOAM survey.
LAND USE	Green Space Intensity	Average per capita public urban boundary inclusive green space	m^2 of green space/capita	100	EIU Asia, Hong Kong average.
	Share of Mixed Use Zoning	Percent of total city land zoned for mixed use	% of total area	13.30%	Manhatten as 13.3% http://www.nyc.gov/html/dcp/pdf/landusefacts/landuse_tables.pdf.
	Population Density	Land use per capita	m^2/capita	100	LBNL expert team decision.
SOCIAL HEALTH	Health Care Availability	Health care practitioners per 1000 persons	Health care practitioners/1000 persons	14	Beijing 12th Five Year Plan; China Statistic Yearbook 2011.
	Share of Workers from Higher Education	Percent of employed population with university degree	% of employed persons	45%	U.S. ACS 2010, San Jose as benchmark.
	Internet Connectivity	Percent of households with an internet connection	% of households	100%	LBNL expert team decision.
	Eco-city Planning Completeness	Eco-city planning and policy completeness	100 points	100%	LBNL expert team decision.
	Affordable Housing Availability	Percentage of total housing designated as "affordable"	% of total housing	20%	National target as 12th Five Year Plan.

Note:*for data input into BEST, please refer to the software.