



GLOBAL WORKSHOP ON LOW CARBON POWER SECTOR DEVELOPMENT



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United States Energy Association

Kazakhstan

- Snapshot of the country's energy sector
- Energy efficiency
- Renewable energy
- Natural gas and clean coal
- Nuclear
- Incentives and programmes

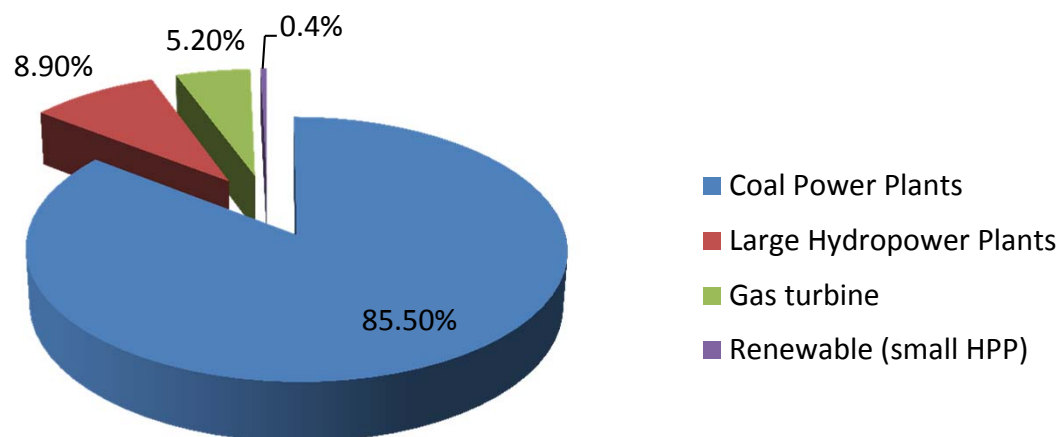
Kazakhstan



Energy sector

- Electricity production – approx. 60 power plants
- Installed capacity – 18 993 MW

Power plants

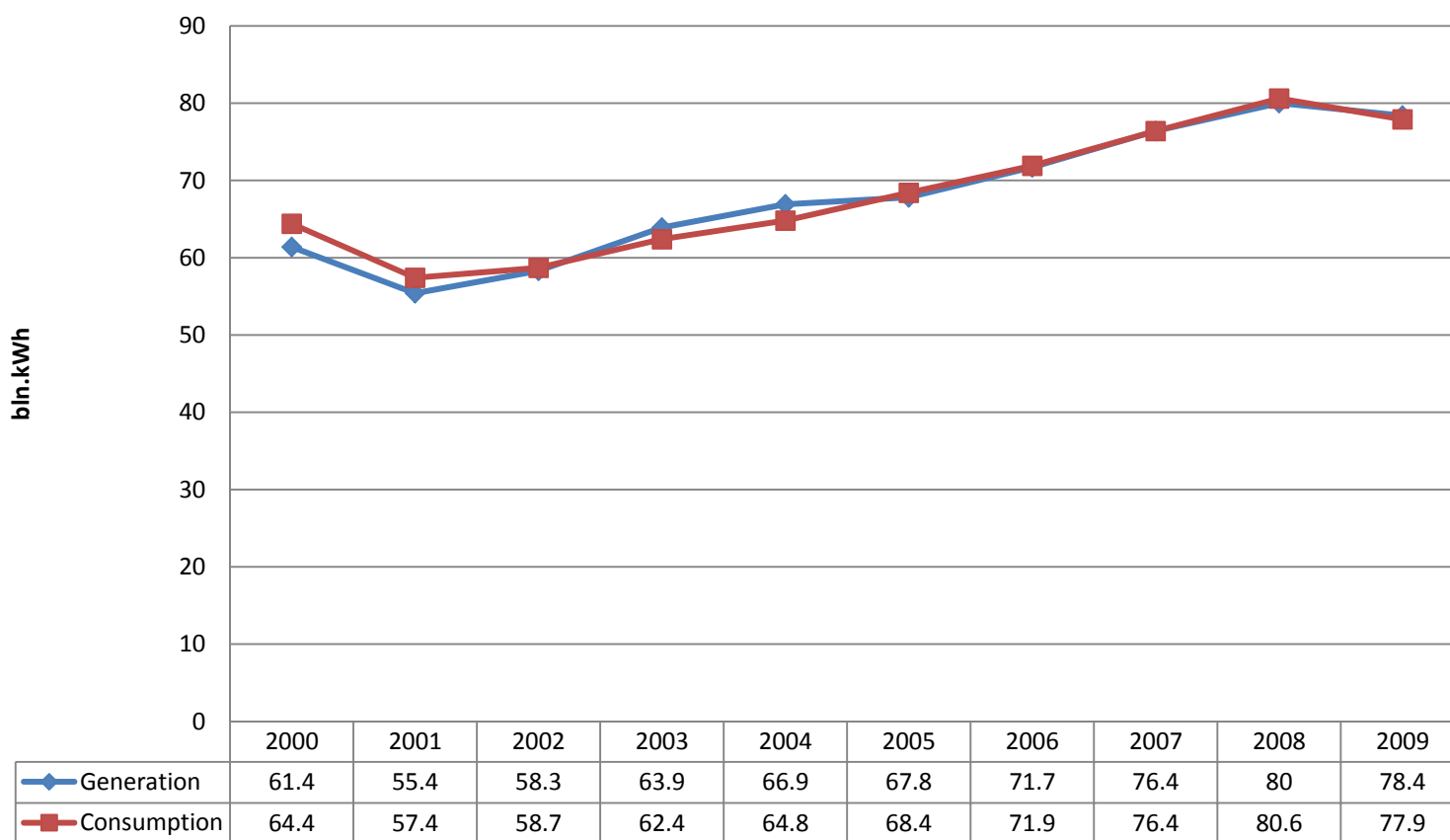


Energy sector

- The Kazakhstan Electricity Grid Operating company (www.kegoc.kz) is the state-owned transmission company. KEGOC performs functions on transmission through interregional and international level and on operational dispatch control over the countries grid.
- Regional electricity companies carry out transmission, distribution and supply of electricity on the regional/local level.
- Distribution companies on the local level.
- The wholesale market operator KOREM (www.korem.kz) as operator of the centralized electricity exchange.

Energy sector

Electricity generation and consumption balance over the period of 2000-2009



Energy Efficiency

- Ministry of Industry and New Technologies
- 1996, the special National Energy Saving Program
- December 1997, the Law “On Energy Saving of the Republic of Kazakhstan
- Draft of the Law “On Energy Saving and enhancing Energy Efficiency”:
 - Reduction of energy intensity of GDP by 10% in 2015
 - Reduction of energy intensity of GDP by 25% by 2020
 - Energy Service Company (ESCO)

Energy Efficiency

- The National Programme for Accelerated Industrial and Innovation Development of the Republic of Kazakhstan for the period from 2010 to 2014
- Regional Program for Almaty on Energy Saving Activities 2007 to 2016

Renewable energy

- Ministry of Industry and New Technologies
- The law “On Promotion of Use of Renewable Energy Sources” became effective from July 2009
- Resolutions of the Government
 - ✓ On Approval of the Rules and Terms of Coordination and Approval of Feasibility Studies and Construction Projects of Renewable Energy Sites
 - ✓ On Approval of the Rules of identifying connection point to the grid
 - ✓ On Approval of the Rules of purchasing electrical energy from qualified producer

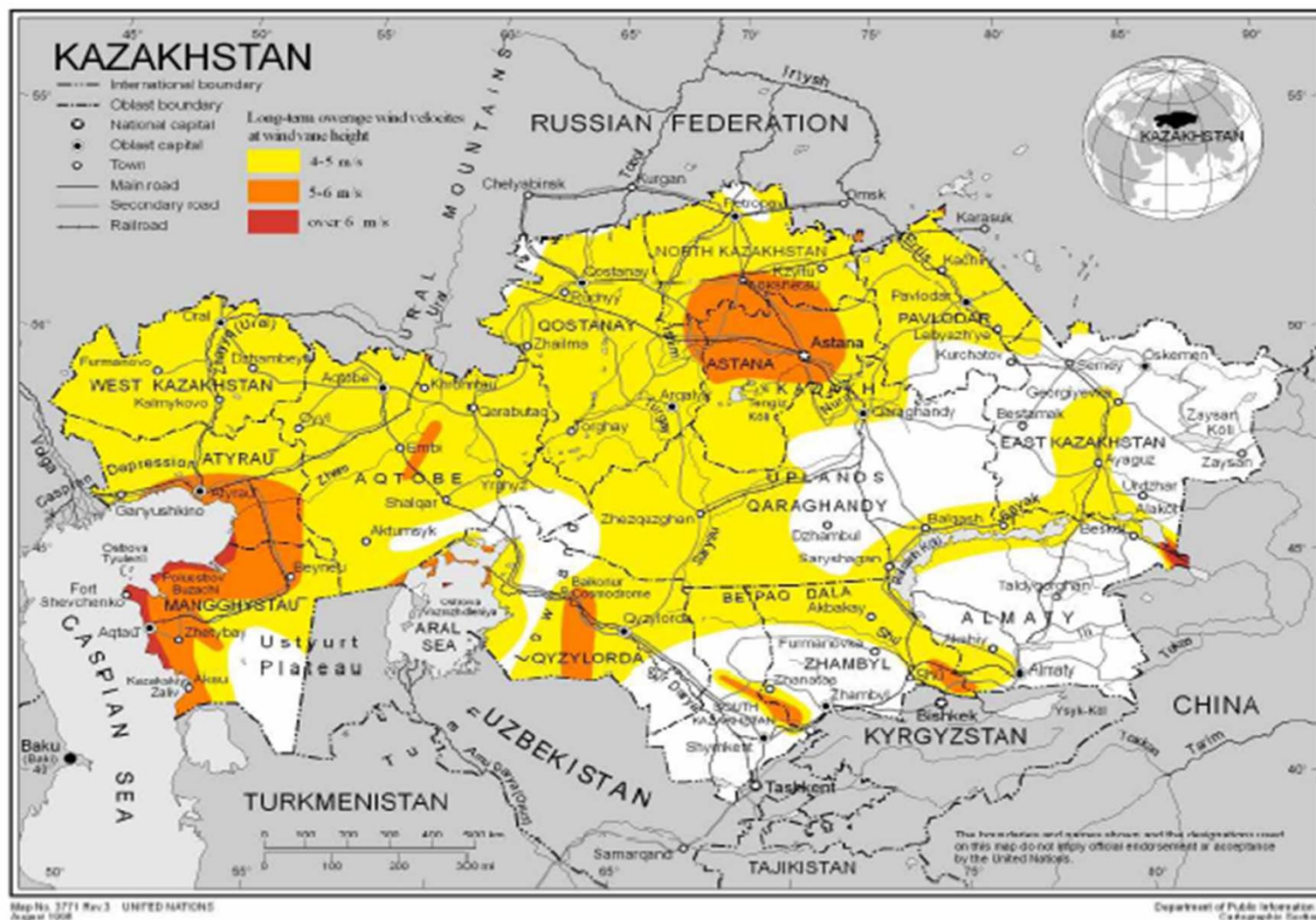
Renewable energy

- KZ is very rich - hydro, wind, solar and biofuel energy potential
- Perfect wind sites and very high solar insolation
- Potential to build tens thousands MW of renewable energy
- Potential – 100 mln tonnes of biofuels a year
- Production costs are half of in Europe and the US
- Estimated potential to reduce CO2 emissions in KZ = 25 mln t/year to 2020

Government major environmental programs:

- ✓ “Green Bridge” between Europe and Asia
- ✓ “Zhasyl Damu - Green Growth Astana Initiative”
- ✓ Concept of transition to sustainable development by 2024
- ✓ Millennium Development Goals commitments
- ✓ KZ - Copenhagen Agreement to reduce emissions by 15 % by 2020 and by 25 % by 2050
- ✓ 2020 Economic Development Strategy

Kazakhstan Wind Atlas



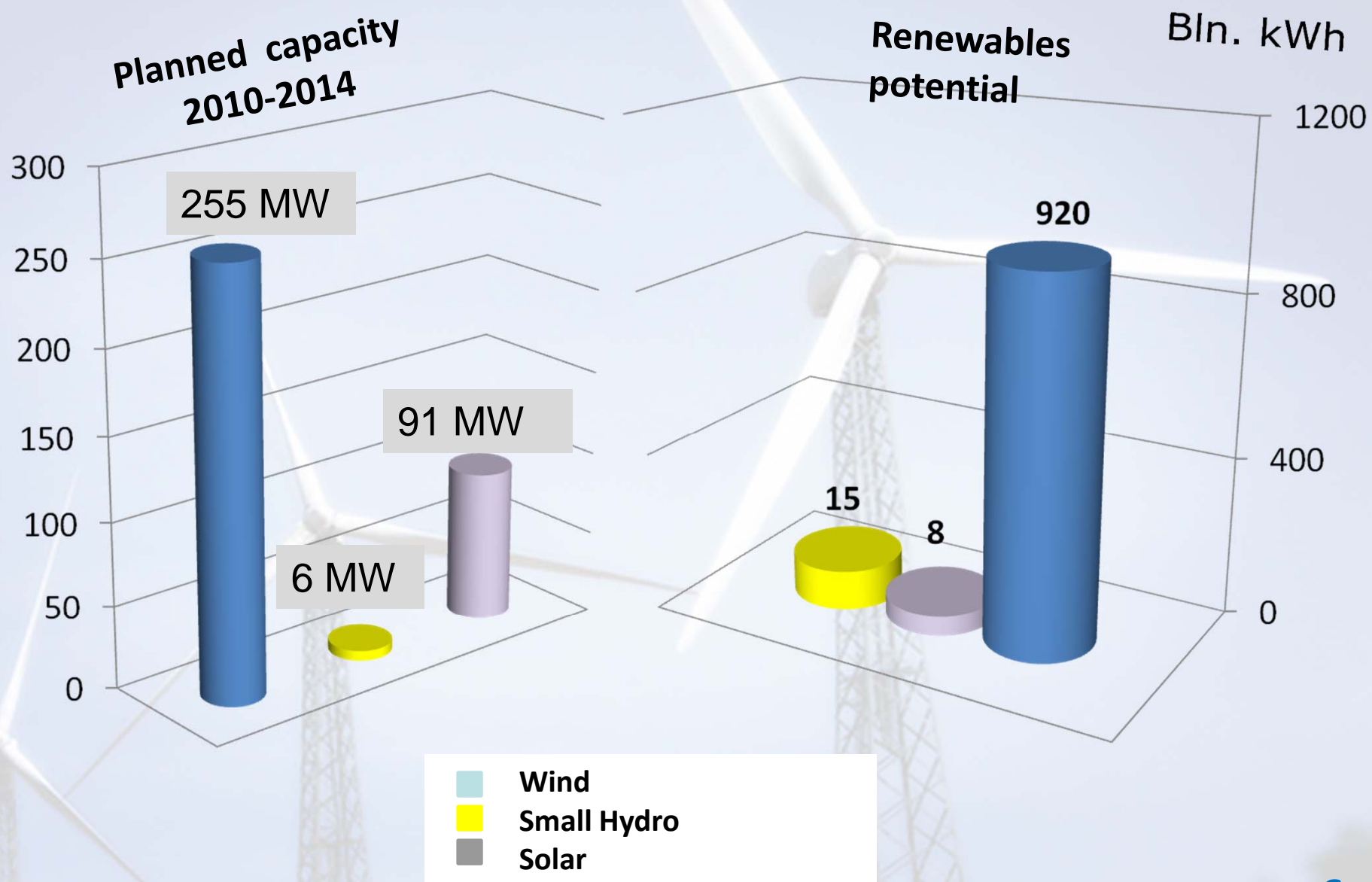
Wind atlas of Kazakhstan

Source: UNDP/GEF and Government of Kazakhstan project "Kazakhstan- Wind Power Market Development Initiative"

Kazakhstan Hydro Potential



RENEWABLES DEVELOPMENT IN KAZAKHSTAN



Natural gas and coal

Natural Gas

- About 0.5 % of world's mineral energy resources are located in KZ = 90 bln. t of oil equivalent (toe). 70 % of coal, 22 % of oil and oil condensate and 8 % of gas.
- Proven natural gas reserves in KZ = 85 trillion cubic feet (Tcf).
- Natural gas production in KZ is almost entirely associated gas.
- Karachaganak oil and gas field has proven natural gas reserves of 48 Tcf.
- KZ became a net exporter of 134 Bcf in 2009.
- 69 % of gas produced (870 Bcf in 2009) was re-injected back into the fields to enhance oil production.
- Primary focus in near term is on the construction of GTPS that will utilize local gas.

Clean Coal

- Clean coal technologies are not developed yet

Nuclear

- Ambition #1: To become the world's largest uranium producer
- Ambition #2: To become a significant supplier of nuclear fuel
- Ambition #3: To produce domestic nuclear power

Incentives and Programs

- FIT (feed-in tariff)
- The Kazakhstan Sustainable Energy Financing Facility (KAZSEFF), EBRD
- USAID, Loan Guarantee Programme 2004-2007
- UNDP, “Kazakhstan - Wind Power Market Development Initiative”
- UNDP, Removing barriers to energy efficiency in municipal sector



Thank you for your attention!

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