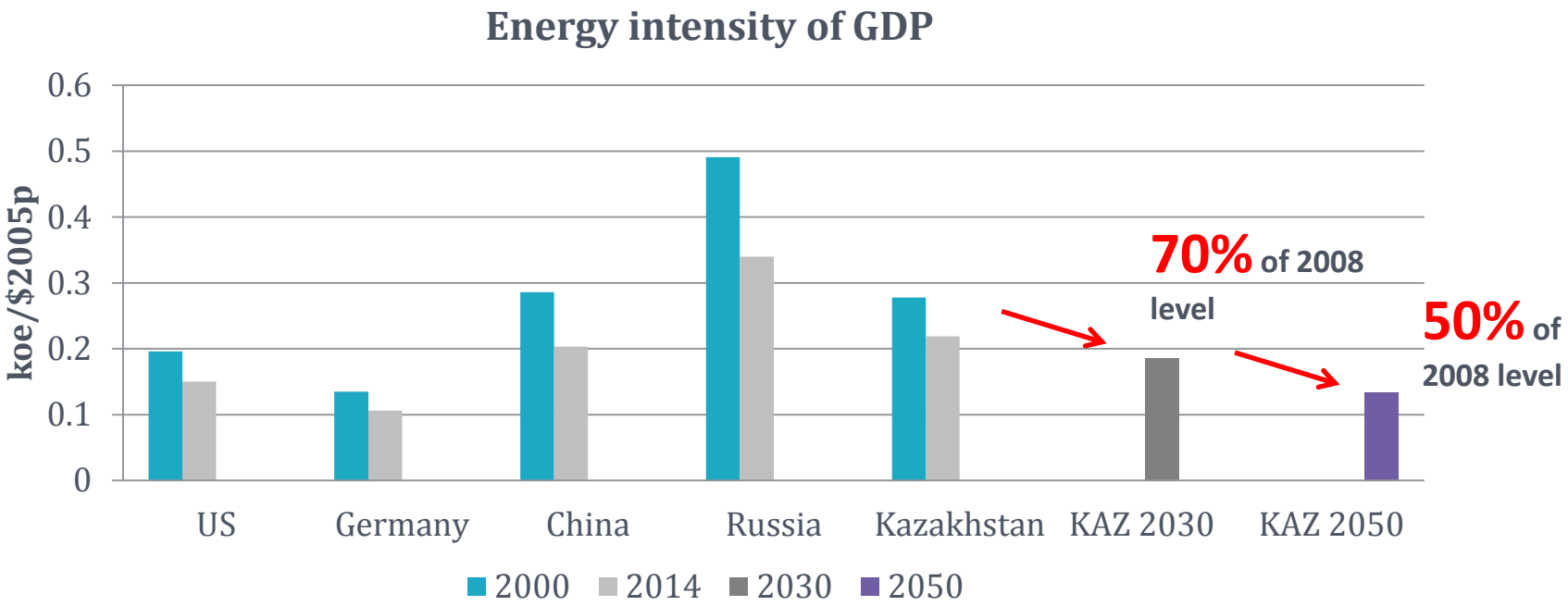
NAZARBAYEV UNIVERSITY

TRANSITION TO A GREEN ECONOMY IN KAZAKHSTAN

ENERGY AND SOLID WASTE MANAGEMENT PERSPECTIVES

Zhanna Kapsalyamova, 12 July

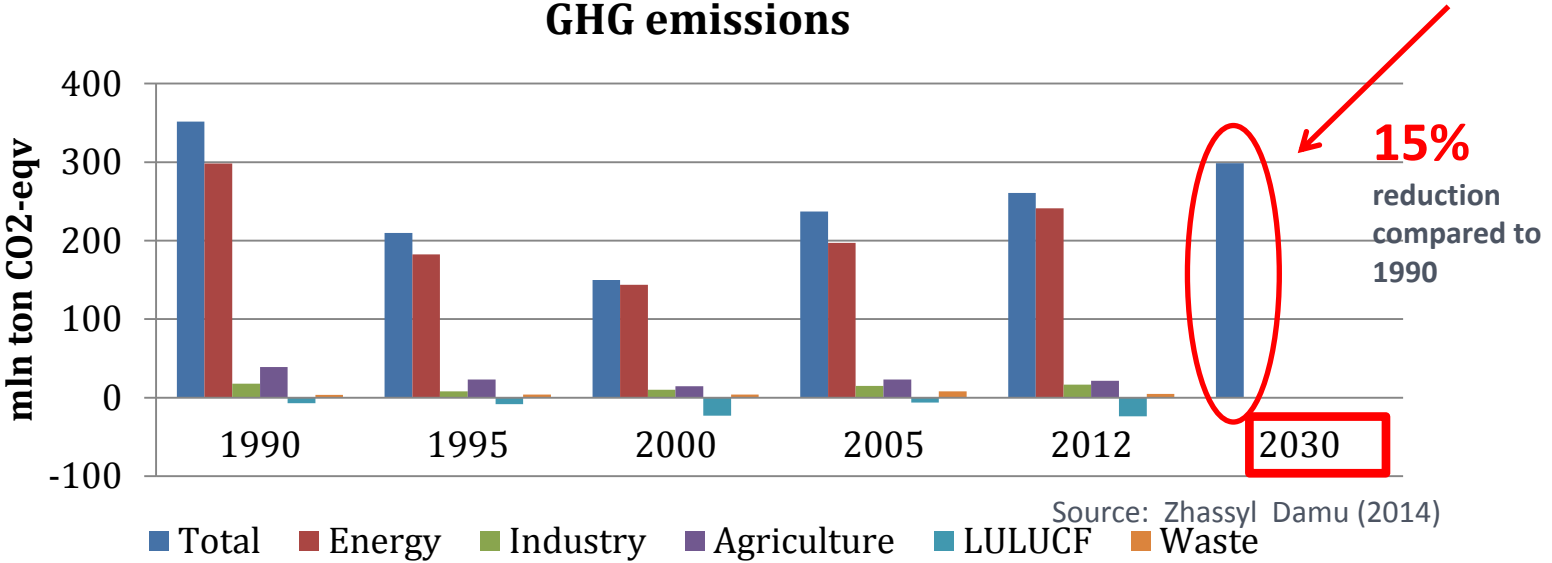
Astana 2017



High energy intensity is largely due to the abundance of cheap coal, that led to the expansion of energy-intensive sectors, including iron and steel, refinery etc.

Source: Enerdata

Notes: GDP measured in 2005 purchasing power parity dollars



INDC for COP 21

Unconditional target - **15% reduction** in GHG by 2030 vs. 1990

Conditional target - **25% reduction**

Is transition to green economy likely?

- Strategy 2050 sets the goal to turn Kazakhstan into one of 30 developed countries by 2050
- Plunge in oil prices could provide a further stimulus to diversify the economy and enhance low carbon development through
  - Economic diversification
  - Promoting renewable energy
  - Decreasing GHG emissions

Policies

Feed-in tariffs enacted in 2014 and valid for 15 years

- **34.61** KZT/KWh solar energy
- **32.23** KZT/KWh biogas
- **16.71** KZT/KWh wind energy
- **22.68** KZT/KWh hydropower

Emission trading scheme (KazETS) introduced in 2011 and enacted in 2013

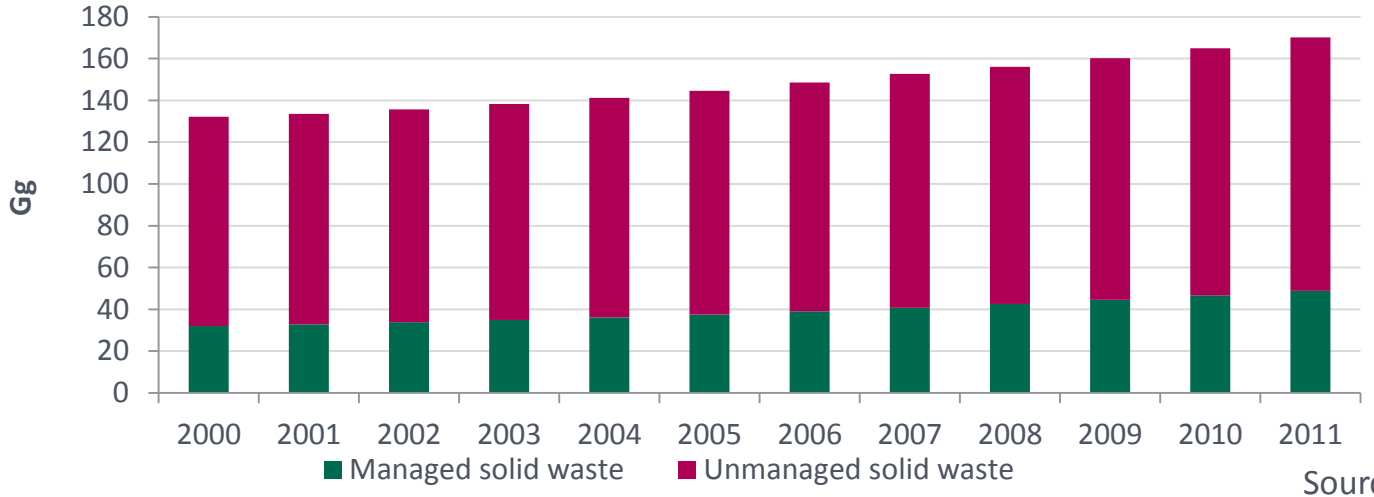
- **Sectors:** Crude oil and gas; coal mining; power; industry
- **Trading Periods:** Pilot phase (2013), Phase II (2014-2015), Phase III (2016-2020)
- **Gases Covered:** CO2 in Phase 1 and other gases after Phase I
- **Targets:**
  - **7%** below 1990 by 2020,
  - **15%** reduction by 2025 relative to 1992

Solid waste management

- **100 mln** tones of solid waste
  - **< 5%** of waste is recycled
  - **> 95%** is stored in landfills
- **More than 4,000** waste landfills
  - **6%** are managed landfills
  - **94%** don't comply with regulations

- **40%** recycling rate in 2030
- **50%** recycling rate in 2050

Methane emissions from disposing municipal solid waste to landfills



Source: KRIEC (2013)

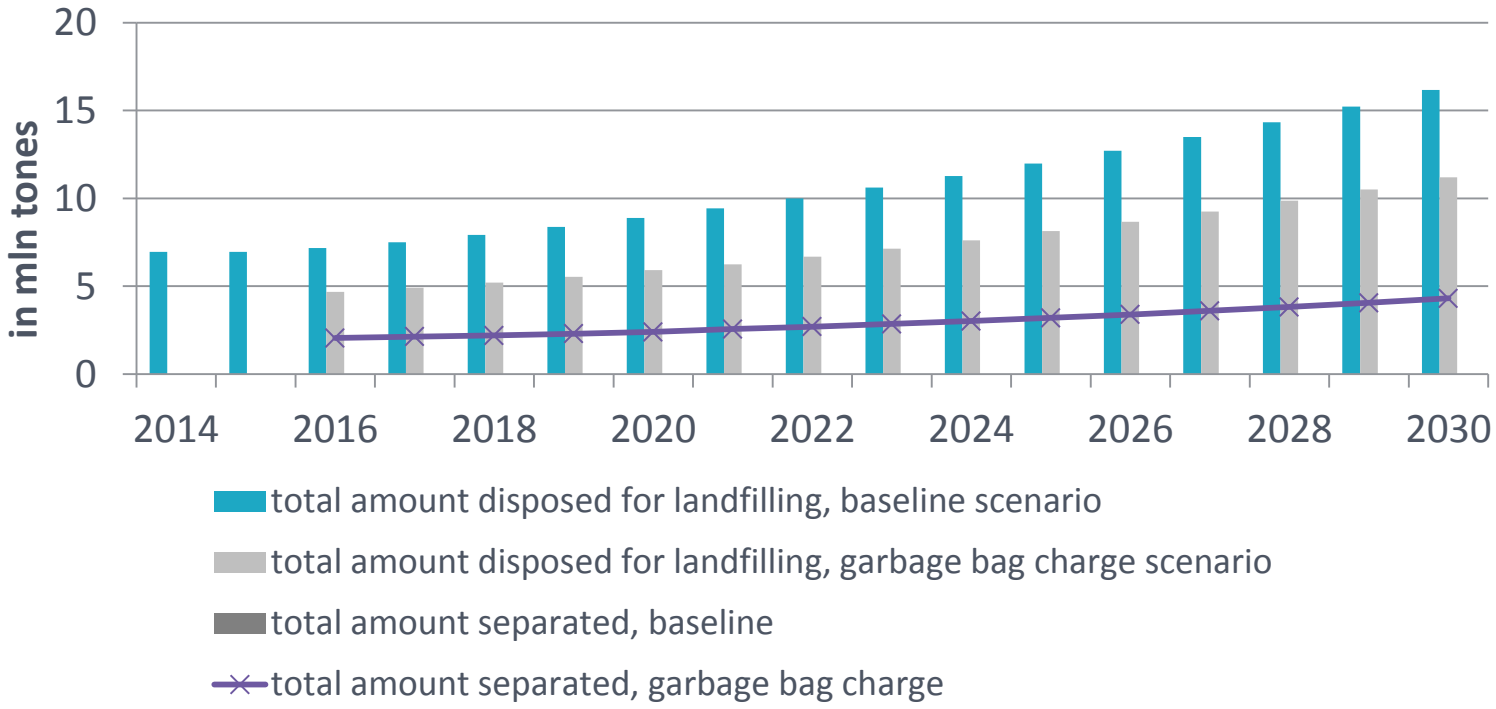
- CH4 emissions from unmanaged solid waste landfills 2.5 times more from managed solid waste landfills.
- In 2011, total CH4 emissions from disposing municipal solid waste to landfills amounted to 170 Gg
- 50 Gg were due to managed landfills and > 120 Gg to unmanaged solid waste landfills.

Scenarios

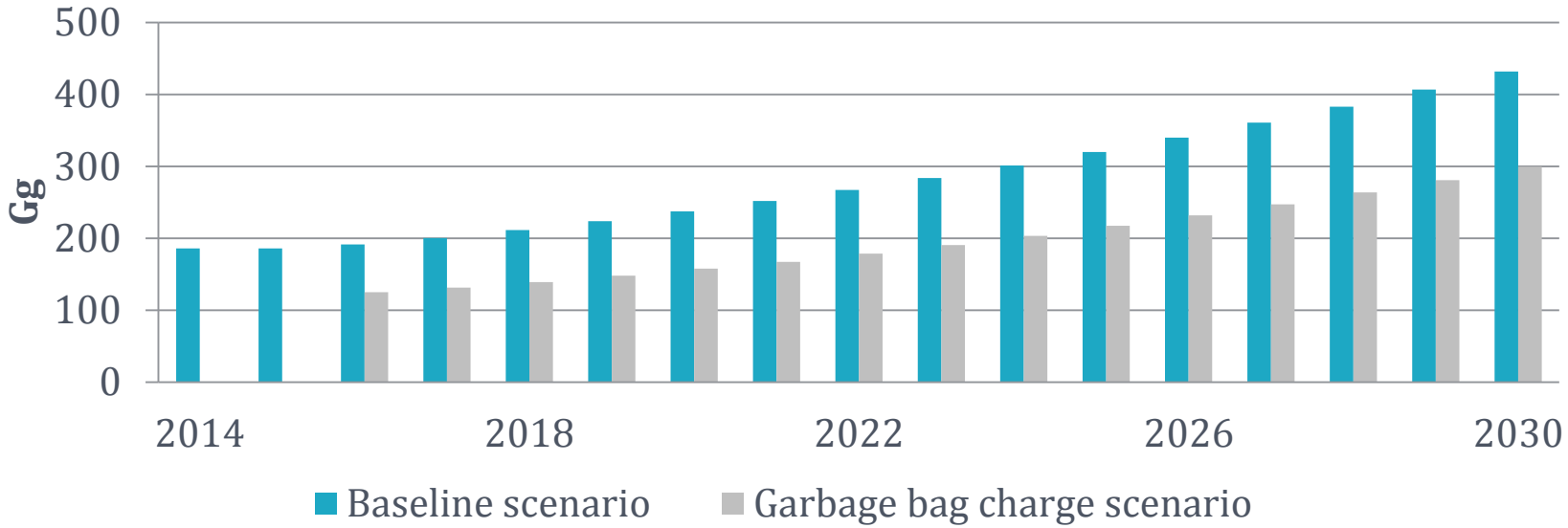
- **Baseline - Uniform Waste Disposal Fee**:
  - Uniform rate for the waste disposal
  - No recycling activities
  - Waste disposal fee

- **Garbage Bag Charge Scenario:**
  - The charge is levied per collected bag of waste disposed for landfilling
  - The revenues are used to construct recycling facilities
  - Kazakhstani waste authorities introduce two recycling streams in 2016 (e.g. for paper and glass) and one recycling stream in 2020 (e.g. for metal)

Solid waste dynamics



Methane emissions (in Gg)



Conclusions

- The solid waste management system in Kazakhstan:
  - inadequate services,
  - increased volumes of household waste
- Recycling activities are required
- Policies aiming to reduce the amount of landfilling waste
  - reduces the level of GHG emissions in Kazakhstan.
- Further promising policy instruments could be landfill bans, incineration taxes or waste prevention targets

Thank you!

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