

МЕТАНОВЫЙ ЦЕНТР

КАЗАХСТАН



METHANE CENTER

KAZAKHSTAN

Coal Methane: Potential Energy Prospects for Kazakhstan

**UNECE Ad Hoc Group of Experts on Coal in Sustainable Development
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Alekseev E.G., Mustafin R.K., Umarhajieva N.S.
Kuljinskiy ave. 1st km, 480019, Almaty, Kazakhstan
Tel: 3272-596666, fax: 3272-596650, 503375
E-mail: kazmethane@azimut.kz



What is coalbed methane (CBM)?

-CBM is natural gas from coal seams.

What is coalmine methane (CMM)?

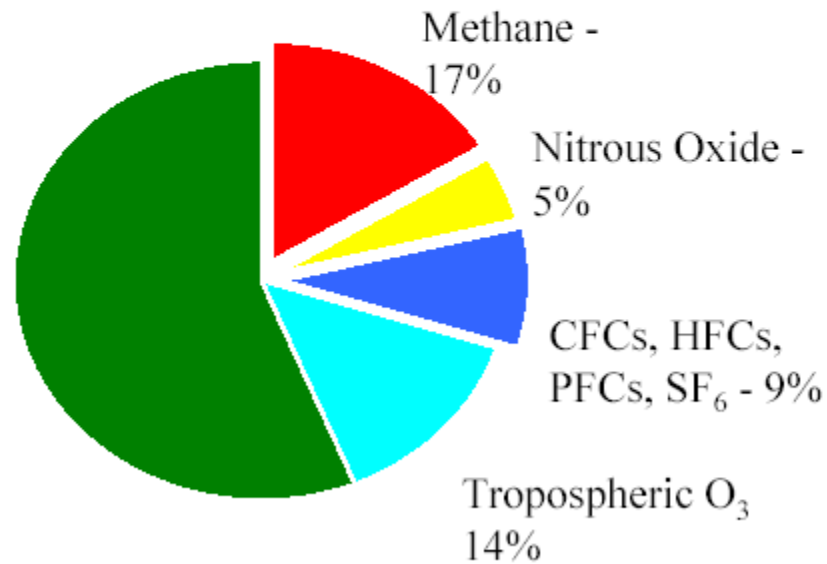
- CMM is a subset of CBM; methane gas released from coal or coal-bearing strata during coal mining operations

Methane is a Potent Greenhouse Gas

- 21 Times More Potent Than Carbon Dioxide
- 2nd Only to Carbon Dioxide as a Contributor to Global Warming

Contribution of
Anthropogenic Gases to
Enhanced Greenhouse Effect

Carbon Dioxide 55%



Source: IPCC, 1996.

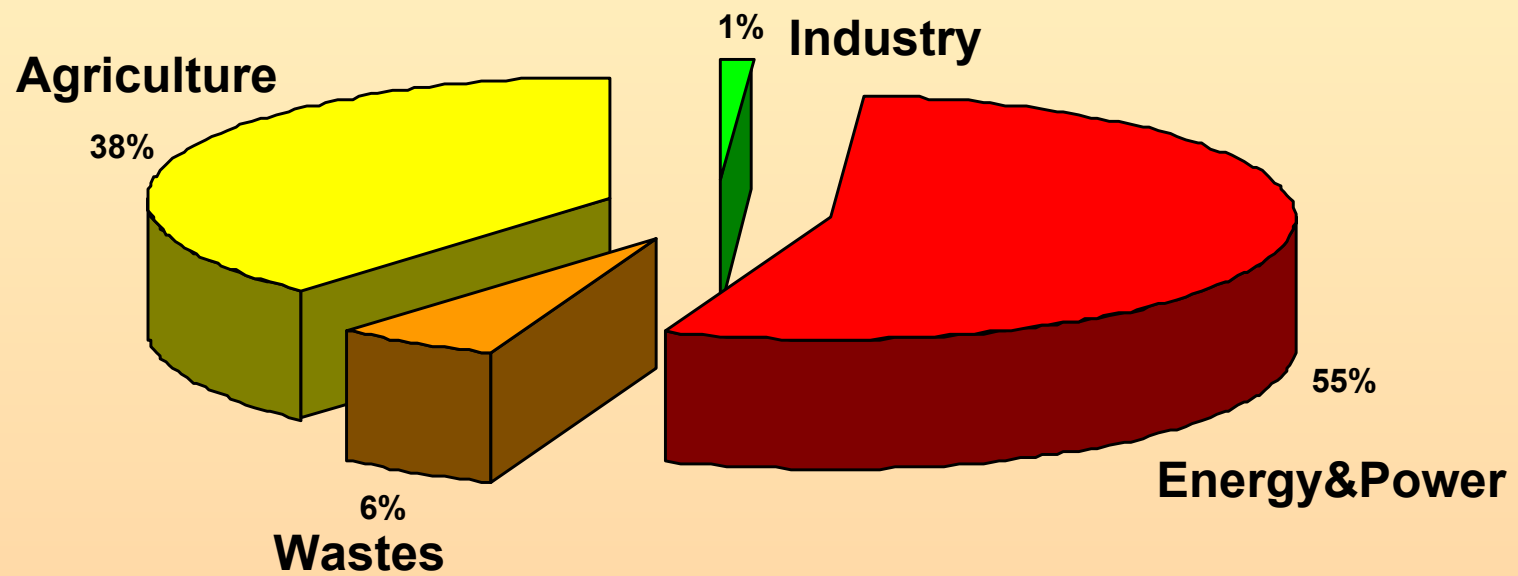
Total = 2.85 Watts/m²



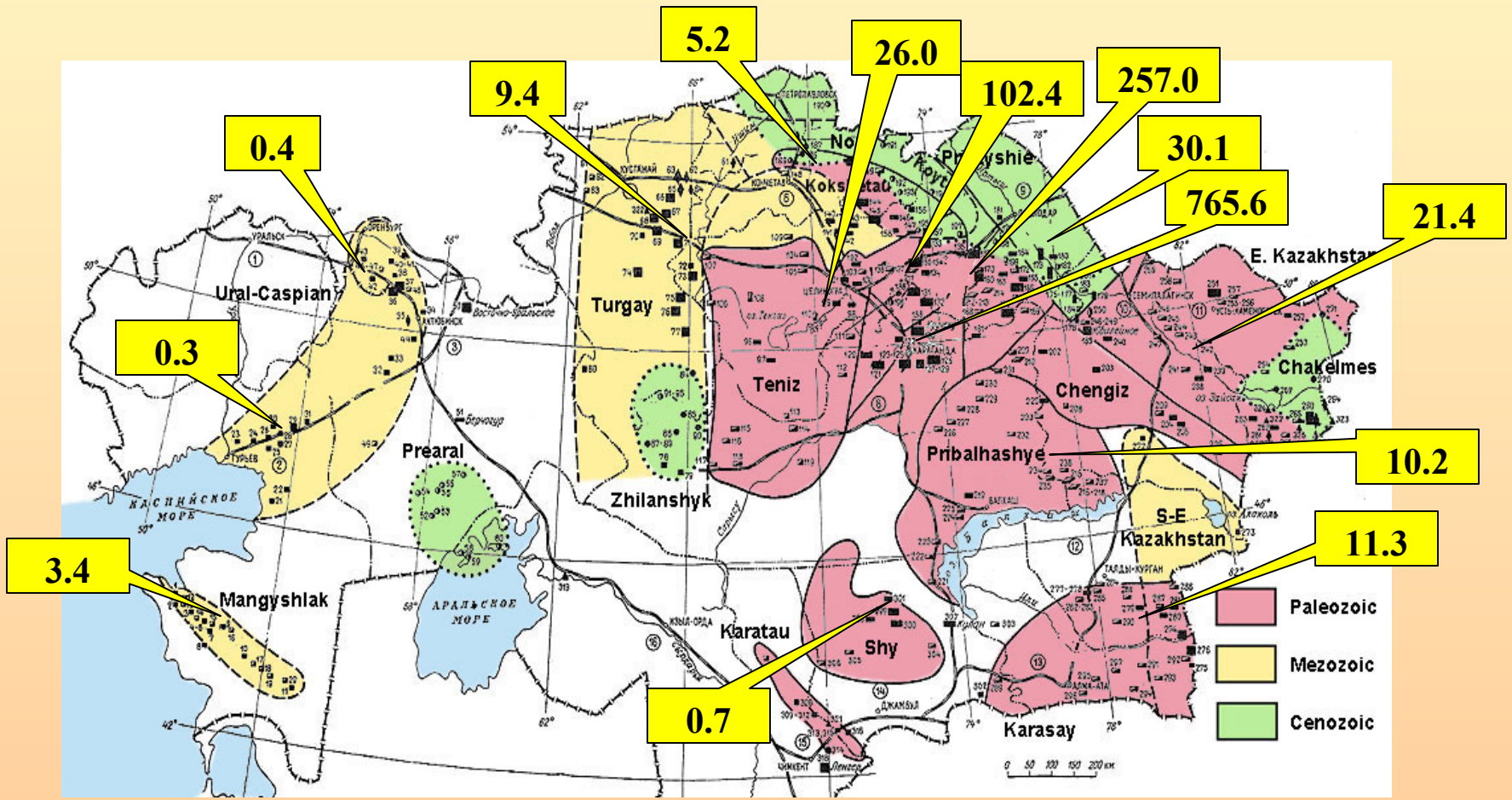
Key Factors in Energy Economy

- **Kazakhstan is one of the main coal producers in Central Asia and FSU region**
- **Kazakhstan is the main coal exporter to Russia and Central Asia industrial regions**
- **More than 70% of Kazakhstan energy requirements is supported with domestic coal**
- **Kazakhstan Metallurgical industry bases mainly on domestic coal (80%)**
- **Social energy consumption of the Central and Eastern Kazakhstan regions rely on coal based power generators**
- **Coal production in 1999 was 58 mln.ton and grown to 81 mln.ton in 2002**

Structure of Methane Emission in Kazakhstan



Kazakhstan - Coal Methane Reserves



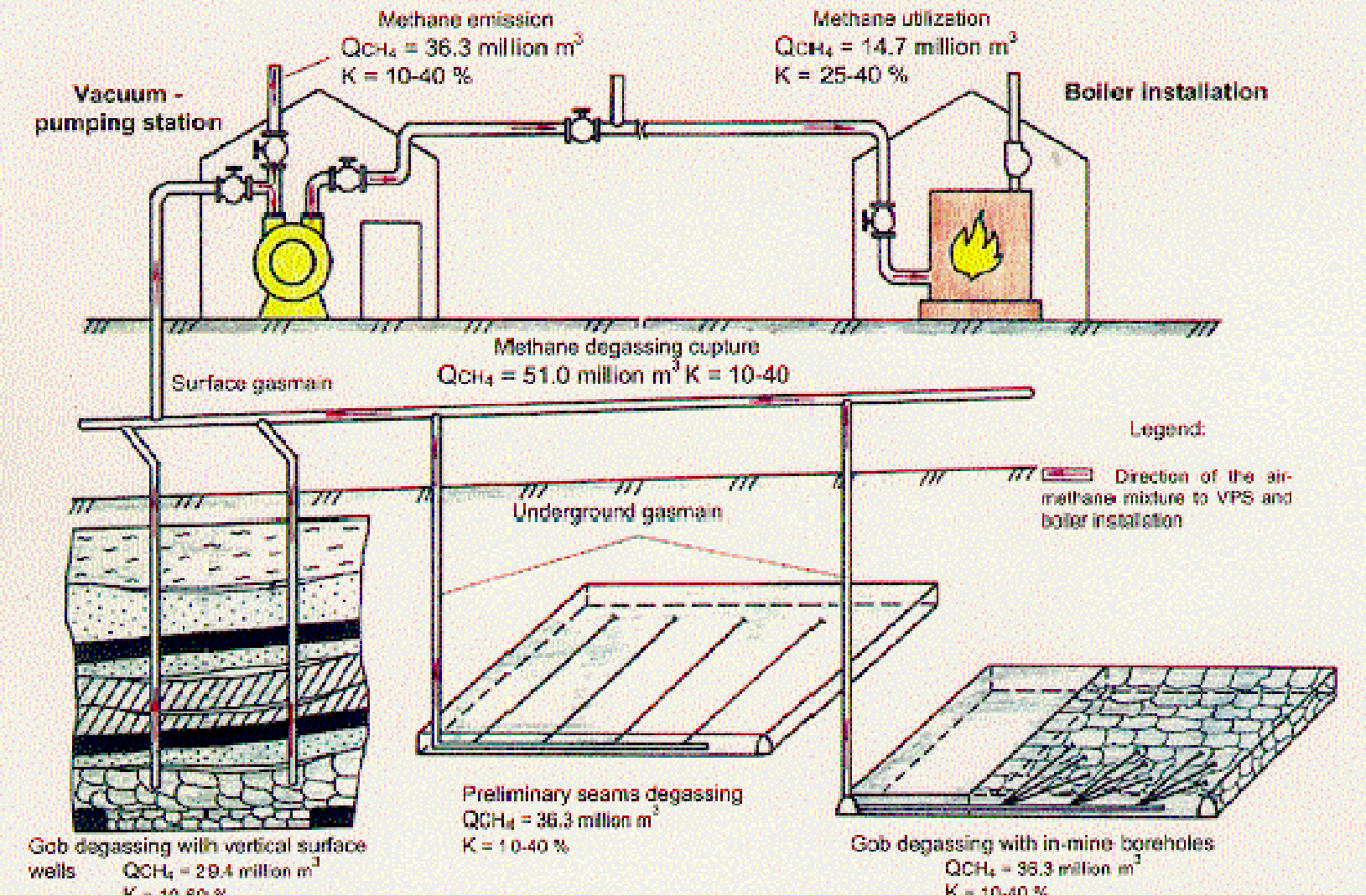
Coal Methane Reserves (billion.cub.m)



Kazakhstan Coalbed Methane Main Facts Sheet

- **Coalbed Methane Reserves-1.2- 1.7 trillion.cub.m**
- **CBM contents in coal beds is one of the highest among the main coal basins in the world**
- **Coal Basins – 123**
- **Major Coal Basins CBM Reserves estimated**
 - **Karaganda - 550- 750 bln.cub.m**
 - **Ekibastuz - 75- 110 bln.cub/m**
- **Coalbed Methane Wells – 134**
- **Coalbed Methane Emission- 870 mln.cub.m/year**
- **Coalmine Methane Production 41.2 mln.cub.m**
- **Coalbed Methane Utilisation 12.5 mln.cub.m**

Methane-gas degassing and utilization process flow chart (Karaganda)





Economic and Social Impact of Coalbed Methane

- **Regional & National Economy Improvement**
- **New energy source reduce dependence on imported Fuels & Gas**
- **Payment of Local & Republic Taxes**
- **Thousands of jobs created during Exploration & Development stages**
- **Several thousands permanent jobs created at Production stage**
- **Degasification Wells Reduce Risk of Explosions in Coal Mines**



Environmental Impact of Coalbed Methane

Positive

- **Production of cleanest fossil fuel for domestic consumption**
- **Captures methane from emission into atmosphere**
- **Atmosphere pollution reducing due to coal replacement in power generators**


Negative

- **Surface disturbance during the drilling operations**
- **Disposal of produced underground water is an environmental concern**



Barriers to Coal Methane Development

- **Government control over new investments in the coal industry**
- **Exploration & Production Legislation needs CBM adaptation**
- **Lack of Technology**
- **Lack of Mature CBM market**
- **Lack of awareness of environmental issues**
- **Lack of funds for investment in CBM**
- **Lack of information available to outside investors**
- **Lack of experience using CBM/CMM**
- **Trained Local personnel required**



Potential Markets for CBM/CMM Gas

- **Replacement of Coal in Industrial Boilers**
- **Replacement of Coal in Electric Power Generators**
- **Transit to large cities for domestic consumers use**
- **Government & Private Companies Fleet Fuelling**
- **Conversation of Private vehicles with compressed gas**



Sources of data used:

- 1. Kazakh Research Institute for Environment Monitoring and Climate, Almaty, Kazakhstan**
 - 2. Climate Change Coordination Center of Kazakhstan, Astana, Kazakhstan**
 - 3. OJSC Azimut Energy Services, Almaty, Karaganda, Kazakhstan**
 - 4. Coal Division of OJSC Ispat-Karmet, Karaganda, Kazakhstan**
 - 5. US EPA Coalbed Methane Outreach Program, Washington, DC, USA**
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