

Gazprom: innovations in environmental safety and efficient nature management

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Chairman of Gazprom Management Committee

1995 ► 2000 ► 2008 ► 2011 ►

Gazprom Environmental Strategy

2011 ►

Gazprom Innovative Development Program up to 2020

Key indicators of environmental efficiency:

- reduction of specific energy consumption for process needs;
- reduction of specific greenhouse gas emissions expressed in CO₂ equivalent.

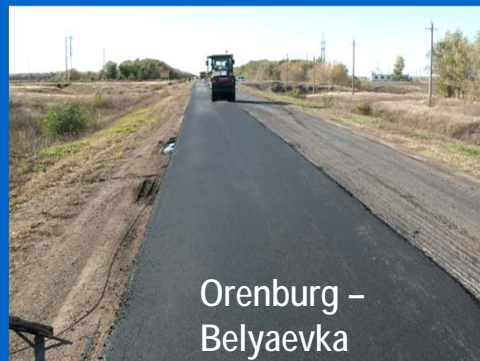
Alternative ways of sulfur utilization – sulfurous asphaltconcrete and sulfurous concrete:



- ✓ sulfur surplus utilization;
- ✓ continuous manufacture of alternative products by gas processing plants;
- ✓ increase of sulfurous oil and gas production and processing;
- ✓ decrease of environmental impacts in sulfur producing regions;
- ✓ enhancement of pavement quality and lifetime;
- ✓ Bitumen saving (up to 40% replacement with sulfur).



Krylatsky Bridge



Orenburg –
Belyaevka



Moscow Ring Road: 51
km, 89 km

Laser-based technologies for dealing with well blowouts and spills on top of ice

MLTK-20 mobile laser process unit

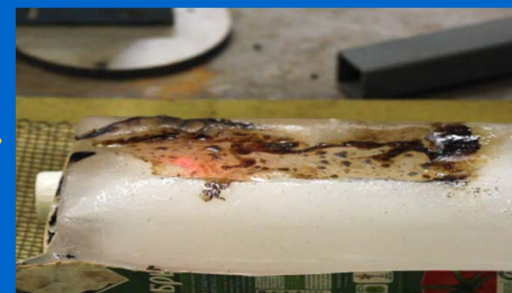


Remote cutting of wellhead equipment and steel structures of a blowing well

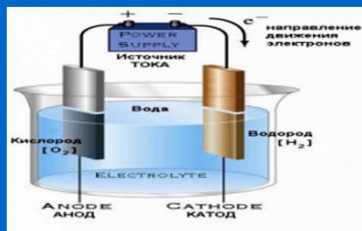
TRINITY research center's technology is unique and consists 90% of Russian components



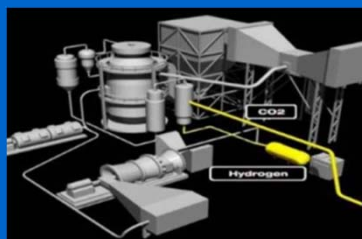
Innovative laser-based development of technologies for dealing with emergency spills on top of ice



Methane is a bridge to hydrogen-fired power generation



Water electrolysis

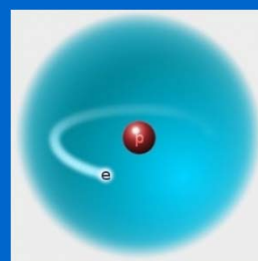


Coal gasification



Pyrolysis,
partial oxidation,
biotechnologies

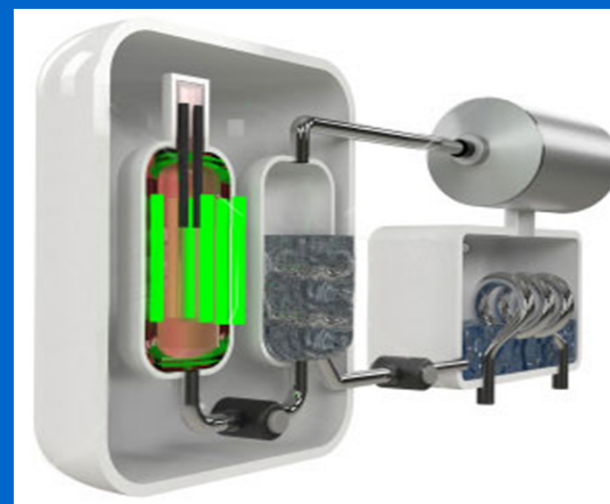
Existing
methods



HYDROGEN



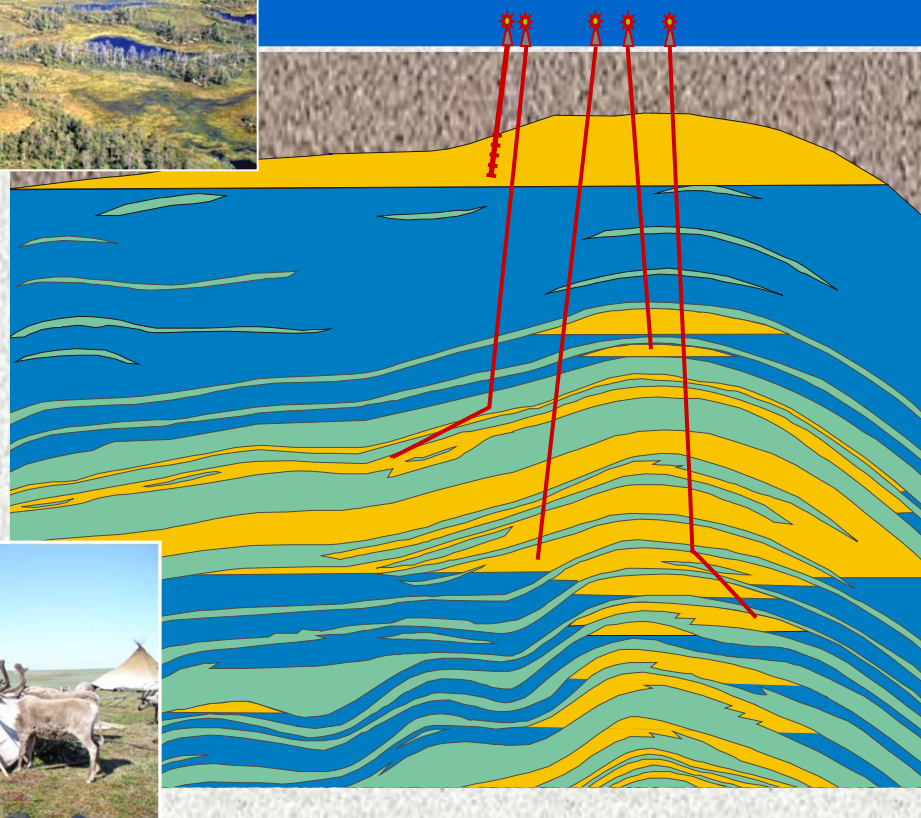
Methane Adiabatic Conversion (MAC)



- ✓ Total energy consumption is **3-4 times lower**
- ✓ in MAC-based hydrogen production than in other processes
- ✓ **5-10 times emissions reduction** by admixing hydrogen into gas compressor unit fuel



Step-by-step development of deposits from lower to upper horizons



- ✓ Reservoir energy is consumed efficiently
- ✓ Wells for different horizons are connected to a single gas gathering network
- ✓ 3-4 times reduction of land allocation for surface facility construction



The following measures are proposed to boost innovations:

1. To permit state-owned companies to invest in proprietary developments within their Innovative Development Programs on a non-competitive basis provided the uniqueness of such developments is confirmed by science and technology councils of the relevant technology platforms.
2. The Federal Highway Agency and Gazprom to implement a pilot project aimed at laying sulfurous asphaltconcrete pavement in several regions with different climatic conditions and to report results to the Russian Federation Government

Thank you for your attention!