

The Republic of Sakha (Yakutia)



JSC «East-Siberian Gas Processing Company»

The development of chemical
gas-processing industry of
East Siberian and Far East of
Russian Federation

Niigata

November 2008

Development of chemical gas-processing industry of Russian Federation

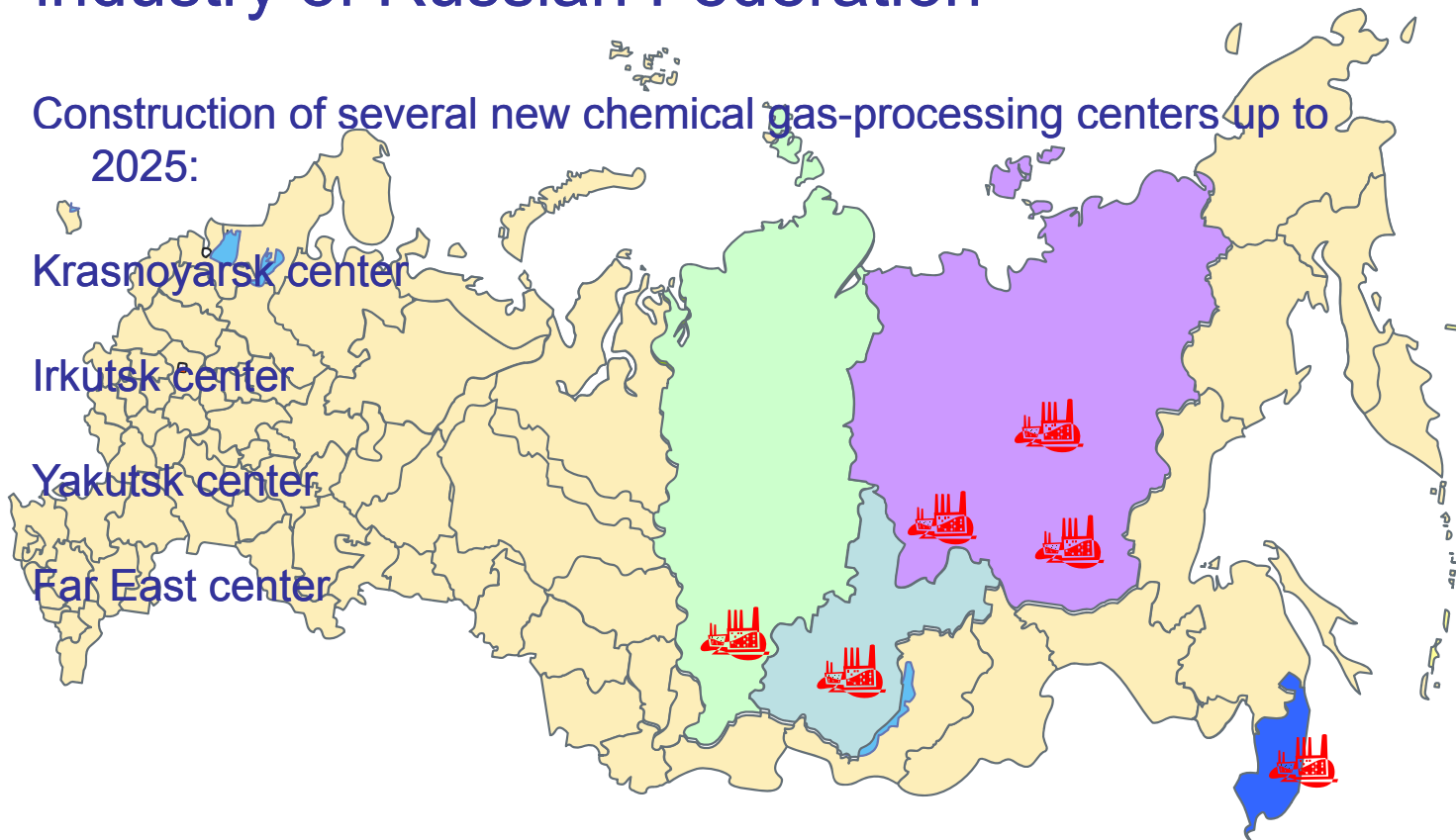
Construction of several new chemical gas-processing centers up to 2025:

Krasnoyarsk center

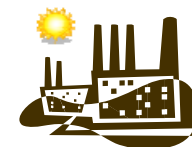
Irkutsk center

Yakutsk center

Far East center



Central Yakutia center



	Product	Production volume, thousand tons /annum	Number of employers	Estimation production start up
First stage				
1 st production line	methanol	450	278	2012
2 nd production line		450	200	2013
3 rd production line		450	200	2014
Second stage				
4 th production line	synthetic fuels	400	400	2015
5 th production line	ammonia	200	156	2016

Breaking the stereotypes



«UNFAVOURABLE GEOGRAPHIC PLACEMENT»

Central Yakutia (3200 km) is placed closed to Pacific ocean compared with Krasnoyarsk region (5300 km) and Irkutsk region (4200 km)

«HARSH CLIMATE»

Low winter temperature helps to decrease water consumption in 5 times

«PROCESSING IN YAKUTIA IS INEFFECTIVE»

Full utilization of regional infrastructure (railroad and gas pipelines), isolated location of gas fields from planned export transportation routes, cooperation with world-leading engineering companies will give strong long-term competitive advantages to local processing

Up-to-date technologies and increasing the efficiency



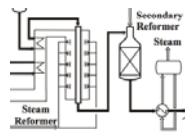
HALDOR TOPSØE

Up-to-date technologies of methanol production

NO_x – 81 mg / 1 m³

855 m³/t of methanol

237 kW-hour/t



Two step steam-oxygen reforming – decreasing CO₂ emission and uninterrupted operation in worst climate conditions



Integrated management system



Public relations



Continuously innovative development



Energy efficient technology

Innovative development



R&D group of ESGPC

Construction of a small-scale pilot plant with production of:



liquefied natural gas - LNG



synthetic fuels – GTL (gas-to-liquids)

GTL



development and adaptation of technology in cold climate conditions (Arctic conditions)

Public relations



«GREEN BOOK» is available for public viewing and feedback in the Yakutsk city (15 copies), Zhatay (1 copy), MR «Megino-Kangalasskiy ulus» (3 copies), MR «Khangalasskiy ulus» (3 copies)

Specialized e-mail for ecological questions

esgpc_greenbox@mail.ru

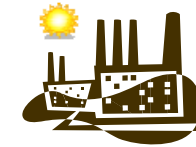
Company has organized two «round tables» with voluntary ecological organizations of the Republic of Sakha (Yakutia)

Regular public meeting with local population in Central region of the Republic of Sakha (Yakutia)

Safety information sheets of products and answers on FAQs



Yakutian chemical center expected results



Utilization and involvement of the regional competitive advantages:
existing facilities for extraction of natural gas and well-
developed gas transportation system



Achieving a share in chemical markets of the Asia-Pacific region

Augmenting the range of products of the «Vostok-50» scenario



Professional personnel training both for the Yakutian gas-chemical
center and for the planned gas-chemical centers in the Russian
Far East



Increasing efficiency of gas production development in West
Yakutia: produced methanol can be used in the exploitation of
Chayandinskoe gas field

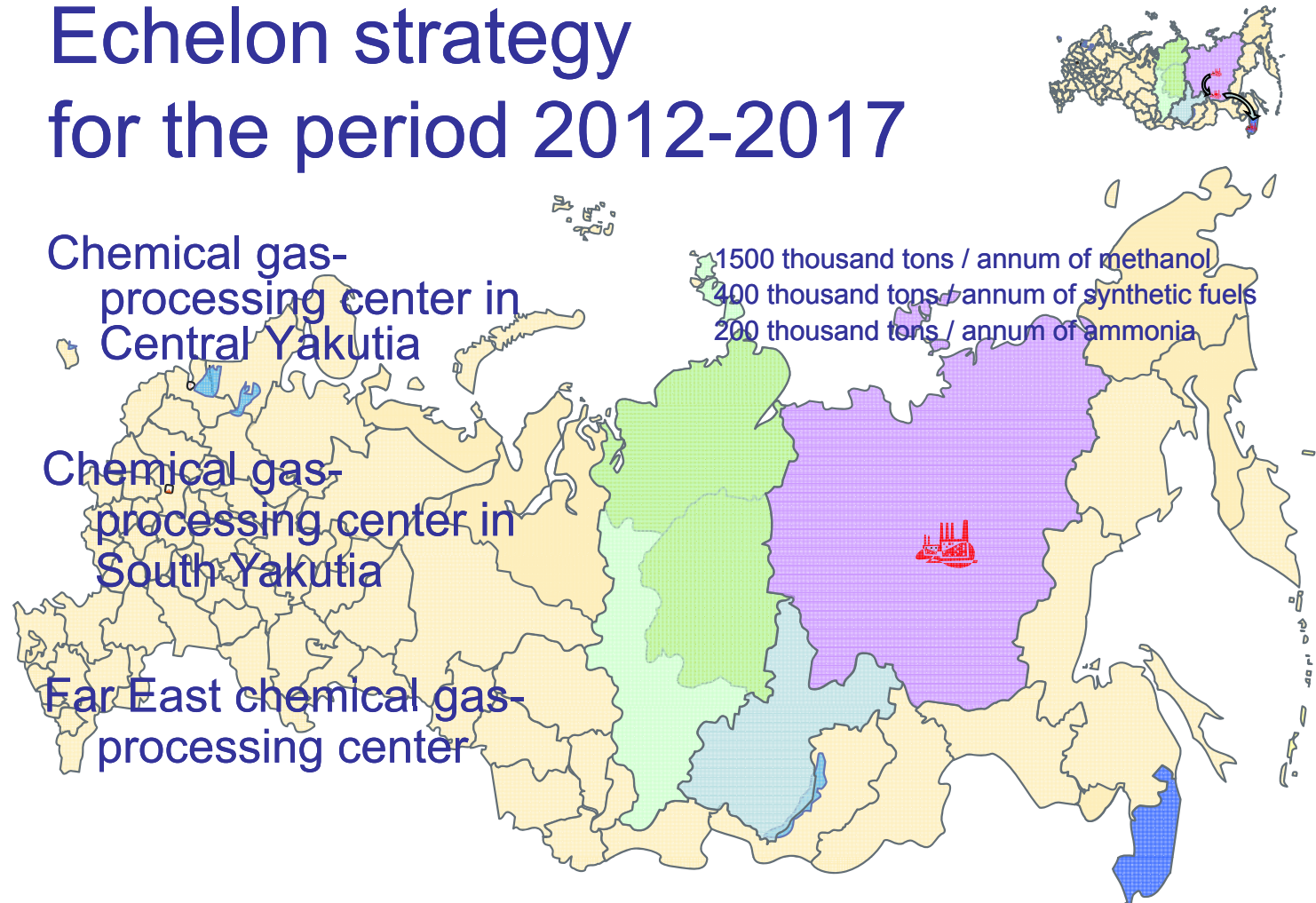
Echelon strategy

Insufficient gas extraction and transportation capacity in planned chemical gas processing centers in Far East and East Siberia, excluding Central Yakutia, do not allow for immediate start of development

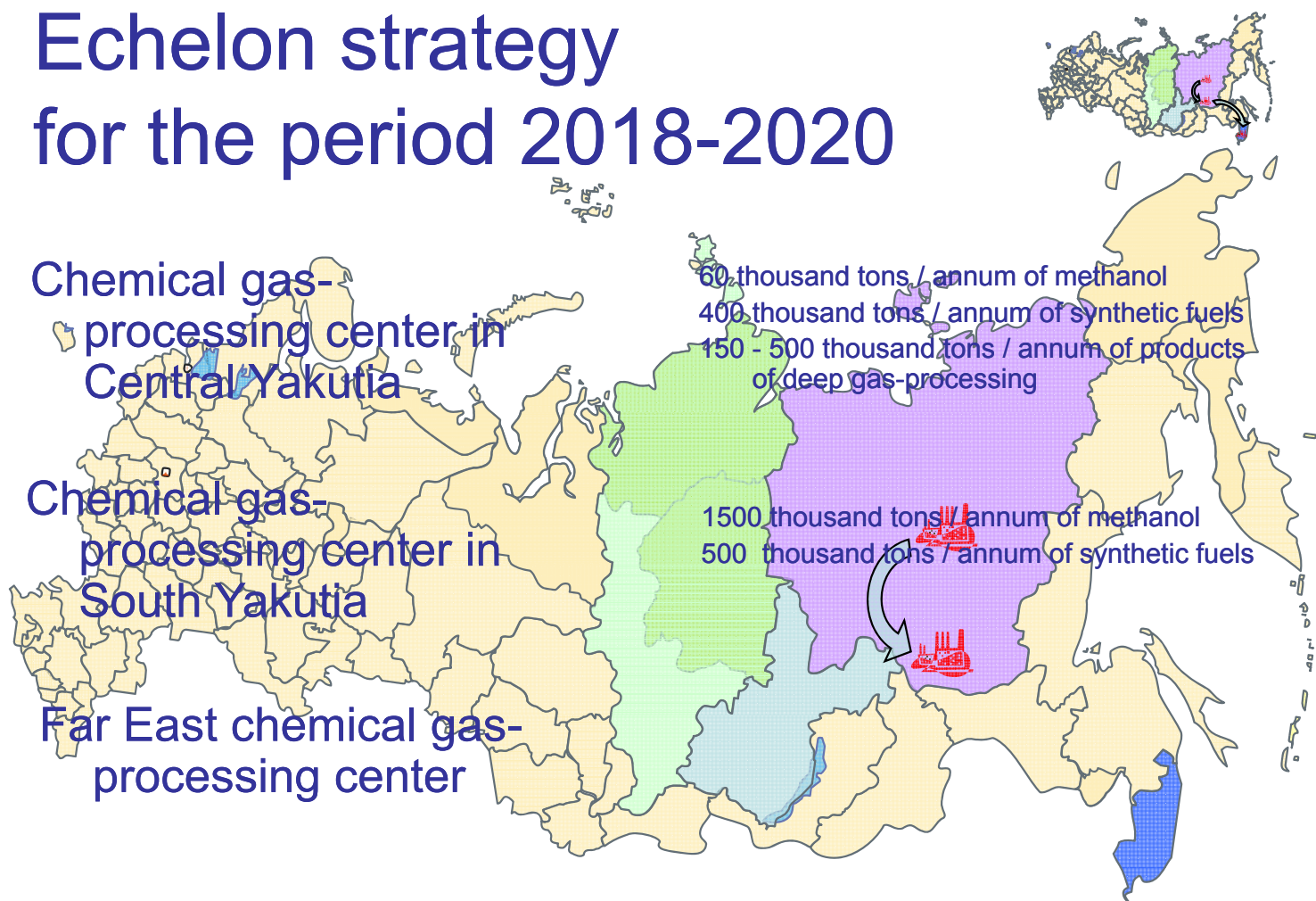
A strategy of step-by-step development of chemical gas processing centers based on existing and planned infrastructure and facilities is necessary

A continuous shift of C1 facilities from Central Yakutia to Pacific ocean coast while preserving initially achieved market share and simultaneous development of down-stream facilities to deepen gas-processing in previously constructed centers we call «**ECHELON STRATEGY**»

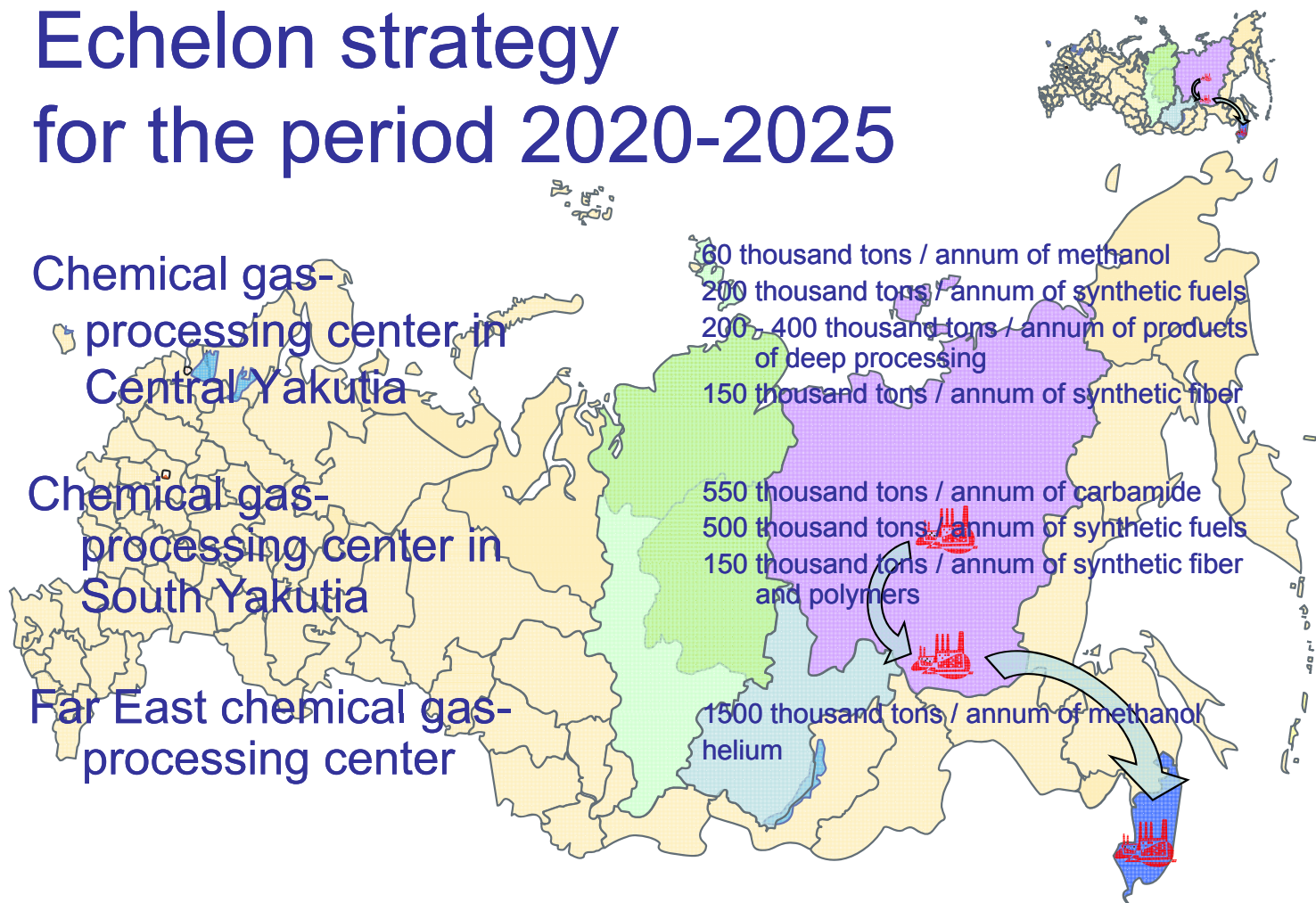
Echelon strategy for the period 2012-2017



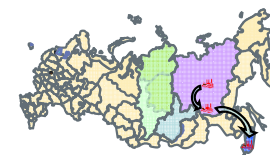
Echelon strategy for the period 2018-2020



Echelon strategy for the period 2020-2025



Echelon strategy expected results



Achieving stage-by-stage development of chemical gas-processing industry in Russian Far East and East Siberia with continuous deepening of gas-processing

Achieving a share in the chemical products market in the Asia-Pacific region and coordinating the marketing policy for Russian producers when planning gas-processing centers

Creating a basis for a professional personnel training center for all planning gas chemical centers in the region

Involve into production in Central Yakutia huge natural reserves of gas currently unused (reserves of more than 400 bln.m³)

Minimal negative impact on the environment

ESGPC principles

Up-to-date efficient technologies and innovation

- Involvement of world leaders in methanol production technology (HTAS) – efficient gas usage for production
- Choice of two-step steam-oxygen reforming – decreasing CO2 emission
- Using climate conditions to advantage – decreasing water usage by factor of 5
- Utilization of by-products: heat, steam, water – preservation of permafrost + good energy footprint of the process

Public relations

- Round tables with voluntary organizations
- GREEN BOOKS for public feedback
- Information on planned production – FAQs

Personnel development, integrated management system certification in accordance with ISO

LNG usage in heavy vehicles during construction