KAZAKHSTAN'S INNOVATION-BASED DEVELOPMENT BREAKTHROUGH PROJECTS

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Integrated Gas Chemical Complex in Atyrau Province

Project implementation is provided by the following policy documents of the Republic of Kazakhstan and "Samruk-Kazyna" JSC :

1. The list of strategic investment projects approved by Resolution of Government of the RoK No1293 dated September 1, 2009;
2. National Program for Boosted Industrial Innovation Development of the RoK for 2010-2014, approved by Presidential Decree of the RoK No 958 dated March 19, 2010;
3. Industrialization Map of Kazakhstan for 2010-2014, approved by Resolution of Government of the RoK No 303 dated April 14, 2010;
4. The Development Program of the Chemical Industry of the RoK for 2010-2014, approved by Resolution of Government of the RoK No 1001 dated September 30, 2010;
5. The Development Program of the Oil and Gas Sector in the RoK for 2010-2014, approved by Resolution of Government of the RoK No 1072 dated October 18, 2010;
6. The Action Plan for formation of class petrochemical complexes in Kazakhstan and creation of the first Kazakhstan petrochemical complex approved by Resolution of Government of the RoK No 989 dated October 13, 2006, as amended dated October 18, 2010;
7. The Development Strategy of "Samruk-Kazyna" untill 2020.

Special Economic Zone in Atyrau Province

Operator: JSC “Managing Company SEZ “National Industrial Petrochemical Technology Park”

Place of implementation: Atyrau Province

Period of establishment: 2012-2015

Period of operation: 2012-2032

Area: 3,475 ha

Terms and Conditions:

- Corporate income tax 0%
- Land fee 0%
- VAT (input) 0%
- Property tax 0%
- Custom duties 0%

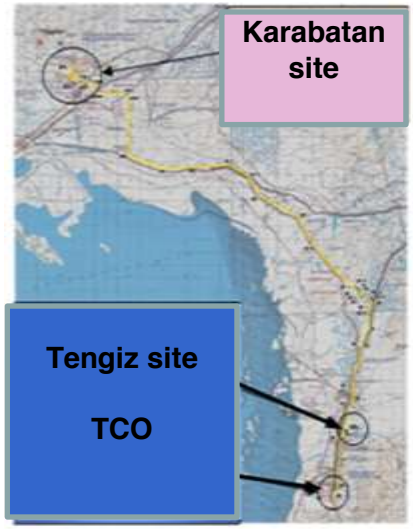
TARGET PROJECTS

- ✓ **Production of polypropylene (IGCHC First phase)**
- ✓ **Production of polyethylene (IGCHC Second phase)**
- ✓ **Production of polymer products**
- ✓ **Production of butadiene**

already implemented by UC in the total amount of more than 1 trillion KZT

Integrated Gas Chemical Complex in Atyrau Province

PROJECT LOCATION



Project Total Cost:

USD 6,3 bln.

THE PROJECT WILL BE IMPLEMENTED IN PHASES:

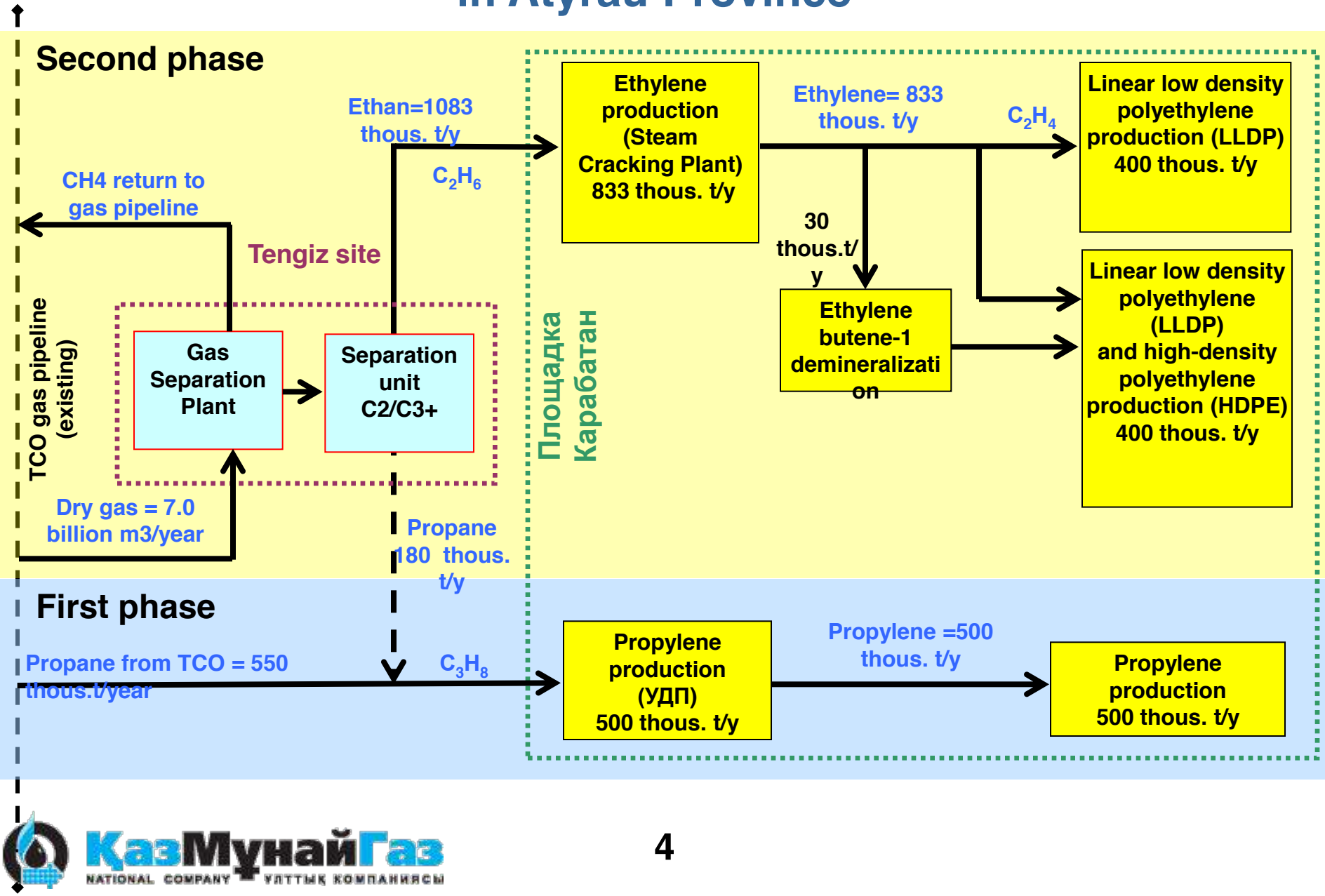
The First Phase– polypropylene production 500 thousand tons per year

Cost: USD 1, 946 mln.

The Second Phase– polyethylene production 800 thousand tons per year

Cost : USD 4, 300 mln.

Process Flow Diagram of Integrated Gas Chemical Complex in Atyrau Province



Integrated Gas Chemical Complex in Atyrau Province: FIRST PHASE

Project Operator: **"Kazakhstan Petrochemical Industries Inc." LLP**

Consultants: **Foster Wheeler, Baker&McKenzie**

General contractor: **Sinopec Engineering**

Licensor: **CBI Lummus**

Raw material: **550 thous. t/year of propane of "TengizChevrOil" LLP**

180 thous. t/year of propane from ГСУ (Project second phase)

Products: **500 thous. t/year of polypropylene**

Location: **Karabatan station of Atyrau Province**

Date of completion**: 2016**

Integrated Gas Chemical Complex in Atyrau Province: SECOND PHASE

Project Operator: **"KLPE" LLP**

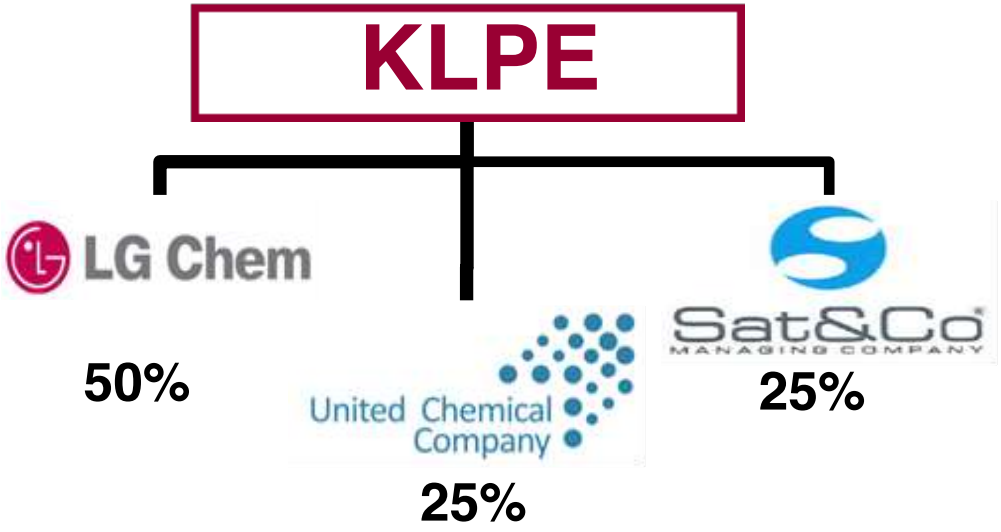
General contractor:

Petrofac-GS-Linde

Licensor: **Univation**

Products: **800 thous.t/y of polyethylene**

Date of completion: **2016**



Place of deployment: **ст. Karabatan station of Atyrau Province**

Raw material: **7,0 bln.m3/year of fry gas from "TengizChevrOil" LLP**

Consultants **Foster Wheeler, Societe Generale, Baker&McKenzie**

Integrated Gas Chemical Complex in Atyrau Province

SOCIO-ECONOMIC INDICATORS

- **During the construction of the complex (2010-2014) involvement of the workforce up to 7,000 professionals**
- **During the operation of the complex involvement of the workforce up to 800 professionals, with a gradual decrease in the number of foreign experts**
- **The following will be constructed on the wild lands of Atyrau Province :**

✓ access roads to the petrochemical complex (rail road, motor road) and the railway sorting station;
✓ water supply facilities (water supply line, etc.);
✓ rotational town for 10 thousand seats and the town infrastructure;
✓ gas turbine power plant and transmission lines;
✓ gas separation plant infrastructure (pipelines, access roads, etc.)

Integrated Gas Chemical Complex in Atyrau Province: Third Phase

PROJECT CONCEPT

Condensate 3 mln. tons/year
75% - Naphtha (C_5-C_{12})

Karachaganak

Petrochemical Complex

- Steam cracking
- Polymers
- Special Chemistry

EXPORT

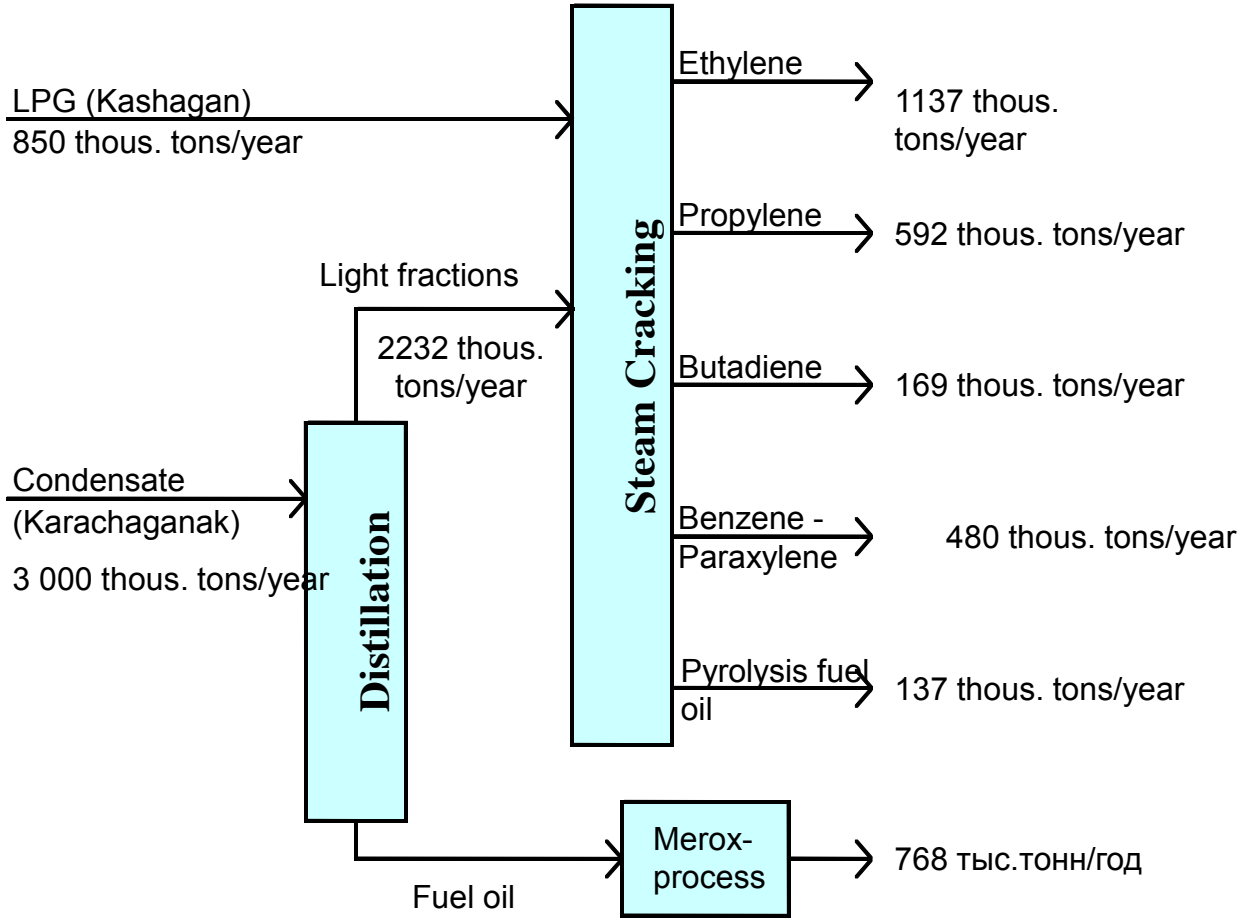
Production of final products in the territory of the Republic of Kazakhstan

Kashagan

LPG 850 thous. tons/year
70% - propane
30% - butane

Integrated Gas Chemical Complex in Atyrau Province: Third Phase

PROJECT CONCEPT



TOTAL PROJECT COST USD 7,4 bln.

Butadiene Production - First Phase

Location:

SEZ, Atyrau Province

Project cost:

USD 877 mln.

Implementation period:

2012-2016

Production capacity:

250 000 tons/year of butadiene

Job creation:

construction– up to 1000 people
operation– 140 people

Current Status:

Developed Pre-Feasibility Studies;
Negotiations with potential strategic partners;
Negotiations with the TCO for butane supply started.

Production of Polymer Products

Operator:
“Polymer production” LLP

Location:
SEZ, Atyrau Province

Project cost:
USD 83,4 mln.

Implementation period:
2012-2015

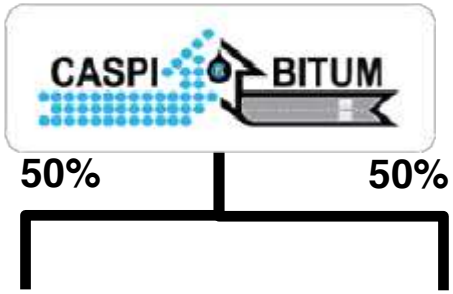
Production capacity:
BOPP– film– 14 738 tons/year,
PE film– 4 125 tons/year,
Polypropylene bags– 48 mln. pcs.

Job Creation:
operation– 282 people

Production of road bitumen for Aktau Plastics Plant

Project operator:

“Caspi Bitum” JV” LLP



General contractor:

Consortium of JSC “NSCC “KazStroyService” and “CITIC Construction CO. LTD”

Project Total Cost: $ 290 mln.

– $ 232 mln. – borrowing funds of “Bank of China Grand Cayman Branch” (PRC) under the corporate guarantee of “CITIC Group”

– $ 58 mln. – internal funds

Date of completion:

Commissioning was completed in the beginning of 2014.

Job creation:

construction– 800 people

operation– 325 people

Production of road bitumen for Aktau Plastics Plant

Location: **Aktau**

Raw material: **1 mln. t/y of Karazhanbas oil**

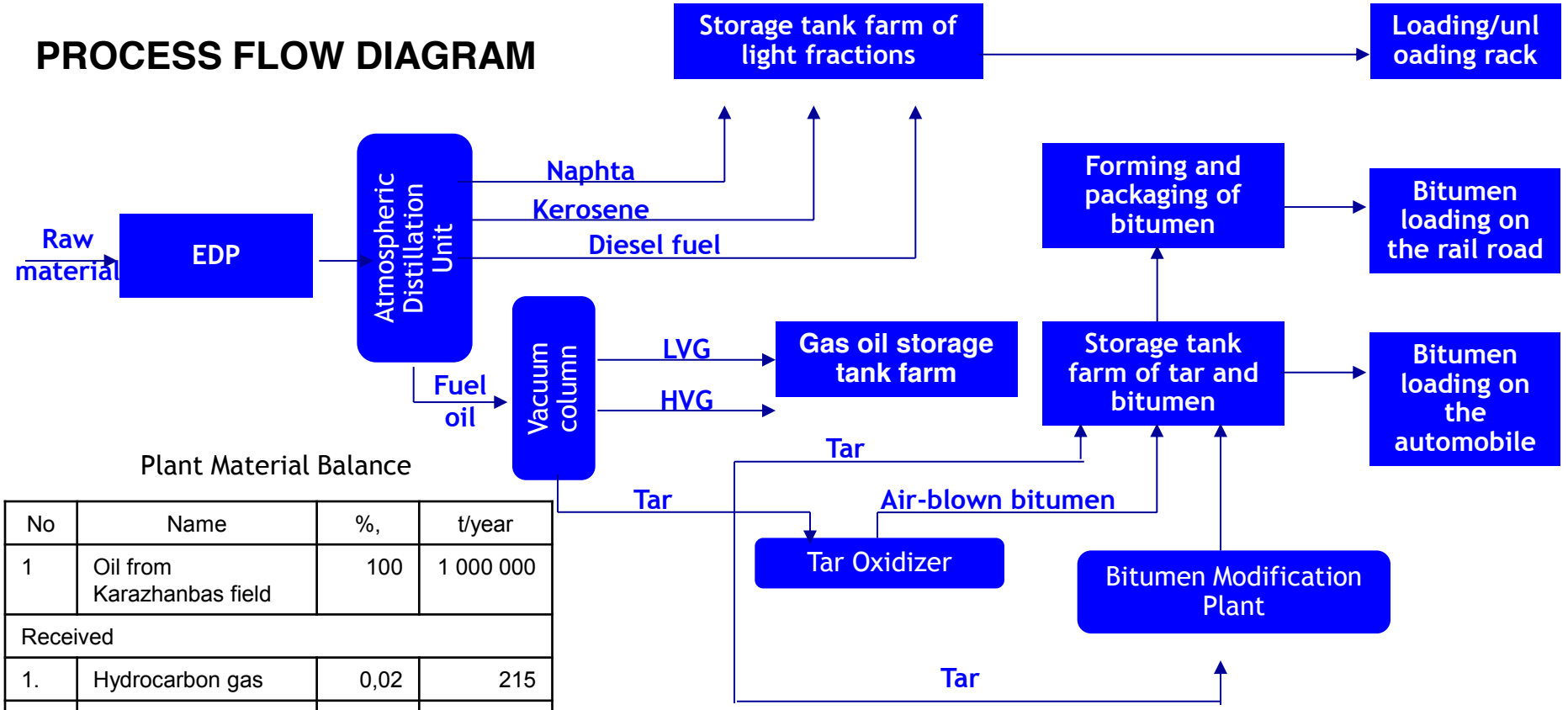
Future products:

Petrol and diesel fraction – 255,4 thous.t/y
Vacuum gas oil – 330,3 thous.t/y
Road bitumen – 406,5 thous.t/y,*incl.*
Modified bitumen – 161,5 thous.t/y

- **Currently, the plant is operating in technological mode.**
- **6,7 KTA of bitumen is obtained, which corresponds to requirements of Kazakhstan standards.**
- **Produced bitumen is used in construction of automobile road Beineu-Shetpe, delivery is accomplished by bulk tank.**
- **Certificates of National center of expertise an certification are obtained, which confirm the quality of the produced bitumen.**

Production of road bitumen for Aktau Plastics Plant

PROCESS FLOW DIAGRAM



Plant Material Balance

No	Name	%,	t/year
1	Oil from Karazhanbas field	100	1 000 000
Received			
1.	Hydrocarbon gas	0,02	215
2.	Straight-run gasoline	1,73	17 332
3.	Diesel fraction	23,81	238 068
4.	Vacuum gasoil	33,03	330 318
7.	Road bitumen	40,65	406 494
8.	Losses	0,76	7 573
	Total:	100	1 000 000

- It consists of the following plants :
  - Electric Desalting Plant;
  - Crude Oil Atmospheric Distillation Plant;
  - Fuel Oil Vacuum Distillation Plant;
  - Tar Oxidizer;
  - Bitumen Modification Plant;
  - Bitumen Forming and Packaging Plant.

Production of road bitumen for Aktau Plastics Plant

GENERAL VIEW OF THE CONSTRUCTION SITE

Construction of Aromatic Hydrocarbons Production Complex (APC) at Atyrau Refinery

Project Operator:

"Atyrau Refinery" LLP

General Contractor:

Sinopec Engineering

Project Total Cost: $ 1 130 млн.

– $ 1 064 mln. - borrowing funds of "DBK" JSC within General Loan Agreement with Exlm Bank of China
– $ 66 mln. - internal funds

Implementation period: **2010-2014**

Products:

133 thous.t/y of benzene
496 thous.t/y of paraxylene

Job creation:
construction– prior to 1860 people
operation – 357 people

“Taraz Chemical Park”
Special Economic Zone in Zhambyl Province

Project Purpose and Idea: to create an industrial zone that holds more than 15 enterprises for processing of local raw materials and the production of export-oriented chemical products with the high added value

Participants: MINT– not less than 26%

“United Chemical Company” LLP – not more than 74%

Location: Zhambyl Province, Shu region

Project Total Cost: USD 2 725 mln.

Period of creation: 2012-2015

Operation period: 2012-2036

Financing Scheme:

- construction of Special Economic Zone infrastructure – USD 145 mln.;
- equity participation in projects in the SEZ territory

Jobs during plants operation in SEZ – more than 2400 people

Current status:

- Feasibility Studies of the SEZ project has been developed
- Presidential Decree of the RoK on creation of “Taraz” Chemical Park” Special Economic Zone dated 13.11.2012
- Established Managing Company

“Taraz Chemical Park”
Special Economic Zone in Zhambyl Province

505 hectares of first-rate conditions for the formation of new production facilities of chemical products

MAIN COMPONENTS:

- Infrastructure
- Convenient location
- Integration of chemical plants
- Tax and customs exemptions

- Sector of large chemical production facilities
- Sector of small and medium-sized businesses development
- Training Center
- Logistics sector
- High-Tech Park
- Infrastructure sector

“Taraz Chemical Park”
Special Economic Zone in Zhambyl Province

TARGET PROJECTS

- ✓ Production of sodium cyanide
- ✓ Production of glyphosate (herbicide)
- ✓ Production of phosphorus trichloride
- ✓ Production of caustic soda, chlorine, peroxide

They have already been implemented by UCC in the total amount of USD 400 mln.

- ✓ Production of polymer sheets, containers
- ✓ Production of plant protection products and plant growth regulators
- ✓ Production of flotation reagents
- ✓ Production of ion exchange resins
- ✓ Production of urea- formaldehyde concentrate
- ✓ Production of melamine-formaldehyde resins
- ✓ Production of complex fertilizers
- ✓ Production of methanol and ammonia
- ✓ Production of nitric acid and ammonium nitrate
- ✓ Production of urea
- ✓ Production of acetic acid and peracetic acid and formaldehyde

Production of glyphosate (herbicide)
Production of phosphorus trichloride
Production of caustic soda

Operator: “Chem-plus” LLP

Participants: UCC– 99,9%

“SK Invest” LLP – 0,1%

Location: Zhambyl Province, Shu region

Project Total Cost: USD 264 mln.

Implementation period: 2012-2016

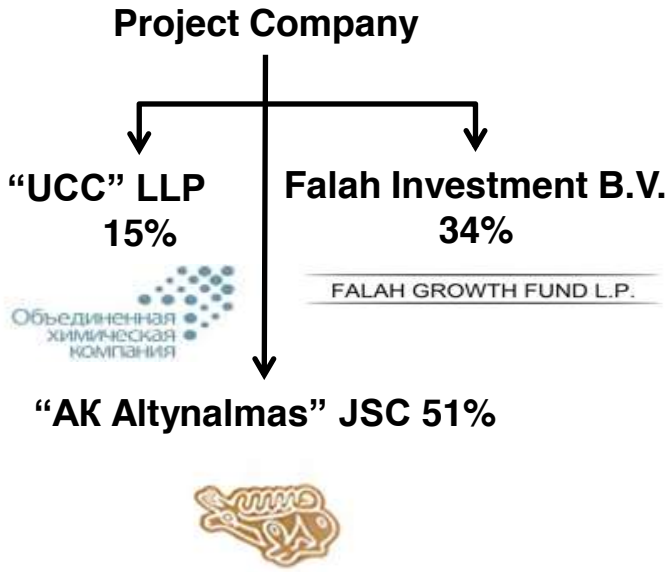
Production capacity:

- 40,000 tons/year of caustic soda
- 35,500 tons/year of chlorine
- 1,000 tons/year of hydrogen
- 25,900 tons/year of hydrochloric acid
- 3,300 tons/year of hydrogen peroxide
- 13,600 tons/year of phosphorus trichloride
- 30,000 tons/year of calcium chloride
- 10,000 tons/year of glyphosate

Licensor: Asahi Kasei

Consultants: UCC Engineering, Morgan Lewis

Production of sodium cyanide



Location: Zhambyl Province, Shu region

Project Cost: $ 126,5 mln.

Implementation period: 2012-2016

Production capacity:

25 000 tons/year of sodium cyanide

Licensor: DuPont

Consultants: Glatt Ingenieurtechnik GmbH

Job creation:

construction – up to 200 people

operation – up to 100 people

CONCLUSION

Implementation of the above mentioned projects will allow complex and accelerated growth of petrochemical and chemical industries of the Republic of Kazakhstan

- Establishment of national base of natural resources and technologies, production facilities on fine purification and refining of hydrocarbon and mineral raw with manufacturing of value added products according to worldwide standards
- Establishment of the ground for the formation and development of vertically integrated complexes in the Republic of Kazakhstan, which can start with operations on purification of oil/gas and end up with advacned processing facilities
- Development of production infrastructure of national petrochemical industry and establishment of a full value national market of petrochemical products
- Decrease dependence of Kazakhstan's economy from market trends of world prices on oil and gas
- Communization of the internal market of Kazakhstan with domestic petrochemical products

THANKS FOR YOUR ATTENTION!