



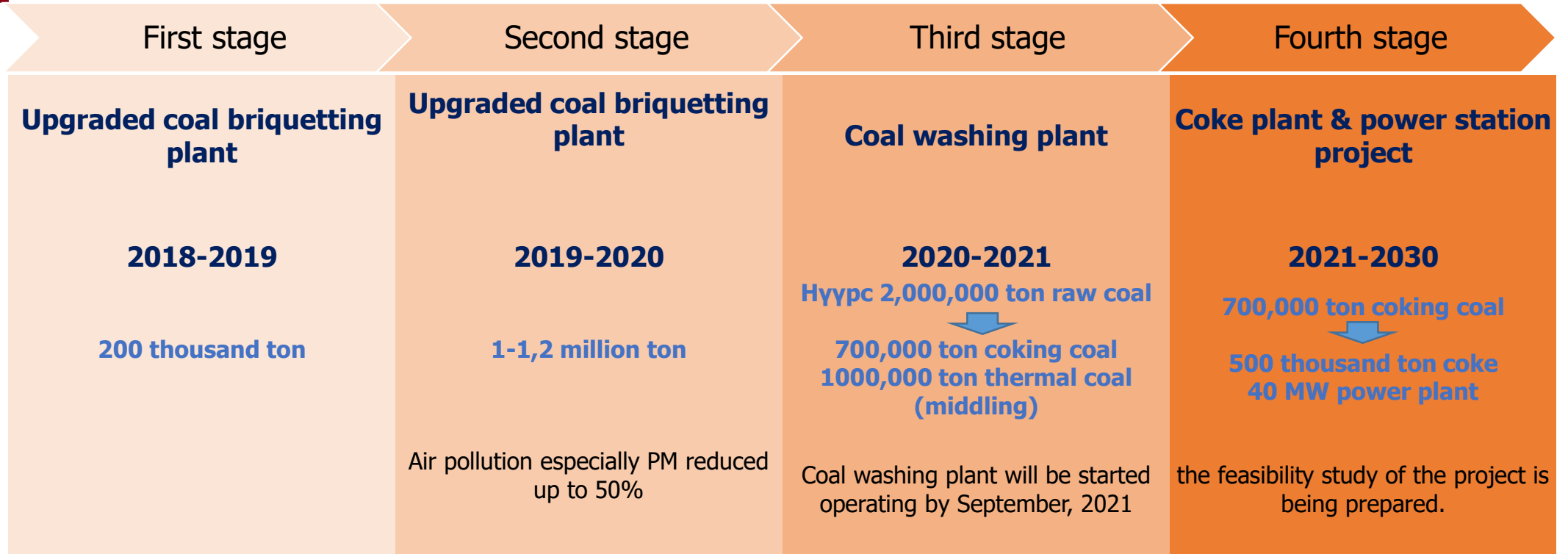
# **Current status coke making plant and projects in Mongolia**

**“TAVANTOLGOI TULSH” LLC  
2021**



# STRATEGIC PLANNING / 2020-2030 /

## STAGES OF DEVELOPMENT



Briquette



Middling



COKE





## Current situation of coal coking plant in Mongolia

In December 2008, “ENK” LLC started operating Coal washing plant with capacity 1 200 000 tones clean coal/year and Coking plant with capacity 300 000 tones/year in South Gobi province. Coal cleaning plant consists of crushing and coal preparation plants, which uses dense-medium vessels. The washed coal has ash contents app. 10-12%.

Coking plant has 4 coke oven batteries; each of them consists of 30 chambers. Hot coke and gas quenching, gas collecting, tar separation are integral parts of the plant.



The first coking plant in Mongolia



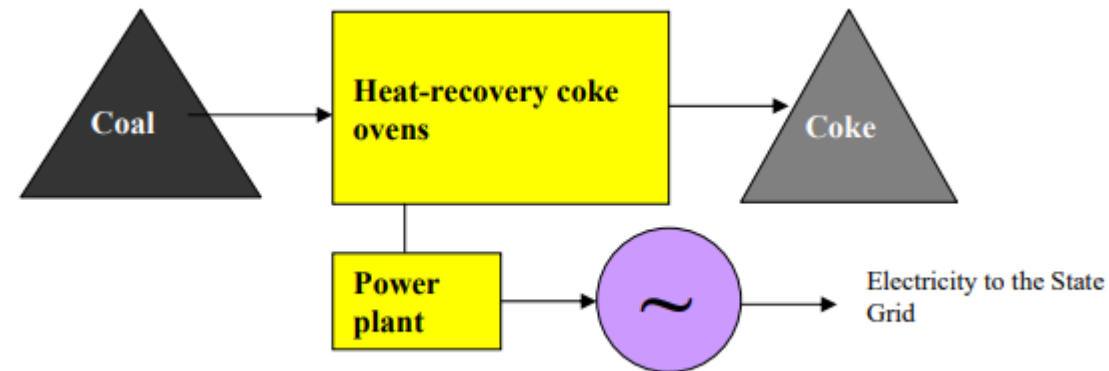
# Current situation of coal coking plant in Mongolia

## INTRODUCTION

“TAVANTOLGOI TULSH” LLC is proposing to construct and operate a combined coke plant and power station in BAGAKHANGAI district which is situated 92 km south east of Ulaanbaatar. The coke plant will produce coke for use in blast furnaces in the steel industry, using coal sourced from Tavantolgoi mines. The coke will be transported by rail to Darkhan city for alloy and steel smelters. Excess heat, generated by the combustion of coal gases in the coke plant, will be used to produce steam to generate electricity for national electricity market. In summary the project is estimated to:

- Create over 1,500 jobs in the coke & power plant;
- Restrict hard currency outflows;
- Improve the skill base of the labor pool;
- Generate additional revenue by “value adding” to steel making raw materials;
- Provide an additional electricity generation capacity by the “environmentally smart” use of combusted coal gases.

### A Visual Overview of the Project





# Current situation of coal coking plant in Mongolia

## Coal to Coke and Power Process

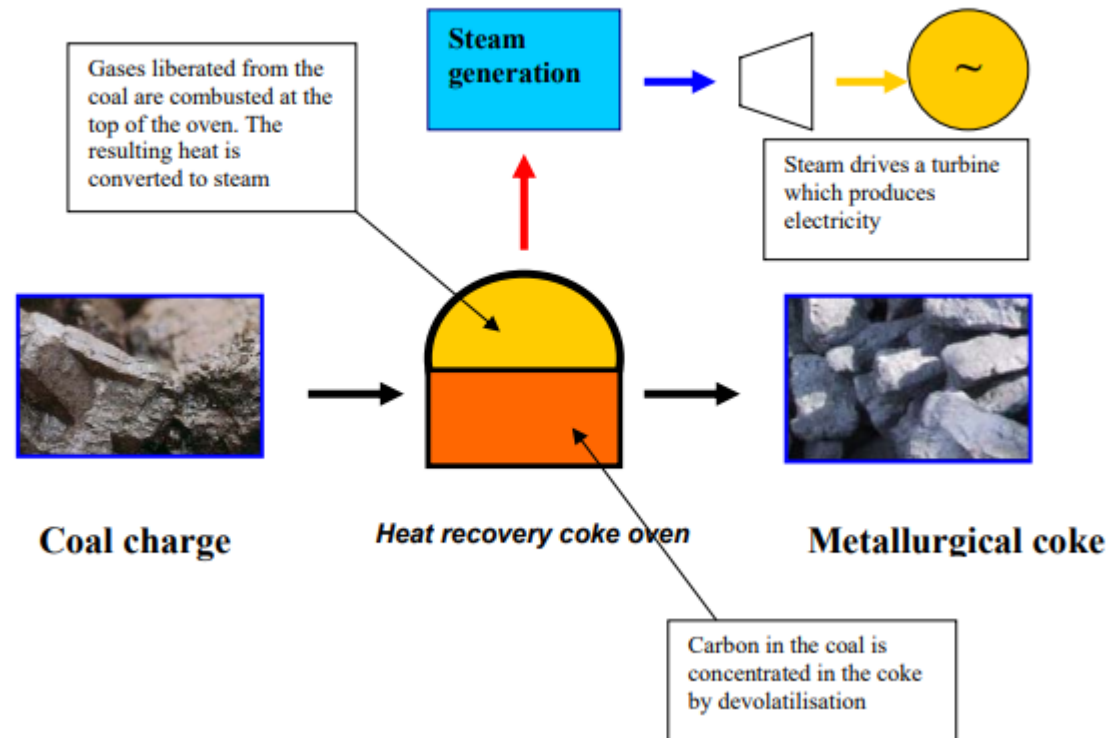
The key elements to note about the production process are:

- Coke is produced by heating coal, in a controlled atmosphere, thus liberating volatile matter (gas and moisture);
- The gas is combusted in an environmentally “smart” way so as to produce the heat to make the coke. Excess heat is produced in the process and this is used to generate electricity;
- The process does not rely on the combustion of coal, only the gas liberated from the coal;
- The greenhouse gas emissions of the process are typical of a simple gas-fired power generator. That is, one that raises steam that passes through a turbine.



# Current situation of coal coking plant in Mongolia

## Coal to Coke and Power Process





# Current situation of coal coking plant in Mongolia

## NEED FOR THE PROJECT

- Mongolia has huge coking coal iron ore reserves which have been exporting to China as raw materials. Iron ore resources are estimated at 1 billion tons and coking coal resources at up to 20 billion tons.
- Mongolia has imported a maximum of 534,056 tons of steel products from China and Russia, valued at USD 292.0 million, over the past five years.
- Imports make up more than 90% of steel supply in the country.
- Darkhan metallurgy plant launched a steel plant project in order to meet the growing demand for steel import in Mongolia, and the feasibility study of the project was completed.
- At the peak hours 64 MW electricity imported from Russia./2021. 9th January /

## STRATEGIC ADVANTAGE

The advantage of the projects is that it can produce competitive coke and steel products, benefiting from low raw-material transportation, tariffs, and tax costs.



## Current situation of coal coking plant in Mongolia

### COAL SUPPLY AVAILABILITY AND QUANTITY

Coal washing plant will be started operating by September in 2021, annual capacity of which is 1 million ton of raw coal. The capacity of washing plant will be increased by another 1million ton/year.







# Current situation of coal coking plant in Mongolia

## PRODUCTION PLAN

This proposed technology adopts coke oven with the heat recovery method and stamp charging method (less environmental pollution), and consists of 4 × 22 coke ovens, and produces metallurgical coke with the size used in blast furnaces.

### Main products

No.	Products	Unit	Quantity	Remark
1	Coke(Total)	t/a	502,785	Dry base
1.1	Metallurgical coke(>40mm)	t/a	432,396	
1.2	Metallurgical coke(40mm~25mm)	t/a	45,251	
1.3	Small coke (25mm~10mm)	t/a	15,083	Ingredient of coal briquette
1.4	Coke fines(<10mm)	t/a	10,055	Ingredient of coal briquette
2	Waste heat power generation	Kwh/a	578,202,750	Power generation

Product specifications and quality standards comply with Chinese national standards.



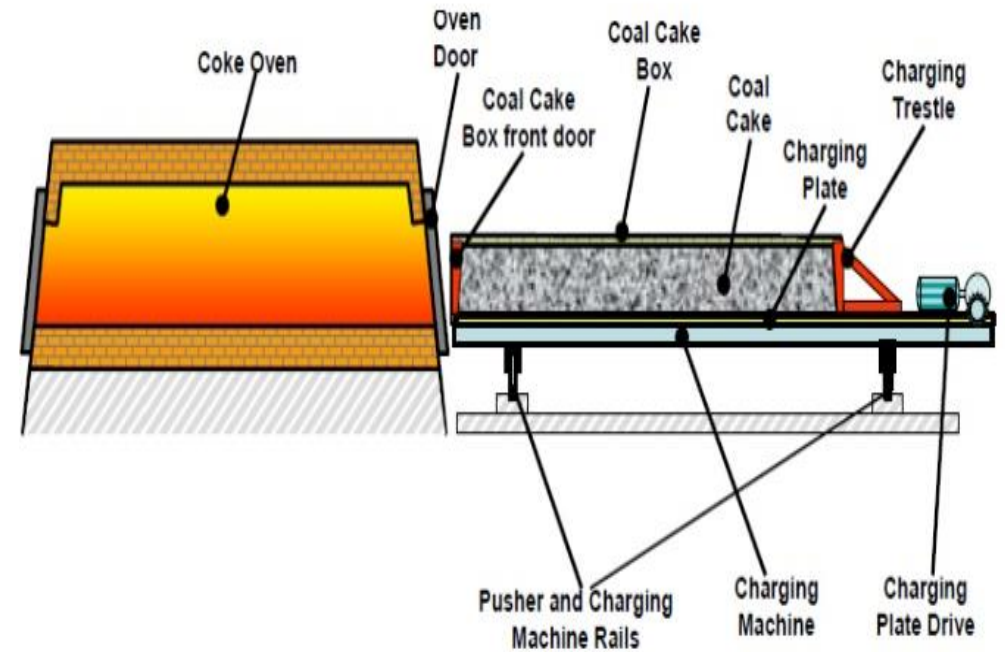
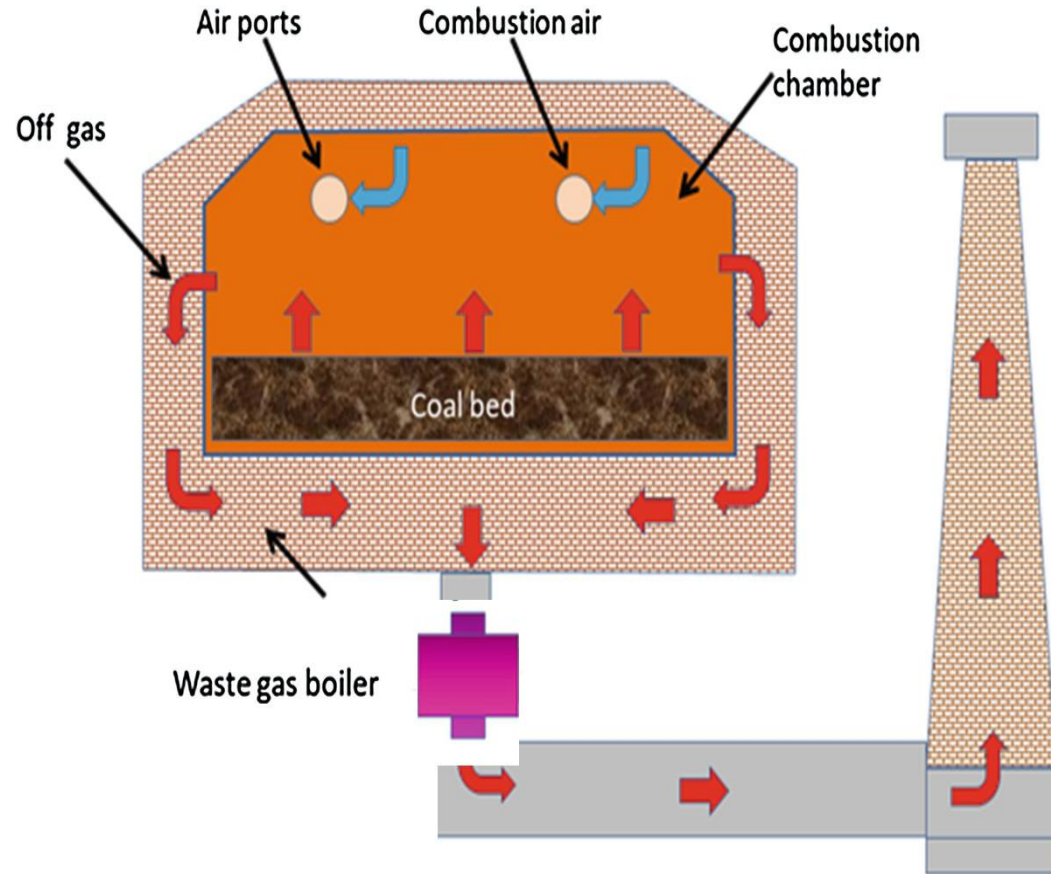
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## COKING PROCESS PARAMETERS

number	Item	Specification
1	Number of coking chamber	4 × 22
2	Coke oven turnaround time	65 ~ 72 hour (72 hours for this plan)
3	Annual working days of coke oven	365day
4	Coke oven tension operation coefficient	1.06
5	Coal density into coking chamber (dry)	0.95 ~ 1.05t / m <sup>3</sup> (Calculate to take 1.0)
6	Moisture of loaded coal	8 ~ 11% ( Calculate 10% )
7	Maximum temperature of coking chamber	1350°C
8	Flue gas temperature at the inlet of the boiler	1050 ~ 1200°C ( Calculate : 1150°C )
9	Amount of dry coal loaded at one time	63.342t
10	Coke yield	74.14%



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**Thanks for paying attention**