



**ЦЕНТР
РЕСУРСОЕФЕКТИВНОГО
ТА ЧИСТОГО ВИРОБНИЦТВА**



Ukrgrafit JSC (Ukrainskyi Grafite Company)

Resource efficient and cleaner production projects on-site



Schweizerische Eidgenossenschaft
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Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO



**UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION**



Ukrgrafit JSC

Joint Stock Company *Ukrainskyi Grafit* is the only manufacturer of artificial graphite in Ukraine.

Companies representing ferrous and non-ferrous metallurgy are actually the main consumers.

Commodities:

- graphite electrodes for arc kilns;
- electrode bulk;
- lining for metallurgical machines.





On-site resource and energy saving projects conducted by REPC Centre experts

Three resource and energy saving projects successfully performed within contracts between REPC Centre and Ukrgrafit JSC

05-08.2014 – Designing technical options to improve the operation of boiler for exhaust gases utilization.

01-07.2015 – Designing technical options to reduce heating steam consumption at production sections. Technological processes got changed.

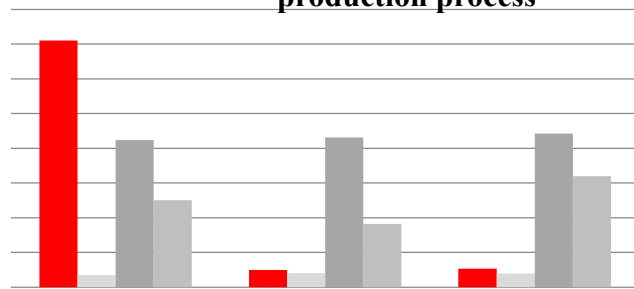
11.2017-05.2018 – To analyze water vapor consumption on-site experimental-based and estimated activities were undertaken. Designing necessary steps to possible modernization of both steam supply and consumption systems.





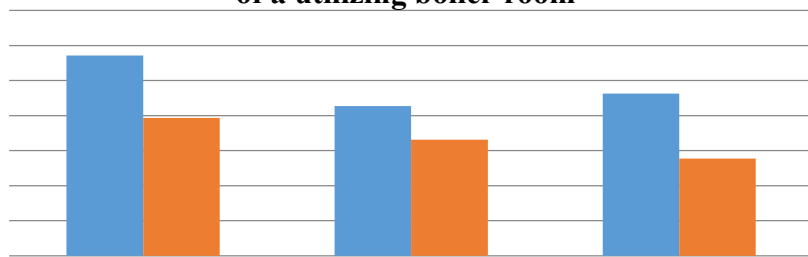
Designing technical options to improve the operation of boiler for exhaust gases utilization

Relative power consumption of an additional production process



■ Водяной пар

Relative power consumption of a utilizing boiler-room



■ Объем производства водяного пара

■ Газ природный, затраченный на производство водяного пара

Option suggested: utilizing the continuous blowdown heat to heat office building belonging to the boiler-room.

Installed capacity - 100 kW;

boiler room heating space - 950 m³.

Option suggested: Utilizing condensate of the equipment (located in the coal tar pitch pretreatment workshop) for hot water supply.

Savings ≈ 3,5 Gcal per day.

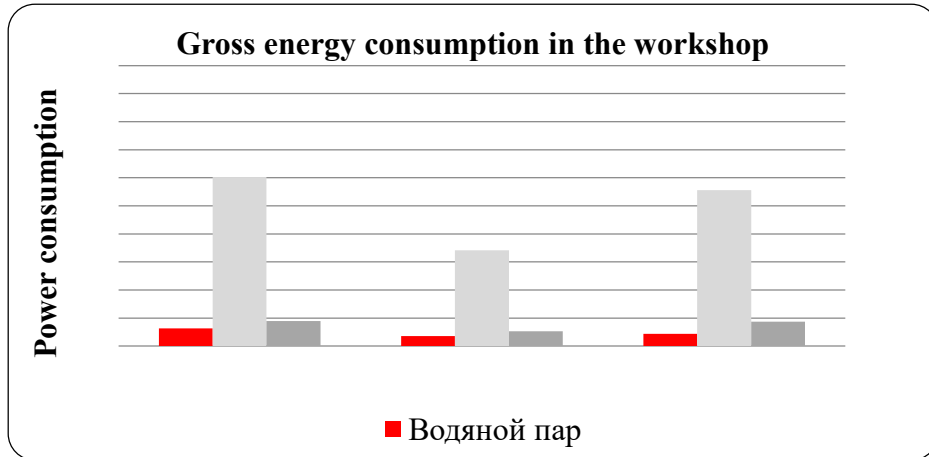
Option suggested:

Additional chimney sealing of a non-operative furnace with a long idle.

Natural gas savings - up to 20,000 m³ annually.



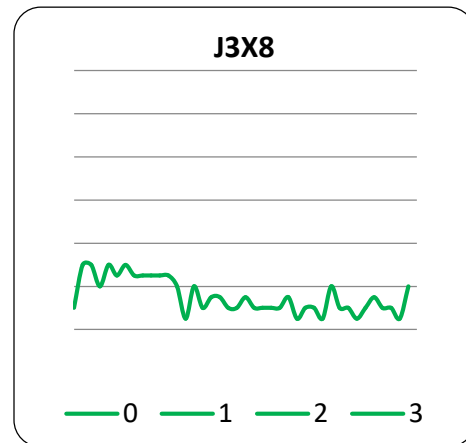
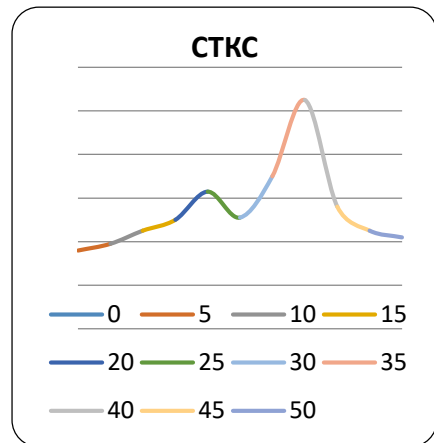
Designing technical options to reduce heating steam consumption



Option suggested: modifying schemes and modes for water vapor use.

Reduction in actual vapor consumption by 30%.

Savings up to 4,7 Gcal per day.



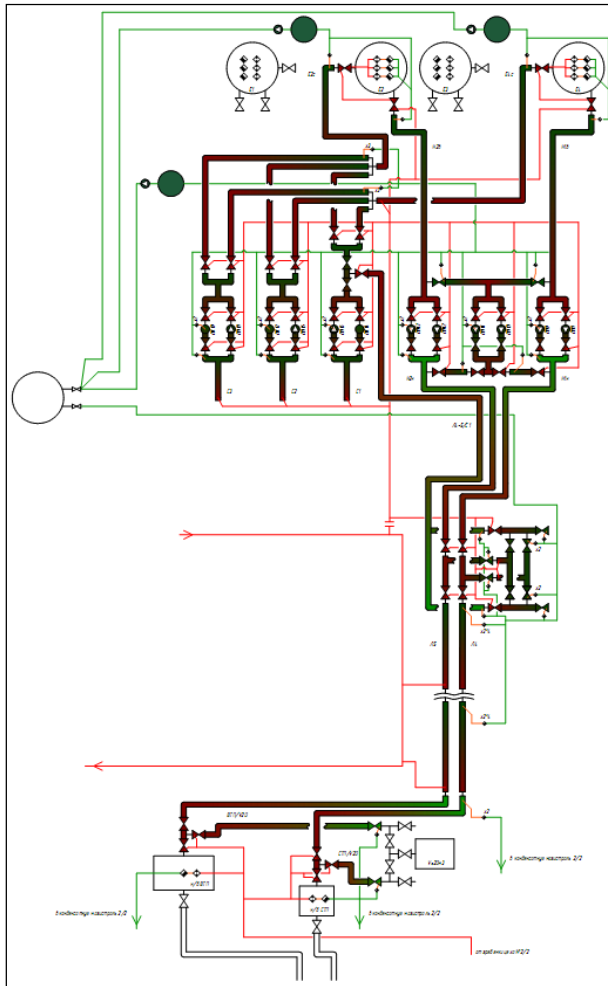
Option suggested: modifying steam-trap model.

Reduction in actual vapor consumption by 20 kg per hour per each machine running.

Savings up to 1,7 Gcal per day.

Theoretical minimum required steam consumption for installed equipment was estimated.

Experimental-based and estimated activities undertaken to analyze water vapor consumption on-site



A comparative analysis was applied to electrical and steam heating equipment operation.

A scheme for steam-heated facilities/pipelines modernization for coal tar pitch pretreatment was suggested.

The recommended consumption within coal tar pitch pretreatment workshop is equal 429.9 kg per hour winter time and 322.9 kg per hour summer time (actual consumption - 1.5-2 t per hour).

A scheme for steam-heated facilities/pipelines modernization at mixing and pressing workshop was suggested.

The recommended consumption within mixing and pressing workshop is equal to 1,7 t per hour winter time and 1,2 kg per hour summer time (actual consumption - 2,5-5 t per hour).

The steam line operation got analyzed taking into account changes in consumption.

Modifications to reduce the steam line ~ by 350 m were suggested.



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