INVESTIGATION OF PRESERVATION WAYS AND ENERGY CONSUMPTION IN OIL AND GAS REFINERY

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Abstract: Energy preservation in the date of 1960 is economic simple relative problem. Need for use and energy effective management is developed in refinery of con try development. This need from significant Increase in crude oil price is result from to oil recession in 1979 and 1973. Energy preservation and efficiency recovery in each industrial part is one of the effective tools decrease in saving. Successful recovery of energy resources can decrease operation cost and utilization increase. Crude oil industry one of the industries that take a clot of energy, Energy consumption in refinery is variable for over time and variation in crude oil kinds. Also operation factors like utilization of capability, repair and preserve costs and life of equipment to energy consumption affect to refinery. There are several recovery opportunities in refinery for energy consumption decrease. They pay a lot of attention to activities such as processes investigation, installation the new hydro recovery process, Preserve development methods for energy utilization increase. fuel flexibility can developed present energy selection for refinery. complicated refinery can developed energy efficiency with below methods.

Keywords: Energy Consumption Recovery, Energy Discernment, Oil Refinery, Energy Preservation.

I. INTRODUCTION

Energy preservation in the date of 1960 is economic simple relative problem. Need for use and energy effective effective management is developed in refinery of con try development. This need from significant Increase in crude oil price is result from to oil recession in 1979 and 1973. Energy preservation and efficiency recovery in each industrial part is one of the effective tools decrease in saving. Successful recovery of energy resources can decrease operation cost and utilization increase. Crude oil industry one of the industries that take a clot of energy, Energy consumption in refinery is variable for over time and variation in crude oil kinds. Also operation factors like utilization of capability, repair and preserve costs and life of equipment to energy consumption affect to refinery. There are several recovery opportunities in refinery for energy consumption decrease. major ere as for energy efficiency recovery is such as: u tolits (30%) heaters (20%) process recovery (15%) thermal exchanger (15%) motors (10%) and others ere as (10%) . among this ere as, utolits recovery, thermal exchanger and heater needed to much investment . they pay a lot of attention to activities such as processes investigation, installation the new hydro recovery process, Preserve development methods for energy utilization increase. fuel flexibility can developed present energy selection for refinery. complicated refinery can developed energy efficiency with below methods.

Increase thermal exchange between process stream, thermal exchange between and inside process units and heated foods between units, use of heater with high recovery, gas turbines with produce steams for mechanical energy in high pressures of wost thermal and preheated air, use hydrolyc turbines with high return use of steam with high pressure, darge pumps and darge kondonsor with produce high gaps. Energy consumption should evaluate based on integrity. This evolution should include entlre energy consumed by refinery and based on net sell and transmission to out of refinery. Effective process can have significant effect to refinery energy consumption. Development of new process like fuel biology and inversion refinery gasses to high level fuel can decrease fuel consumption. Another priority is process development that is substitute for present process. This includes process for distillation substitute and reforming metan gas for produce hydrogen. Environmental limits. Effect to consumption fuel quality and dead refinery to saving in energy consumption, energy efficiency recovery in refinery take in to account at first in design phase and via recovery between energy of cost electricite and thermal recovery equipment. New fuel properties and new process force refinery to process development. This paper investigates present saving opportunity in energy consumption of equipment and different parts of oil refinery.

II. PROGRAMS OF ENERGY MANAGEMENT

How to we implement energy evaluation general program is one of the effective ways for energy efficiency recovery.

It is likely that opportunity is unclear in factory with not having certain program. One successful program is beginning with serious steps for efficiency continuous recovery. Employee should be under skills training and energy efficiency recovery programs. We van use of energy monitor and process control program to effect on management and energy consumption reduction with use of this program can reduce required time for doing complicated works, improve data and products and recovery operation with implementing this plan we can save energy and

cost. We can point to heater modernized, thermal exchanger recovery with pinch technology effective use of wast thermal, installating steam trap, replacing GPR blade in collar tower fans with vacuum FPR Blade and replacing rotating air pre-heater with constant airy pre- heater.

III. THERMAL TRANSFORMER

Streams in on process several times become cool and warm. Use and designing thermal transformer is key area for energy efficiency recovery. Sediment is major reason for energy wasting in oil refinery. Atmospheric distillation tower unit in thermal transformer is one reason for additional costs, operation stop and greenhouse gases dissipation. Sediment is affected by process variable and thermal transformers design. Several ways is investigate for sediment reduction that is including use of sensors for primary sediment detection, chemical and physical ways for creating high temperature. Hydrolic efficiency and thermal for heat transformers is reduced in the surface. Over time, one sedimentary lager is created on the thermal transformer surface that cause increase pressure drop and hear transmission. Coefficience Rackinox is compact disk and light thermal transformers that are include pressure container and thermal transmission bandel. Advante gow of this transformer is low investment cost, thermal transmission low level, high yield and low pressure drop and not sediment is not created in it.

IV. HEATER

Excecd 60% of entire fuel is consumed in boiler and furnace. Thermal yield average of furnace is 70-90%. Maximum theory thermal yield is 92% with considering dwe point and not avoiding waste. Heater yields can via improvement quality of thermal transmission, flame light increase, installation air pre-heater, and control improvement. New design of flames with proposes for combining fuel and air and thermal transmission coefficient is proper choice for saving in fuel consumption. Air pre-heater is effective way for efficiency development and increase capability of process preheater. Furcmce chimney gasses is for burning air of preheating each 35° F drop in chimney gas temperature can increase furuance efficiency up to 1% . Saving in fuel consumption is between 8 to 18%. We can recover waste thermal with installing air pre heater and decrease additional air with implement control program.

V. HYDROGEN RECOVERY

Generating hydrogen is a taking energy process via reformers with oil consumption and natural gas fuel. This process and other process produce gas streams. That is containing of hydrogen certain that is not we in this process. New technology for hydrogen recovery is hydrogen source from refinery gasses like hydrogen sol fid and ammonium. Hydrogen recovery is technology development major erea for yield development, hydrogen recovery cost reduction and increase purity of hydrogen stream hydrogen can recover to hydrogen produce unit indirectly by stream direction.

Also hydrogen can recover via output gasses direct to present purification in hydrogen produce unit or additional purification installation. Proper gas streams are flow for hydrogen recovery and output gasses of hydro craker, koker o catalisty kraker. A property of source stream is influence to recovery technology selection. Hydrogen can recover with several ways that most common ways of it is thermal sewing absorption (PSA) cool distillation and membranes. Separation technology selection is depending on Recovery degree, Pressure and temperature. Hydrogen Recovery system can include membranes filtration process. Advantageous of this process is increasing demand for hydrogen and supplying hydrogen with low cost.

VI. BOILER

When consumed much air for fuel burning, wast much thermal in heating air. It is enough 15% additional air foe boilers with gas and oil fuel. Boiler that is not properly maintenance and repair can have 140% additional air.Dicreases this value up to 15% can save energy. Recovery Heat from chimney gasses is used for pre – heating of boiler water. Although it is used in dagre boiler, but still has large potential for Heat much recovery.

One limit factor for recovering gass heat Recovery is Economizer walls temperature that neither should nor drop to Below Acids dew level. With this work, we can design economizer that output chimney gasses can allitle above a cid dew point. With decrease each 25 in exhaust gas temperature save 1% in fuel consumption. When water Exit from boiler container with high pressure, pressure decrease produce some steams.This steam is from low grade kind but it is applied in space Heating and pre-heating water

VII. MOTORS

Electricity motors is assigned ever 80% of electricity consumption in refinery. Significant application of electricity motors are included pumps, (60%) air compressor (15%) fans (9%) and other applications (16%). If motors and pump selected proper as size can waste energy. Proper selection of motor size can save ½ in electricity consumption. Above motors decrease Energy yields. This decrease is due to improve their design, better material in making them and effective technik in their production.

VIII. STIMILOUS PRODUCTION OF ELECTRICITY AND HEAT

In common units we used from one separated container for thermal Energy generate and supply consumption electricity via their purchase. This separated production of heat and electricity has was be very much heat in condenser. Meanwhile when we produce electricity and heat via stimiolous process, increase overall yield, in proper use of compound units of (CHP) we can save energy. The most common component of such program in today refinery is such below Industrial gas turbines.Can combine with CHP to use from cooler unit was heat? New technick of gas turbines can effective CHP for place with high demand for heat steam turbines is considered as a part of CHP program in refinery. Steam turbines yield is determined with pressure and temperature of exhaust steam with exhaust pressure. Evert 18 F decrease in entry steam temperature lead to 1/1 decrease in steam turbines yield. If exhaust gases temperature is replaced with gas turbines can supply 20% of furuance heat, other choice is used from high temperature CHP. In this case a CHP chimney gas is applied for entry of one furuance or for preheating burning air.

IX. DELAY KOCKING

Delay kocking is one of the major processes of heavy oil in cruid oil refine Industry. This process is high temperature process that use from much of direct heat. Kocking process is combination of heat cracking cmd dequiditgreactiution that need too much energy. Heat entire for taking heat Kocking reations is supply from Kocking heater, There is basic opportunity for maintaining Energy in delaying Kocking process. It is essential to Increase Kocking heater yield and use of low temperature heat for effective decrease of unit energy. Kocking Technic improves lead to stimiolous decrease of energy and material. Recovery decrease operational proportion, kocking heater thermal load and fuel consumption. Kocking heater recovery is via burning advance technic, decrease of additional Colfficience and use of operation with low value of oxygen.

CONCLUSION

We can get below result from this paper.

1. Implementing one program for Energy evaluated general program is one of the effective ways for energy comsumption management in refinery.
2. Use of Energy monitoring and process control program has major role in management and Reduction of energy consumtion.
3. Using ad designing of thermal Transformation is one key area for recovery Energy efficiency. Removal and decreasing sediment on the thermal transformation surface is effective in structural reforms.
4. We can recovery waste thermal thorough furuance chimney gasses via installating air pre heater.
5. Hydrogen Recovery of gases containing hydrogen is one major area for developing energy yield development and hydrogen Recovery cost Reduction. Applying membrance filteration is one proper choice.
6. Recovering of compounding units performance of heat and electricity and boiler is area that save energy in it.
7. Operational returning proportion Recovery decrease heater thermal load and fuel consumption.

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