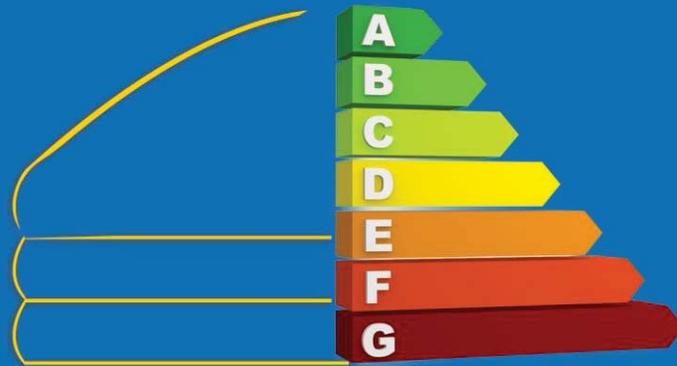




ENERGY REGULATORY  
COMMISSION

# JCM

JOINT CREDIT MECHANISM



## OPPORTUNITY TO IMPLEMENT THE ENERGY EFFICIENCY PROJECTS WITHIN THE **JCM**

**ATARJARGAL TSERENDOO**

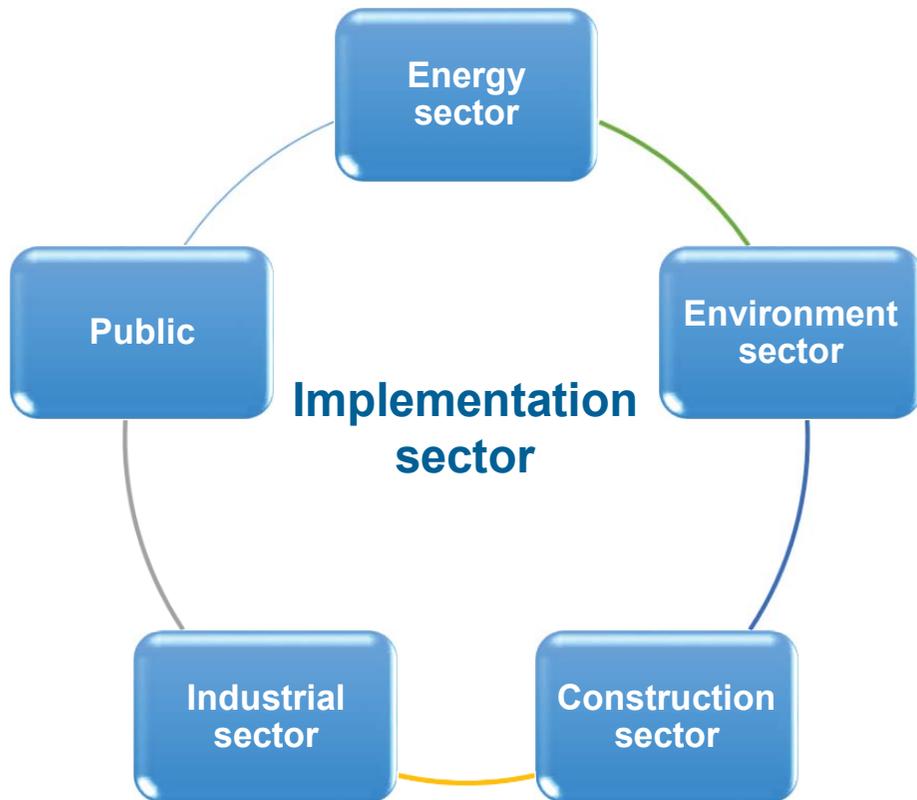
*Head of Energy Conservation  
Department*

**3 October, 2019 Ulaanbaatar, MONGOLIA**

# ENERGY CONSERVATION LAW

The Energy Conservation Law has been promulgated by the Parliament /State Great Khural/ of Mongolia on November 26<sup>th</sup> 2015

## Scope of the law:



## Relations to be regulated:



# NATIONAL ENERGY EFFICIENCY ACTION PROGRAM /2018-2022/



**PURPOSE** of the Program is to reduce GHG emission, mitigate climate change through integrated management of conservation and efficient use of energy, and to introduce and promote use of advanced energy efficient techniques and technologies.

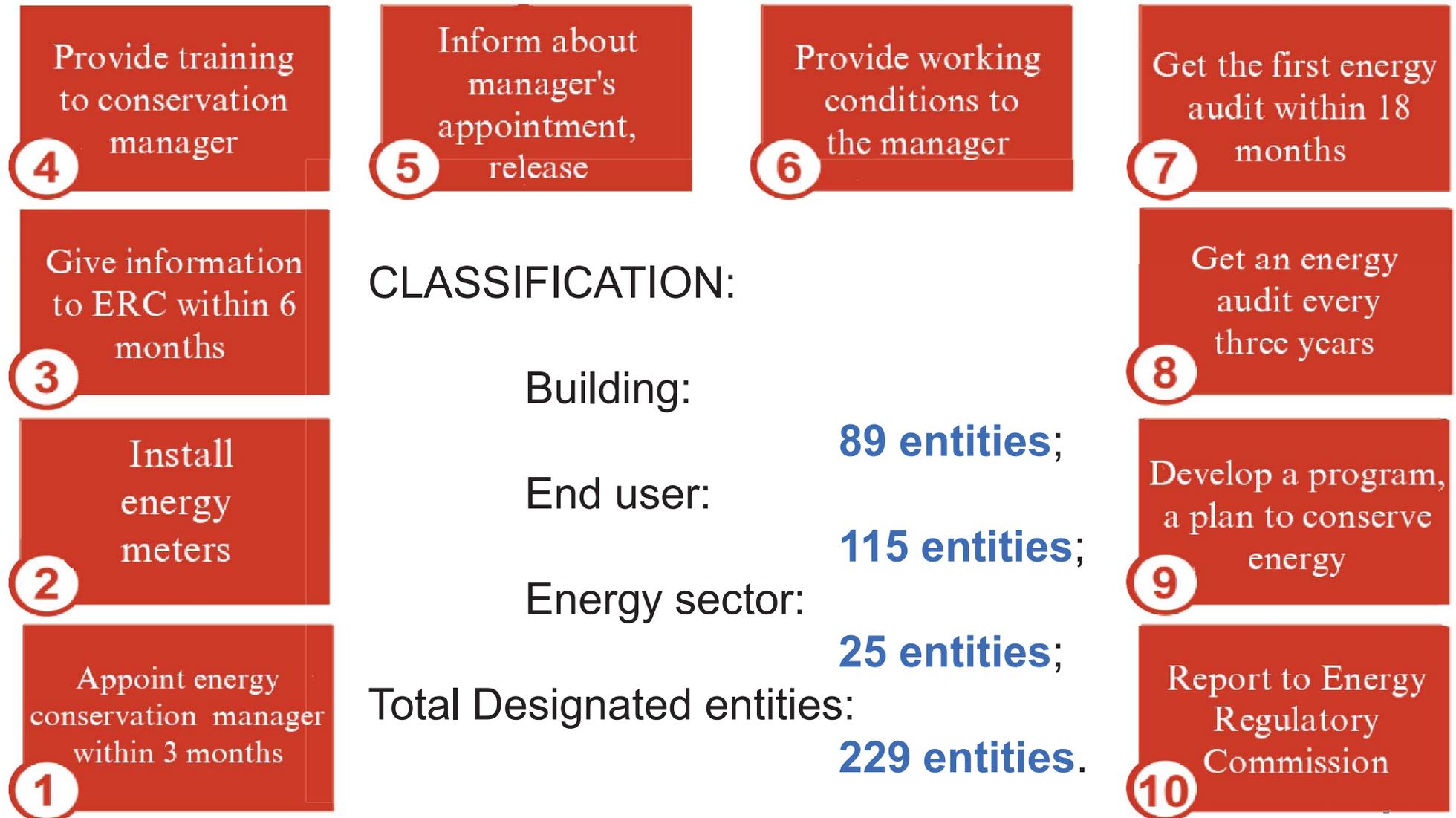


## MAIN FUNCTIONS OF ERC

- 1 To organize the work of creating legal mechanisms to implement the law;
- 2 To develop and implement state policies and national programs;
- 3 To define and register designated consumers, receive information and reports;
- 4 To prepare energy conservation managers, award certificates;
- 5 To accredit professional organizations;
- 6 To create an information system, promote the laws.

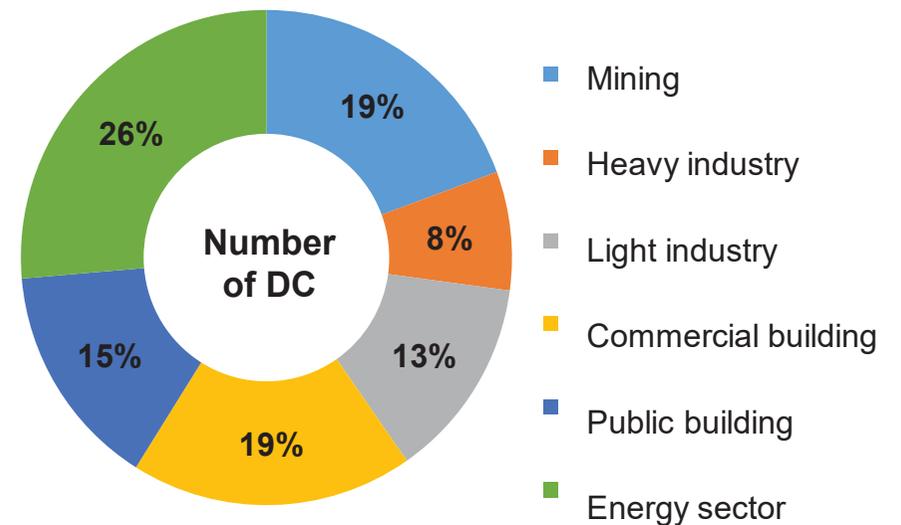
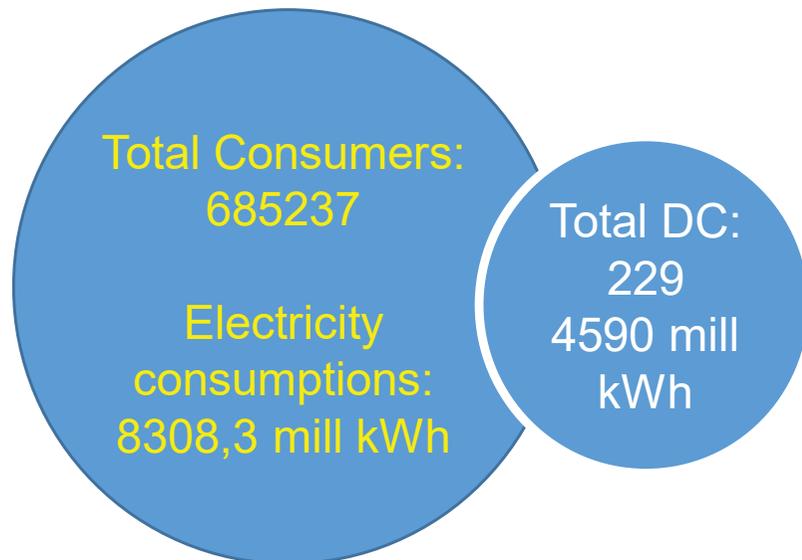
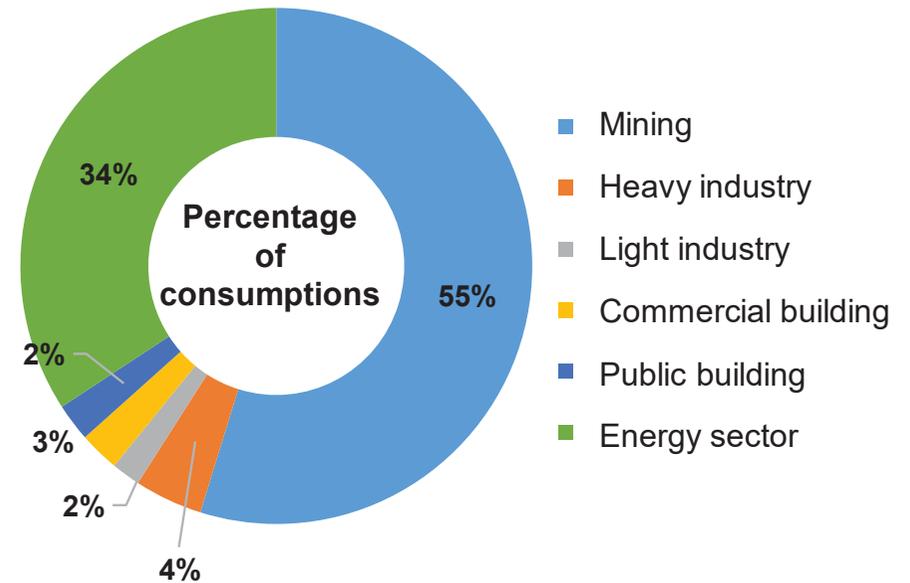
# ENERGY CONSERVATION & EFFICIENCY

“**DESIGNATED CONSUMER**” is any legal entity, whose energy usage is above the energy consumption threshold as defined by Government;



# Total consumption of the Designated entities, 2018

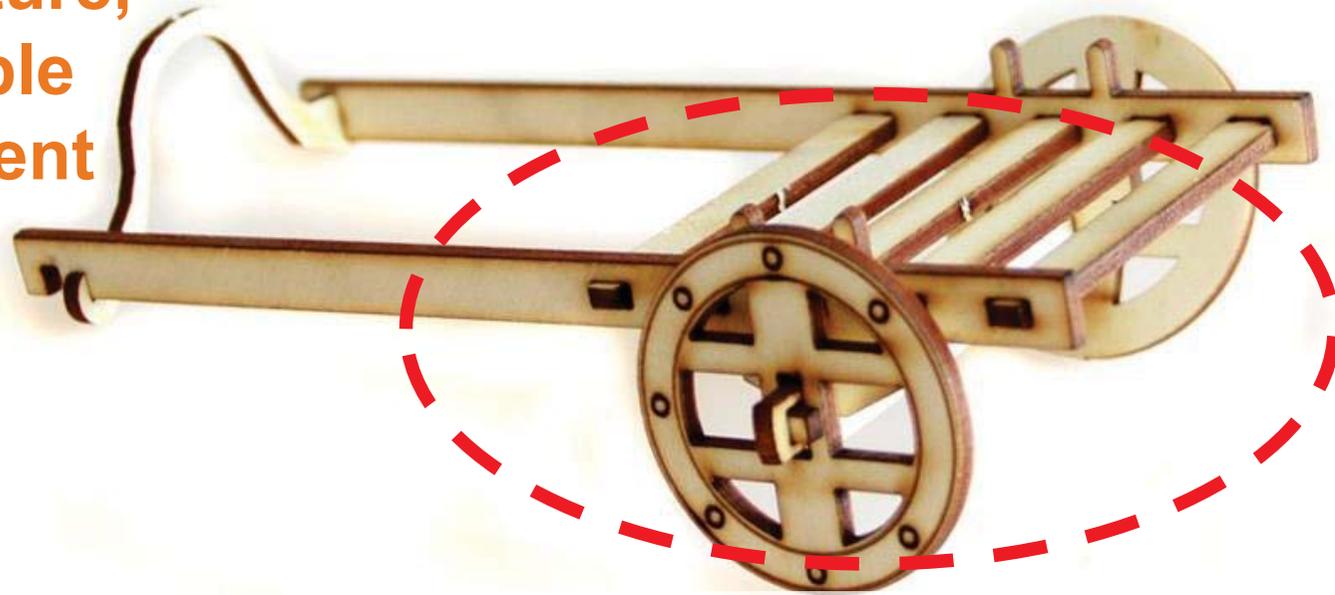
Grid	Entity and Industry	Residential		Total number of consumers	
		Apartment	Ger district		
1	CRIPG	41,320	267,186	266,662	575,168
2	WRIPG	4,590	5,372	34,417	44,379
3	ERIPG	2,193	7,373	18,956	28,522
4	SRPDG	1,916	1,691	10,786	14,393
5	AUIPG	2,147	2,410	18,218	22,775
<b>Total</b>		<b>52,166</b>	<b>284,032</b>	<b>349,039</b>	<b>685,237</b>



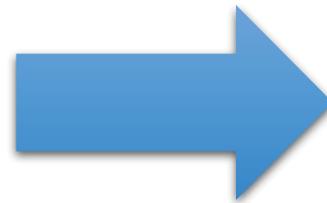
# OPPORTUNITY OF JCM

**GREEN Future,  
Sustainable  
development**

**Renewable energy**

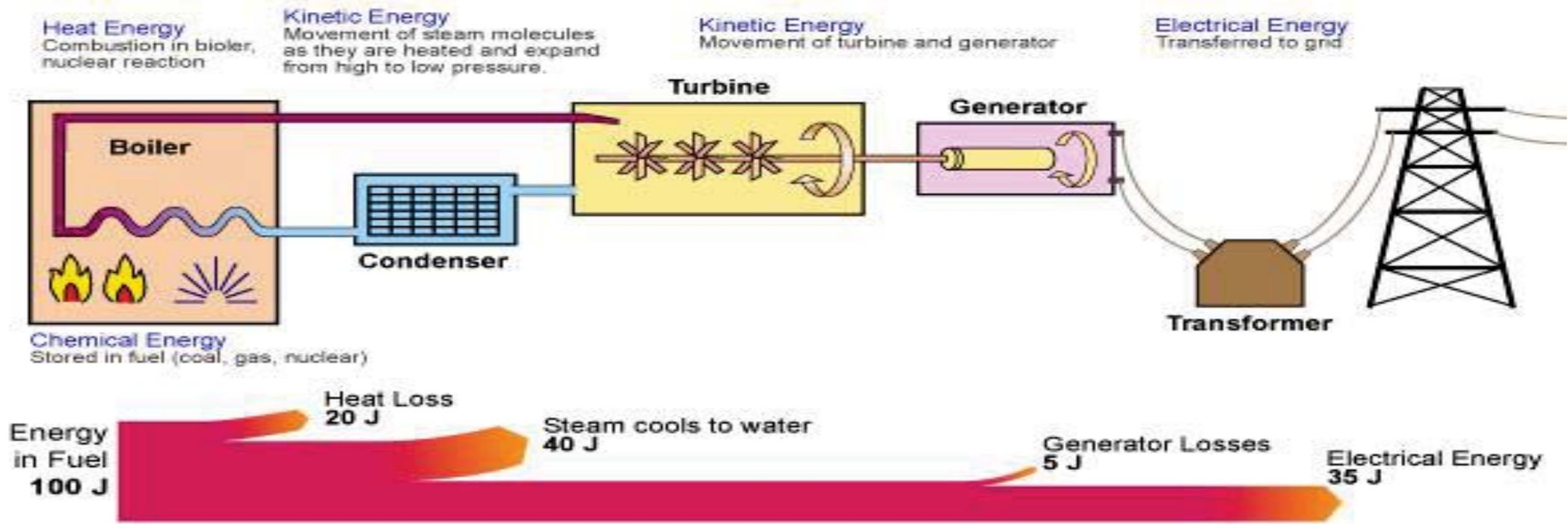


**Energy efficiency**



**JCM**

# OPPORTUNITY OF JCM



© Pass My Exams

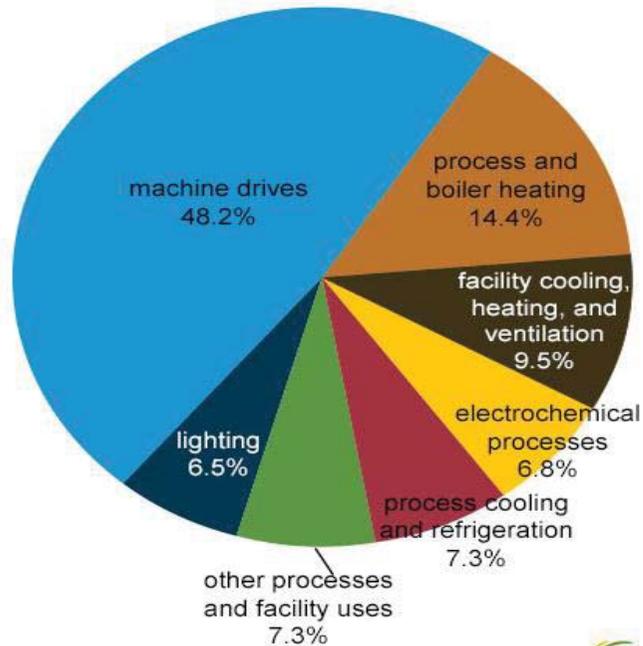


Total demand: 4805.4 mill kWh  
 Transmission and Distribution losses: 813.7 mill kWh  
**16.5%**

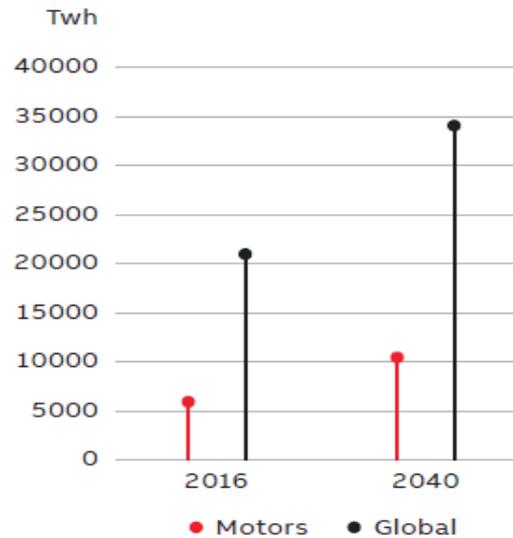
Total Generation: 6087.8 mill kWh  
 Import: 1522.5 mill kWh  
 Inner usage: 773.9 mill kWh  
 13.6%



# Global electricity demand, 2016-2040



Source: U.S. Energy Information Administration, *Manufacturing Energy Consumption Survey 2014*, Table 5.1, October 2017



Electricity demand growth

## 61%

From 2016 to 2040

A lot of this electricity is used to power industrial electric motors

## >40%

of all electricity used powers industry



## 2/3

of this is used by electric motors



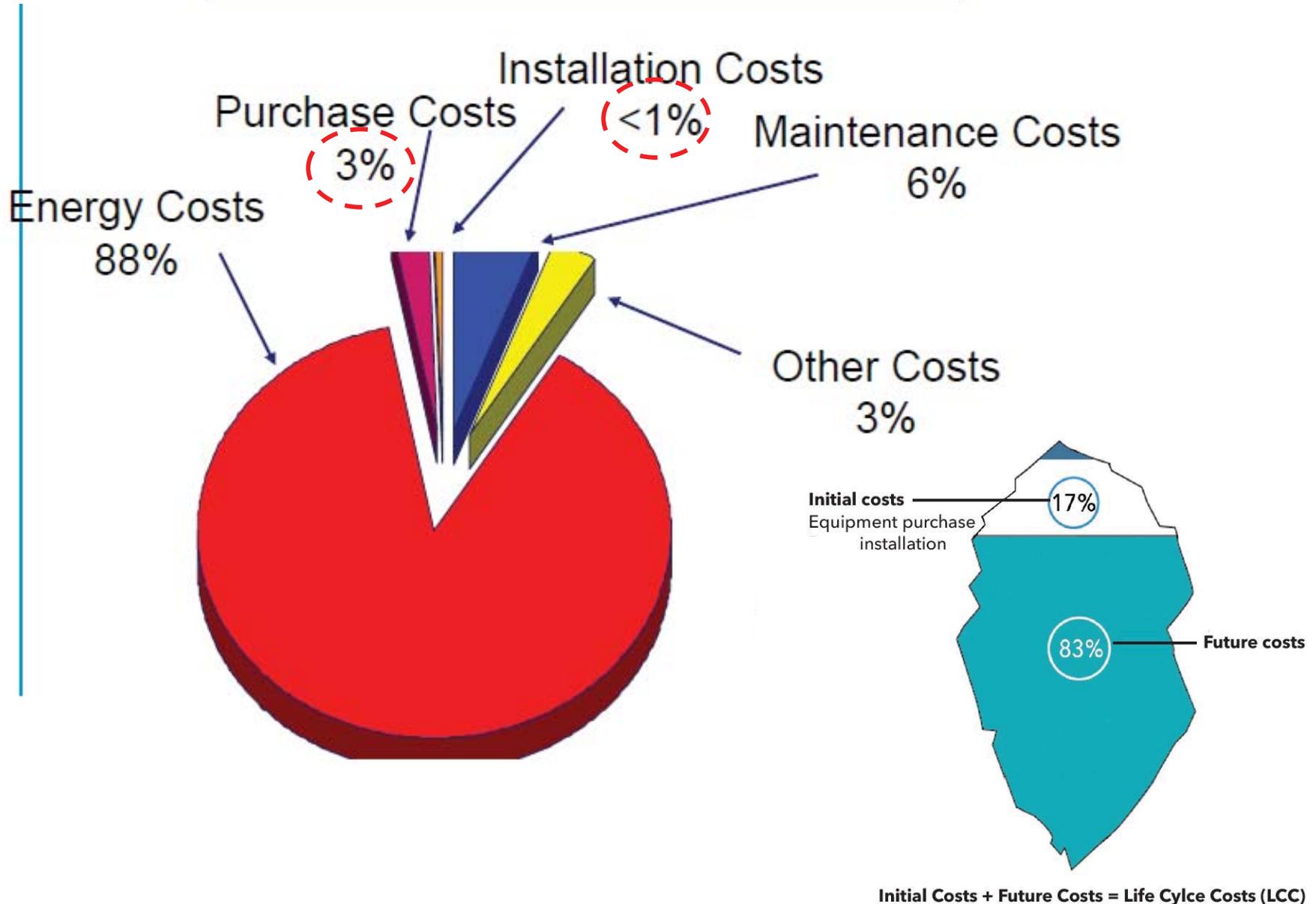
## ~ 30%

Global electricity consumption



# Electric Motor Life Cycle Costing

DOE 2004 Industrial Energy Savings Roadmap



# Potential of the Pilot projects

## Pilot project-1: Chinggis khaan Hotel



**Project finance: 28 million MNT**

*(purchase+service)*

**Technical specification: ABB, ACS510-01 ,  
30kW\*2**

	Unit	CP - 1	CP - 2	CP - 1	CP - 2
		Jan 26- May/1	Jan 26- March/1	Jan/26- May/1	Jan/26- May/1
Motor	kW	22	22	8.35	8.35
Inverter	Hz	50	35	35	35
Working time	Time	2280	816	2280	816
Electricity consumption	kWh	50160	17952	19038	6813.6
<b>Total</b>	kWh	<b>68112</b>		<b>25851.6</b>	

	Without VSDriver	With VSDriver	Conservation
Electricity consumption, kWh	68,112.00	25,851.60	42,260.40
Percentage, %		<b>37.95%</b>	<b>62.05%</b>

# Potential of the Pilot projects

## Pilot project-2: Bor-Undur mine and ore dressing plant

**Project finance: 37 million MNT**

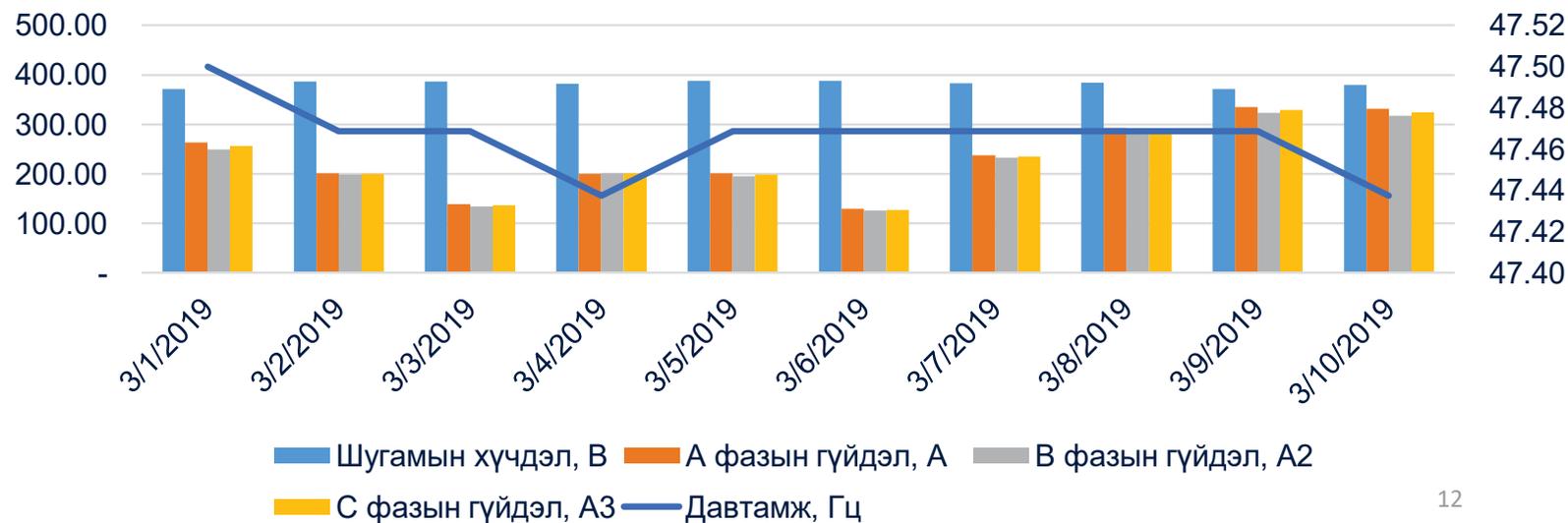
*/purchase+service/*

**Technical specification: ABB, ACS880-01 inverter, 200kW\*1**



Indicator	Unit	Value
Electricity consumption per year <i>/without inverter/</i>	MWh	324,2
Electricity consumption per year <i>/after installed inverter/</i>	MWh	207,1
Result <i>/save electricity/</i>	MWh	117,2
Percentage of the savings	%	36
Saved cost	Mill MNT	23.79
Reduction CO2	Tons /year	108

Regulated by VSD



# PROJECT IDEA

## Amorphous transformer project of 303 units of UB city center

**Project finance:**

**Total 7994.39 mill. MNT /Approximatly/**

**Project description:**

Reduction of technical losses due to replacement of outdated transformers of Ulaanbaatar city center with amorphous transformers.

Aging	Number of transformer	Precentage
Over 25 years	612	33%
Unknown installed Year	93	5%
Less 25 years	1,122	61%

Transformer load	Voltage level			%
	35 kV	10 kV, 6 kV	Total	
<b>No load</b>	<b>4</b>	<b>118</b>	<b>122</b>	<b>5.36%</b>
<b>Low load (&lt;40%)</b>	<b>42</b>	<b>1175</b>	<b>1217</b>	<b>53.47%</b>
Normal load(40% - 60%)	22	548	570	25.04%
High load (60% to 100%)	6	345	351	15.42%
Over 100%		16	16	0.70%
<b>Total</b>	<b>74</b>	<b>2202</b>	<b>2276</b>	<b>100%</b>

- Decrease of technical loss.
- Decrease of company's import deviation.
- Benefit from the project shall be in total 2268.58 million MNT.
- Reduction of annual CO2 emissions by 146.03 tons.

