

Valuation of State Owned Companies (Based on Energy Sector)

T.Lagnai¹, L.Naranchimeg², M.Erdenebat³, B.Khurelbaatar⁴

¹Associate Professor, Ph.D, Business School, NUM, Mongolia

²Professor, Ph.D, Business School, NUM, Mongolia

³Associate Professor, Ph.D, Business School, NUM, Mongolia

⁴lecturer Business School, NUM, Mongolia

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Abstract

The transition to the market orientation from the centralized economy, which started from 1990s, brought a great deal of important changes in Mongolian economy. Implementation of policies on market liberalization, promotion of free market and fair competition and privatization of state managed assets enabled the development of private sector and creation of legal entities in various forms such as privately owned companies, joint stock and state owned enterprises operating on the market. By February of 2024, there are 26 state owned companies (SOC) operating in energy sector of Mongolia, among over 100 fully or partially state owned companies that are involved in strategic sectors such as energy, mining, communications and transportation.

Being fundamental to the national security and overall socio-economic stability of the country, the energy sector is necessarily considered to be developed ahead of other sectors and hence, this research is focused on the comprehensive valuation of performances for state owned energy manufacturing and transmission companies of Mongolia. Main research subjects are 26 State Owned Companies (SOC) operating in energy sector of Mongolia.

Keywords: state property, state owned, joint stock company, the company valuation, performance results, performance indicators, executive management, independent, performance valuation.

1. Background on research theories and methodologies:

While considering ownership structure, specialties of companies fully and/or partially owned by the state and the problems in information dissemination and information inequality, the game theories and subsequent derivative theories such as Lemon theory offered solutions via the engagement of third party rating and performance valuation entities, which can operate as information intermediaries between companies and potential investors and hence, assist in eliminating information discrepancies ¹. Crawford, V.P, and Sobel (1982)² concluded that when

¹ Norman. W and MacDonald.C. "[What's Wrong With the Triple Bottom Line?](#)" Degrees.ca Newsletter, (July, 2004)

the agent that contains the information (company) lines up with the potential investor who is making decisions with lack of data, it is crucial that the latter is enabled to directly receive strategic, concise and comprehensive information, the process which was dubbed “chief talk mode” by follow-up researchers. Henceforth, the later research works by Battaglini, M. (2002),³ Aumann, R.J. and S.Hart (2003),⁴ Krishna, V. And J.Morgan (2004),⁵ Ottaviani, M. And P.N. Sorensen (2006),⁶ Kartik, N , M.Ottovani, Marco and F.Squintani (2007),⁷ Mullainathan, S., J.Schwartzstein and A.Shleifer (2008)⁸ emphasized the importance of independent valuations in negating the “nature of information inequality”. These researchers pointed out that independent valuation helps in maintaining the information balance, allows the informed decision making by the investors and other related parties and reduces the costs related to obtaining, processing and analyzing the data.

A complete and comprehensive valuation of overall performance and financial results of the legal entity means the review from many angles the main goals and objectives and their performances of a given entity based on the quantitative and qualitative analyses and the derivation of conclusive valuation and comparative ratings (B. Sainjargal 2019)⁹.

This research work is based on the five valuation indicators, namely the value of business, scope of operation, financial policy, financial indicators and performance results, commonly used by Moody's and S&P in evaluating SOCs in “developing countries”. While using these indicators, the SOCs are also evaluated with qualitative indicators such as corporate responsibility, governance and organizational structure, etc. The financial reports 2020, 2021 and 2022 of these SOCs were obtained via the digital data archive provided by the Mongolian Stock Exchange and were analyzed using ratio based financial statement analysis. The qualitative data from 2020, 2021 and 2022 annual reports of selected companies were collected based on secondary quantitative data, statistical selection and documents investigation methodologies. Qualitative analysis is directed at determining the operational base of the entity and degrading qualitative indicators could lead to downgrading the valuation even in the light of sound financial results of the company.

² Crawford, V.P. and J. Sobel (1982) "Strategic Information Transmission, "Econometrica 50, pp.1431-1451

³ Battaglini, M. (2002), Multiple Referrals and Multidimensional Cheap Talk, *Econometrica*, 2002, Vol.70, Issue 4, pp 1379-1401

⁴ Aumann, R.J. and S.Hart (2003), Long Cheap Talk, *Econometrica* 71, 1619-1660

⁵ Krishna, V. and J.Morgan: Contracting for Information under Imperfect Commitment, *Rand Journal of Economics*, 39 (2008) No.4, 905-925

⁶ Marco Ottaviani, Peter Norman Sorensen (2006), *Journal of Economic Theory* 126, pp.120-142

⁷ N Kartik, M Ottaviani, F Squintani (2007), [Credulity, lies, and costly talk](#), *Journal of Economic theory* 134 (1), 93-116

⁸ N Kartik, M Ottaviani, F Squintani (2007), [Credulity, lies, and costly talk](#), *Journal of Economic theory* 134 (1), 93-116

⁹ B. Sainjargal. (2019), Development in theories and methodologies of financial and economic analysis. Page 97

Table 1. Valuation methodologies of SOC

1. Qualitative indicators 50%			
Main indicators	% in valuation	Explanations	Sub indicators
1. The value of business	20%	Specialties of sector and the company. Operating sector of the company and specialties of the sector is analyzed. Analysis and valuation of sector provides valuable information in identifying current status and determining future performance of the company.	-Market wise whether operating on local market or globally.
			-Future demand is guaranteed and the sector is independent of other sectors.
			-Stabilized sector, but influenced by external factors.
			-Whether it is developing or developed sector
			-Demand and supply balance, global competition and raw material supply of the sector is not stable.
2. Operationals cope	20%	Indicates the level of corporate governance of the company. Good governance means a higher responsibility.	-Total revenue
			-Ownership and structure
			-Independence
3. Financial policy	10%	Accounting, information processing and comply to International accounting standards	Whether reports are audited and/or publicly disclosed. Number of tax inspections conducted.
2. Financial indicators 50%			
4. Financial indicators	40%	Estimated based on financial statement analysis.	ROI and ROE
			Payments to the state and dividends allocated
			Efficiency in utilization of assets and materials
			Return on net capital
5. Performance results	10%	Ratio of current profit	Profit /Total revenue
			Profit / COGS
Total 100%			

The valuation is performed based on numbers of last consecutive twelve months from SOC financial reports and qualitative indicators are converted to scores and sorted in grades. After estimating influence factors to the indicators, the results are categorized (Aaa, Aa, A, Baa, Ba, B, Caa, Ca). The lesser the estimated number the higher the valuation would be.

Table 2. Valuation categories

Aaa	Aa	A	Baa	Ba	B	Caa	Ca
1	3	6	9	12	15	18	20

Table 3. Valuation categories

Valuation categories	Average of total scores by each factors
Aaa	$x < 1.5$
Aa1	$1.5 \leq x < 2.5$
Aa2	$2.5 \leq x < 3.5$
Aa3	$3.5 \leq x < 4.5$
A1	$4.5 \leq x < 5.5$
A2	$5.5 \leq x < 6.5$
A3	$6.5 \leq x < 7.5$
Baa1	$7.5 \leq x < 8.5$
Baa2	$8.5 \leq x < 9.5$
Baa3	$9.5 \leq x < 10.5$
Ba1	$10.5 \leq x < 11.5$
Ba2	$11.5 \leq x < 12.5$
Ba3	$12.5 \leq x < 13.5$
B1	$13.5 \leq x < 14.5$
B2	$14.5 \leq x < 15.5$
B3	$15.5 \leq x < 16.5$
Caa1	$16.5 \leq x < 17.5$
Caa2	$17.5 \leq x < 18.5$
Caa3	$18.5 \leq x < 19.5$
Ca	$x \geq 19.5$

Research part:

During the research, quantitative and qualitative methods as well secondary financial data and documents investigation methodologies were employed on financial and operational reports of twenty six SOCs operating in energy sectors, with additional industry statistics.

The energy sector of Mongolia, considering the vast territorial coverage and infrastructure development, consists of four major network hubs, namely Western, Central, Eastern and Altai-Uliastai power hubs, which includes nine thermal power stations, Durgun and Taishir hydro power stations, Altai and Uliastai diesel power stations and other numerous medium and small electricity providers to manufacture electricity locally. In addition of this national manufacturing, Mongolia imports electricity from Russia and China to deliver electricity to over 330 villages spread throughout the country, via its extensive power transmission network and substations. Since the last thermal power station number 4, which was built in 1980s, there are no other major power stations added to the network till present day. During this period, many elected governments attempted to initiate some major projects, such as Egiin river hydro station, 5th thermal power station and a power station network that is based on Shivee Ovoo coal mine, without much success.

This research is based on the game theory and subsequent derivative theories such as Lemon theory that has offered solutions to the problem of information discrepancies via the explanation of behaviors for third party rating and performance valuation entities and their roles in eliminating information inequalities. The research was conducted based on the open source information of energy sector SOCs of Mongolia, employing selection and comparison methods and financial statement analysis.

The qualitative data of the selected companies were collected from 2020, 2021 and 2022 annual reports, plus the digital data archive provided by the Mongolian Stock Exchange. All the collected data were evaluated via valuation measures as “fulfilled”, “partially fulfilled” and “not fulfilled” for score average, using the sub indicators of each group. While some questions can be answered through limited “yes” or “no” replies, there are other questions which require preconditions. If these preconditions are not met, the given question shall not receive any score which results in reduction of overall company score.

Table 4. A. Qualitative indicators -1. The value of business

The value of business		Valuation measures	Valuation instructions
Question-1	Is there an annual report which contains both financial and non financial data?	<input type="checkbox"/> Fulfilled <input type="checkbox"/> Partly fulfilled <input type="checkbox"/> Not fulfilled	To be indicated as fulfilled if annual report contains both financial and non financial data. It is partially fulfilled if it contains either of only financial or non financial data. It is not fulfilled if there is no annual report delivered.
Question-2	If public or interested parties have access to the annual report?	<input type="checkbox"/> Free download from website <input type="checkbox"/> Upon request <input type="checkbox"/> No access to the report	Evaluation is given upon check up of access to the annual reports by any interested parties that has no relations with the company.
Question-3	Any dependence of your sector from any other sectors?	<input type="checkbox"/> Fulfilled <input type="checkbox"/> Partly fulfilled <input type="checkbox"/> Not fulfilled	If there is any information on the market the company operates on, and stats proving the market position of the company?

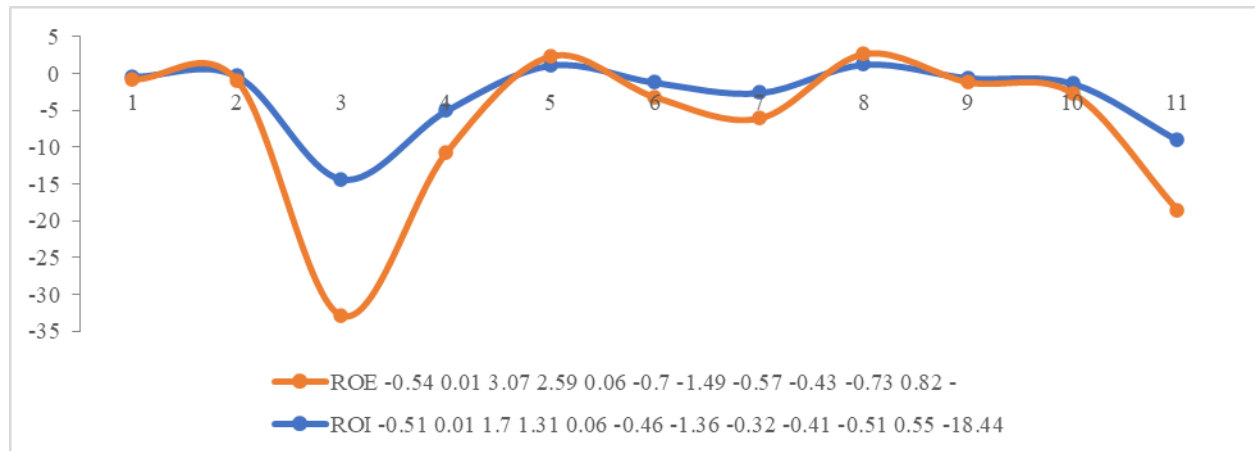
Table 5. B. Qualitative indicators -2 Scope of operation

Scope of operation		Valuation measures	Valuation instructions
Question-1	If the annual report contains the information on main operation of the company and relevant changes of scope?	<input type="checkbox"/> Fulfilled <input type="checkbox"/> Not fulfilled	It is indicated as fulfilled if the information on main operations and relevant changes and adjustments is available and as not fulfilled if otherwise.
Question-2	If concise information on the corporate governance structure and policy is contained in the report?	<input type="checkbox"/> Fulfilled <input type="checkbox"/> Partly fulfilled <input type="checkbox"/> Not fulfilled	It is indicated as fulfilled if concise information on both of the corporate governance structure and policy is contained. It is partially fulfilled if only either of these two is informed. Not fulfilled if there is no information provided.

Table 6. C. Qualitative indicators -3 Financial policy and strategy

Financial policy		Valuation measure	Valuation instructions
Question-1	If correct and reliable financial performance data is provided in the annual report. Status of errors and defaults revealed via inspections.	<input type="checkbox"/> Fulfilled <input type="checkbox"/> Partly fulfilled <input type="checkbox"/> Not fulfilled	Indicated as fulfilled if inspected within stated timeline by the law and no errors or defaults are detected and partially fulfilled if defaults are reported during the inspection within lawful deadline. Not fulfilled if there are no inspections reported.
Question-2	If the reports are prepared according to the IAS standards.	<input type="checkbox"/> Fulfilled <input type="checkbox"/> Partly fulfilled <input type="checkbox"/> Not fulfilled	Indicated as fulfilled if the reports are prepared according to the standards. It is partially fulfilled if reports contain partial financial performance data. Not fulfilled if there are no information provided.
Question-3	If financial reports are audited by the publicly recognized auditing companies?	<input type="checkbox"/> Fulfilled <input type="checkbox"/> Not fulfilled	<p><u>Indicated as fulfilled if such auditing firm has provided an audit and not fulfilled if it is otherwise.</u></p> <p><u>Comment:</u> “Publicly recognized auditing company is the company that: 1) has active webpage in both English (must) and Mongolian (optional) language; 2) has stated financial auditing as a main activity of the company on its webpage; 3) has indicated yearly history and experience of the auditing works on its webpage; 4) has presented information on employees of the company on its webpage. If the first criteria or two from 2nd to 4th criterias are not met, the auditing firm is not to be considered as “publicly recognized”.</p>

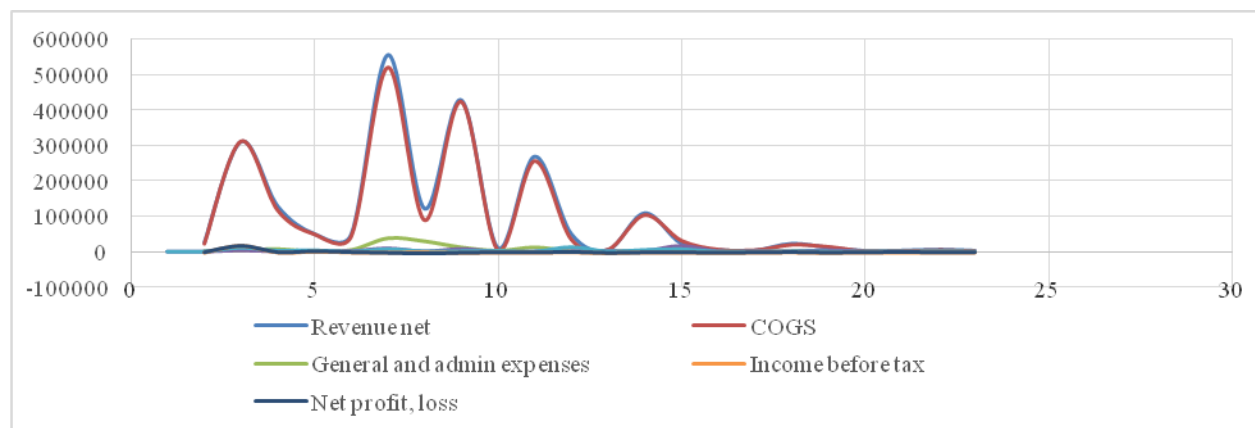
ROE ratio and self sufficiency coefficients are estimated using financial reports from 2020-2022 on all twenty six selected companies. The indication of financial stability of the company is expressed via the ability to finance its main operations with own equity capital.



Graph 1. ROI and ROE estimation of SOC's

Consolidated by the researcher

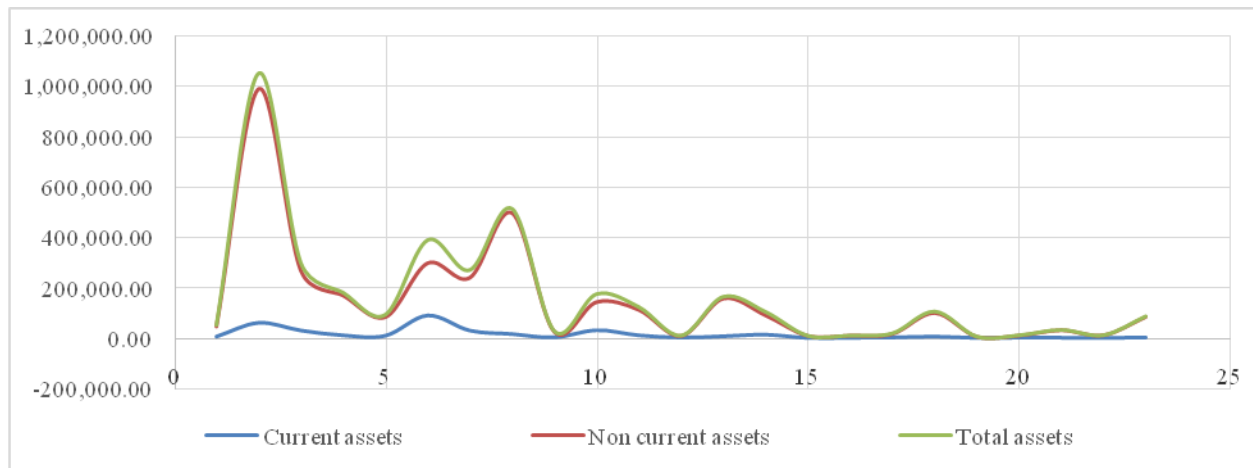
The ROI and ROE of 73% of SOC's show low performances. Looking at the asset structure from 2022 balance sheets, energy sector SOC's perform poorly on returns and have high degree of equity in total liabilities & equity side. Poor ROE represents low efficiency in owners' equity and profitability while ROI indicates low return on Government fund.



Graph2. Revenues and expenses of SOC's

Consolidated by the researcher

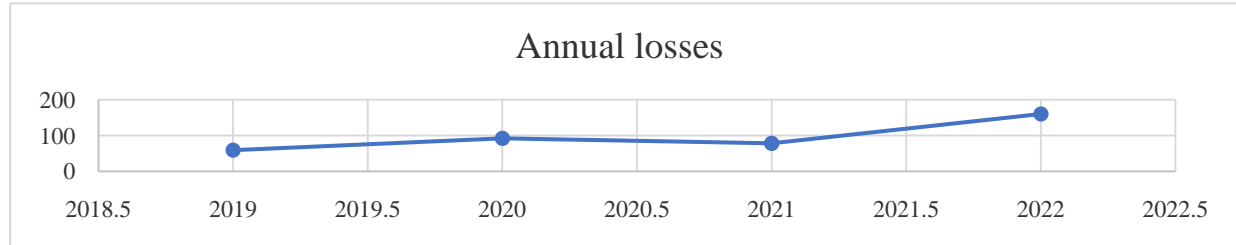
Figure 2 shows that energy SOC's are in operational loss due to the price restrictions, even though the COGS is low. COGS is the major expense itself, representing over 90% of total expenses. The Government fixes the price while financing the losses through the state budget.



Graph 3.Total assets, current assets, non-current assets of SOCs

Consolidated by the researcher

The 2022 financial reports of energy manufacturers and transmitters indicate that the adequate ratio between current and non-current assets comparative to total assets is lost. Further, an excessively high fixed assets balance demonstrates the high amortization expense, low fixed asset efficiency and overstock of reserves.



Graph 4. Profit and loss in energy sector

Consolidated by the researcher

Rise in losses is due to the increased energy consumption while the Government fully subsidized the electricity and heat expenses of residents during the coronavirus pandemics and keeping tariff flat for the last three years¹⁰.

Energy sector is facing numerous challenges where operational efficiency of SOCs and the improvement in performance and professionalism in executive management of these companies are needed to be addressed while shifting the focus to green and renewable energy sources which attract domestic as well foreign investors alike. Over 60% of all the current energy manufacturers and transmitters, all fully owned by the Government of Mongolia, have been operating in loss¹¹.

¹⁰ Mongolia Vision -2050, Governance plan of Mongolian energy sector, 2022.

¹¹ State Property Committee. "Financial results of 1st half, 2022" statistical bulletin

Qualitative indicators and financial indicators are 50% and 50% respectively and combined SOC valuation technique is shown below.

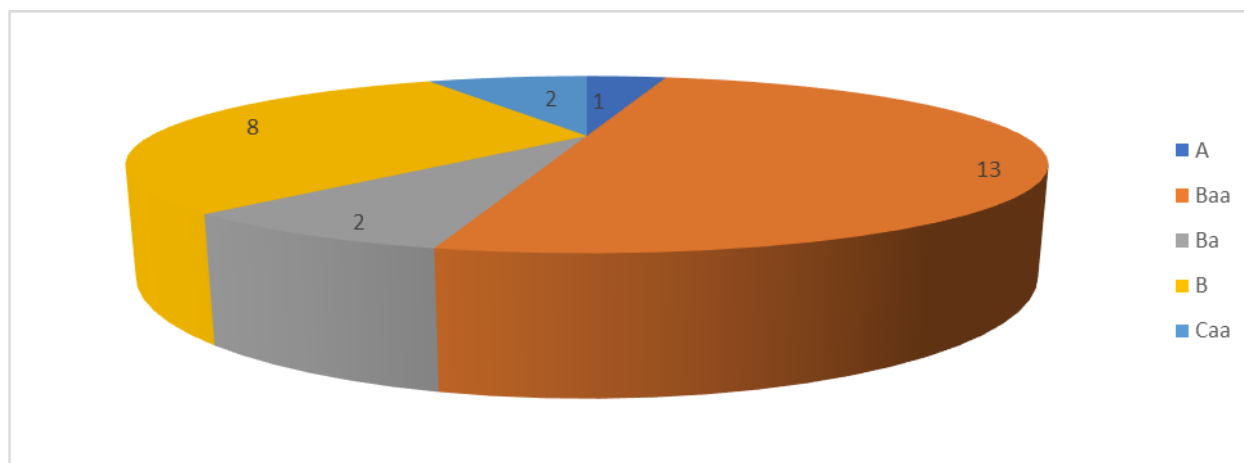
Equation:

$$\text{SOC valuation} = 0.2 \cdot D1 + 0.2 \cdot D2 + 0.1 \cdot D3 + 0.4 \cdot Y1 + 0.1 \cdot Y2$$

Table 7. Combined matrix of SOC valuation

Company	D1	D2	D3	Y1	Y2	Total score	Valuation
1	2.1	3.1	0.6	3.8	1.5	11.1	Baa
2	2.2	1.9	0.6	2.4	0.8	7.9	Baa
3	1	1.1	0.9	2.3	1.5	6.8	A
4	1.1	1.3	1.2	4	1.8	9.4	Baa
5	2	1.2	1.1	4.5	1.5	10.3	Baa
6	2.6	1.4	3.9	2.5	2.5	12.9	B
7	3	1.4	1.2	3.8	1.2	10.6	Baa
8	1.4	1.3	0.9	3.2	0.9	7.7	Baa
9	2.1	3.1	0.6	3.8	1.5	11.1	Baa
10	1.8	1.9	0.9	3.1	1.9	9.6	Baa
11	1.8	2	1.9	2.5	1.8	10	Baa
12	1.9	2.1	2.1	4.6	2.6	13.3	Ba
13	1.9	2.8	1.8	4.9	2.5	13.9	B
14	1.8	2.7	3.1	7	3.4	15.3	B
15	1.5	2.6	2.9	4.8	3.8	15.6	B
16	1.4	1.8	2.9	4.2	1.9	12.2	Baa
17	2.6	3.5	2.7	4.5	3.9	17.2	Caa
18	1.9	2.4	3.1	4	3.2	14.6	B
19	1.3	2.9	2.7	4.6	2.1	13.6	B
20	1.1	1.6	2	3.8	1.8	10.3	Baa
21	2.9	2.4	2.5	4.8	3.9	16.5	Caa
22	1.9	2.2	2.8	6	2.7	15.6	B
23	3	1.6	2.1	3.4	3.6	13.7	Ba
24	1.9	1.4	0.9	3.8	2.1	10.1	Baa
25	2.1	3.1	2.4	3.9	2.5	14	B
26	1.8	1.9	0.9	2.9	1.4	8.9	Baa

Consolidated by the researcher



Graph5. Valuations in graph for energy sector SOCs

As the graph 6 demonstrates, a single company scores A3 or higher and 13 others score with risk factors or barely above the average score with acceptable solvency. Out of the rest, 2 companies score risk factor of low solvency, 8 companies score high risk factor that require close attention and last 2 companies with high risk factor and solvency risk.

By the end of Oct 2023, Fitch agency rated Mongolian solvency and financial stability to be “B” with “stable” status, while S&P rating being “B-” and “stable” status. With the results of this research being within the limit of stated national rating, it shows the estimation utilized here can be useful. It is to be noted that as information disclosure is key indicator of trust for investors and customers alike and reflection of competitiveness of the company, much to be desired and needs to be done in disclosing the information for Mongolian SOCs.

Conclusion and proposal:

The energy sector is the fundamental in socio-economic development and strengthening national security. Economic growth and concentration of population in Mongolia bring sharp increases in energy demand and consumption annually. To keep up to this trend, SOCs operating in the sector need to improve their operational efficiency and asset management for better overall financial results and long term stability.

The last thermal power station #4 of Mongolia was built in 1980s, indicative that the significant modernization and capital investment is a necessity at this stage. In addition, it is well documented that much degraded heat transmission networks and pipelines are causing great deal of economic inefficiency while highly amortized and obsolete equipments and technologies are increasing production costs.

Despite these material challenges, SOCs in the energy sector could still perform better than the current state, with concentrated effort in managerial and leadership initiatives emulating the competitiveness of the private sectors. With the fixed prices to sell their products, the creativity and willingness from the management is essential. In addition, the better control and

performance measure schemes are much needed from the Government for the better overall performance.

The topics on technology innovation and renewable energy sources will require further studies.

Proposals:

- The Government needs to pay attention and implement policies to supplement the energy sectors with highly qualified and trained employees and specialists.
- The obvious need of a new power plant is evident, while the existing power stations are in urgent capital maintenance and upgrade. The partial or limited degree of privatization of SOCs in energy sector needs to be considered.
- In order to introduce the competitiveness in the sector, the limited privatization as mentioned above, as well as the involvement of or partnerships with private sectors in implementation of energy sector capital projects are favorable options.
- We are expecting further improvements in this research work with better data and information access and estimation variations.

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References:

State and Local Government Property Law 1995-05-27

The Government of Mongolia, Program on Policies and Implementation 2016-2020

Mongolia Vision -2050, Governance plan for Mongolian energy sector 2022

State Property Committee. "Financial results for 2022" statistical bulletin

State Property Committee. "Financial results for 1st Half, 2023" statistical bulletin

The Ministry of Energy. Energy manufacturing report for May, 2023.

Statistical book from the Ministry of Energy, June 2023.

Energy Regulatory Committee. Glass account Report 2021, 2022 and till June 2023

B. Sainjargal *"Development in theories and methodologies of financial and economic analysis"*, 2019.

L. Naranchimeg *"Valuation of Financial Stability"*, 2010.

T. Lagnai *"Issues in methodologies in the credit rating of corporate bond financing"*, 2016.

Rom, Mark Carl (2009) *"The Credit Rating Agencies and the Subprime Mess:*

Greedy, Ignorant, and Stressed?, *Public Administration Review* July/Shimoda, Naoto and Yuko

Kawai (2007) *"Credit Rating Gaps in Japan: Differences between*

Solicited and Unsolicited Ratings, and "Rating Splits", Papers in the Bank of Japan Working Paper Series

Shin, Kyung-shik, Ingoo Han (2001) *"A case-based approach using inductive indexing for corporate bond rating.," Decision Support Systems 32, pp.41-53*

Skreta, Vasiliki and Laura Veldkamp (2009) *"Ratings shopping and asset complexity: A theory of ratings inflation," Journal of Monetary Economics 56,*

Online sources:

<http://www.era.energy.mn>

<http://www.mmre.energy.mn/branch/history>

<http://www.nso.mn/v3/index.php?page=abdt&id=15>

<https://www.ifc.org/en/home/jp/jp>

<http://www.standardandpoors.com/home/jp/jp>