Review Form 1.7

Journal Name:	**Current Journal of Applied Science and Technology**
Manuscript Number:	**Ms_CJAST_106604**
Title of the Manuscript:	**Research on ORC-based industrial circulating water cogeneration system**
Type of the Article	**Research Article**

Review Form 1.7

PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments **1. Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) **2. Is the title of the article suitable?** (If not please suggest an alternative title) **3. Is the abstract of the article comprehensive?** **4. Are subsections and structure of the manuscript appropriate?** **5. Do you think the manuscript is scientifically correct?** **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	**1- Title** ORC must be written "Organic Rankine Cycle" **2- Abstract** - Line 2: Organic Rankine Cycle (ORC). - Conclusion must be added at the end of the paragraph. **3- Introduction** - **The first paragraph must be written as follows:** The organic Rankine cycle (ORC) power generation system is based on a simple steam power cycle known as the organic Rankine cycle. This cycle involves several steps. First, a low-temperature organic mass is pressurized and its physical properties, such as boiling point and flow, are modified using a mass pump. Then, under the influence of the pump, the circulating mass in the system absorbs heat at medium pressure in the evaporator, causing it to vaporize and form saturated steam. This steam then transforms into high-temperature and high-pressure gases. Finally, these gases are further heated by the superheater. After transforming into superheated steam, the steam enters the expander, undergoes expansion, and performs work. This work drives the generator, enabling power generation and the production of a significant amount of usable power. The spent steam is then discharged after expansion. Although its temperature is slightly higher than the surrounding environment, it is still significantly cooler than when it was superheated. The discharged steam is condensed back into liquid by the condenser and cooling water. This condensed liquid then continues to participate in the cycle, forming the power generation system's central element. - **The second paragraph the following line must be written as follows:** This system ORC power generation system in the selection of organic work mass needs to follow the relevant selection principles and consider the impact of various factors [12-13]. - Line 10 in the paragraph under the title "**How cogeneration systems work"** "R245fa[14-16]" must put a space between the word and reference. Similar to this error is repeated in many paragraphs as well as what's the meaning of " R245fa". 4- In "**Figure 2 Schematic diagram of the cogeneration system**" what are the differentiations between the " Heat source system and Heating system". 5- **Conclusions: This should be written as follows"** The ORC power generation system in this cogeneration setup utilizes a fertilizer process wastewater with a temperature of 145 ℃ and pressure of 1.1 MPa. By analyzing and comparing different options, the circulating organic media R245fa is chosen, which results in good performance for the power generation system. This system then efficiently utilizes the waste heat by integrating it into the heating system, maximizing its secondary use. Through the establishment of an ORC cogeneration system model, it is observed that increasing the evaporation temperature and degree of superheat leads to a decrease in irreversible losses, an increase in system thermal efficiency, and higher output power from the expander. Conversely, increasing the degree of subcooling and reducing the condensing temperature results in increased irreversible losses and decreased system thermal efficiency. Further study of the factors influencing the system reveals that the power generation power can reach 949.05 kW,	

	while the system thermal efficiency can reach approximately 0.25 kW. The cogeneration system demonstrates excellent performance in utilizing waste heat, with a thermal efficiency of about 0.25 and an energy efficiency of about 0.45. This highlights its significant potential for further development and utilization. _____ 1- The manuscript titled "Research on Organic Rankine Cycle (ORC)-based industrial circulating water cogeneration system" holds great significance for the scientific community, shedding light on the efficient utilization of waste heat and maximizing energy production. Its findings pave the way for advancements in sustainable power generation and resource conservation. 2- Yes. 3- Need to add some modifications. 4- Yes. 5- Yes. 6- Yes.	
Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**	Good but need to some improvments.	
Optional/General comments	-	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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