Proposal Writing Guidelines

Each proposal must strictly follow the given structure and content requirements. Missing sections, grammar/spelling mistakes, or deviations from the order will result in validation issues.

1. Title

- A concise, descriptive title (max 15–20 words).
- Highlight innovation & purpose clearly.

2. Author(s)

- Full name(s) of principal investigator(s).

3. Affiliation

- Institution/organization leading the project.
- Include department if academic.

4. Abstract

- 200–300 words.
- Must include:
    - Problem definition
    - Research gap
    - Objectives
    - Methodology
    - Expected impact
- Should convince reviewers why this project matters.

5. Keywords

- 3–6 keywords.
- Must capture research focus (e.g., *Coal Gasification, Carbon Capture, Clean Energy*).

6. Introduction

- 1–2 paragraphs.
- Include:
    - Background context
    - Why the research is needed
    - Research gap
    - Strategic significance
- Use data/statistics if possible (e.g., India's coal dependence, emissions figures, policy targets).

7. Methodology

- Must describe **step-by-step methods**:
    1. Coal characterization (techniques used)
    2. Reactor design & modeling
    3. Catalyst development
    4. Process optimization approaches
    5. Pilot-scale testing
- Use both experimental and computational methods if relevant.

8. Results

- Describe expected **technical results**:
    - Reactor design
    - Catalyst systems
    - CO_2 capture protocols
    - Optimized process guidelines
- Express in measurable terms (e.g., efficiency %, emission reduction %, cost impact).

9. Discussion

- Explain **why the results matter**.
- Address:
    - Industry, environment, and policy impact
    - Limitations and how to overcome them
    - Links to India's climate goals, energy security, and economic benefits

10. Conclusion

- 3–5 sentences.
- Restate importance, feasibility, and long-term potential.
- End with a vision for scaling up the technology or policy relevance.

11. References

- Use APA or IEEE style.
- Must cite relevant reports, journals, and policies. Examples:
    - *International Energy Agency (2023). Coal Report.*
    - *Government of India (2021). Net-Zero by 2070 commitment.*

12. Timeline

- Divide into phases (with months):
    - Phase 1 – Literature review & design (Months 1–12)
    - Phase 2 – Catalyst & lab testing (Months 13–24)
    - Phase 3 – Pilot & validation (Months 25–36)

13. Research Needs

- Clearly state gaps your research addresses, such as:
    - Cost-effective catalyst
    - Pilot demonstration
    - Process optimization for Indian coal

14. Funding Sources

- Identify possible sponsors:
    - Govt of India Clean Energy Mission
    - International Climate Funds (World Bank, UNDP)
    - Industry partnerships (Steel, Power sector)

15. Collaborating Institutions

- List collaborating institutions (e.g., IITs, CSIR labs, NTPC, international research partners).