Perfect — thanks for sharing your literature review document. Since your **goal is to test out 2 statistical methods and 3 machine learning models for STLF**, your **Methodology section** should be structured clearly to show:

1. **How you prepared your dataset**,
2. **How you selected/implemented the models**,
3. **How you trained and evaluated them**,
4. **How you compared results**.

Here's a strong **thesis methodology structure** tailored to your project:

Methodology

3.1 Research Design

- Briefly explain the overall research strategy: *comparative evaluation of statistical vs machine learning methods for short-term load forecasting*.
- State why you chose **2 statistical models** (e.g., ARIMA, Exponential Smoothing) and **3 ML models** (e.g., SVM, ANN, LSTM).
- Clarify research questions/hypotheses (e.g., "ML methods will outperform statistical methods in accuracy, but with higher computational cost").

3.2 Data Collection and Description

- Source of dataset (Panama STLF dataset or whichever you're using).
- Variables used (temperature, humidity, load, etc.).
- Time resolution (hourly, daily).
- Any limitations (missing data, sensor issues).

3.3 Data Preprocessing

- Cleaning (handling missing values, outlier detection via Hampel Identifier/IQR).
- Normalization/scaling of features.
- Feature engineering (e.g., lag features, time-of-day, weekday/weekend).
- Train-test split (e.g., 70/30, or rolling window approach).

3.4 Model Selection and Implementation

- **Statistical Models:**

    - Model 1: ARIMA/SARIMA (explain parameter tuning, e.g., ACF/PACF).
    - Model 2: Exponential Smoothing / Holt-Winters (explain seasonal trend handling).
- **Machine Learning Models:**
    - Model 3: Support Vector Regression (explain kernel selection, hyperparameter tuning).
    - Model 4: Artificial Neural Network (e.g., MLP — architecture, activation function, optimizer).
    - Model 5: LSTM (explain sequence input, memory handling, number of layers, hidden units).
- Justify why these models were chosen (based on literature review).

3.5 Experimental Setup

- Hardware/software environment (Python, TensorFlow, Scikit-learn, MATLAB, etc.).
- Performance metrics: MSE, RMSE, MAE, MAPE, R^2.
- Cross-validation or rolling forecasting origin validation.

3.6 Model Training and Testing

- Procedure for training each model.
- Hyperparameter optimization (grid search, Bayesian optimization, etc.).
- How training and testing were performed (fixed split vs sliding window).

3.7 Evaluation Strategy

- How results from all five models will be compared (tables, graphs, error metrics).
- Statistical significance testing (e.g., paired t-test on errors, if needed).
- Computational cost analysis (runtime, memory usage).

3.8 Ethical Considerations (optional, if required)

- Dataset privacy, open-source usage, responsible reporting of results.

📌 This structure ensures your methodology is **replicable, transparent, and logically follows from your literature review**.

Would you like me to **draft the text of this section** in academic style (so you can paste it into your thesis), or just keep it as an **outline/structure** for now?