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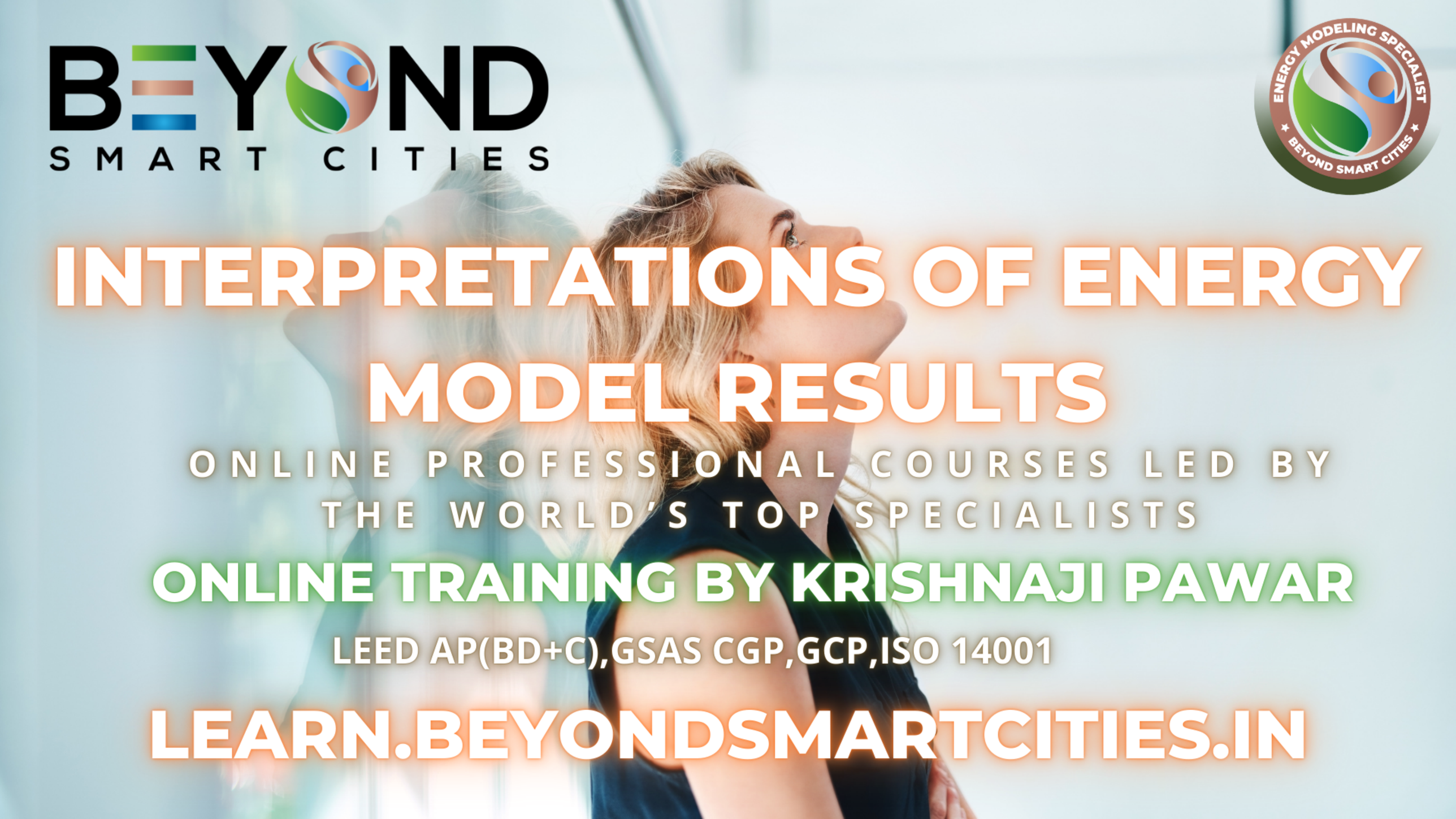
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ENERGY MODELING SPECIALIST
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INTERPRETATIONS OF ENERGY
MODEL RESULTS
ONLINE PROFESSIONAL COURSES LED BY
THE WORLD'S TOP SPECIALISTS
ONLINE TRAINING BY KRISHNAJI PAWAR
LEED AP(BD+C),GSAS CGP,GCP,ISO 14001
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MODULE L4

# Review Data for Anomalies.

KRISHNAJI PAWAR - CEO & FOUNDER

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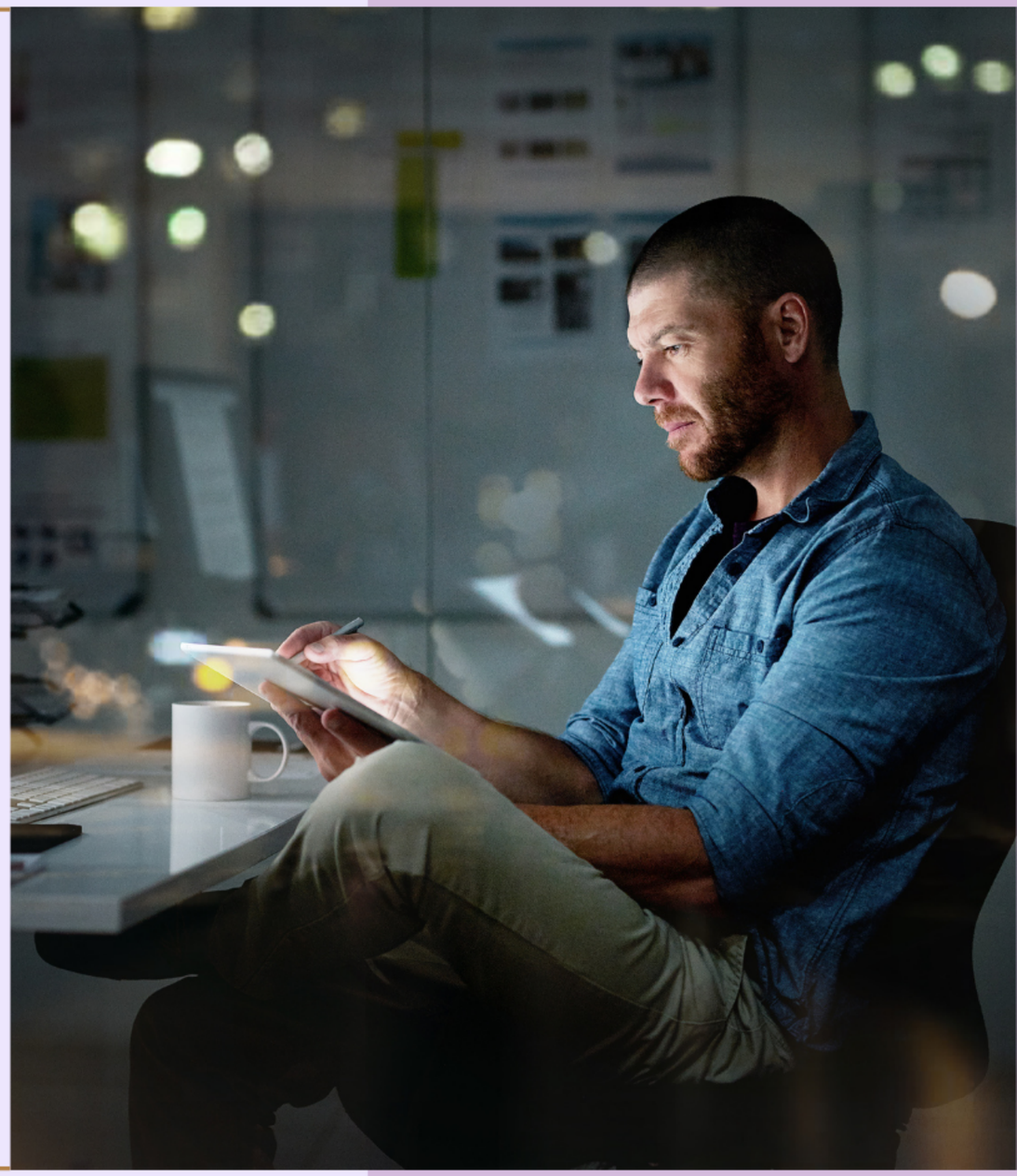

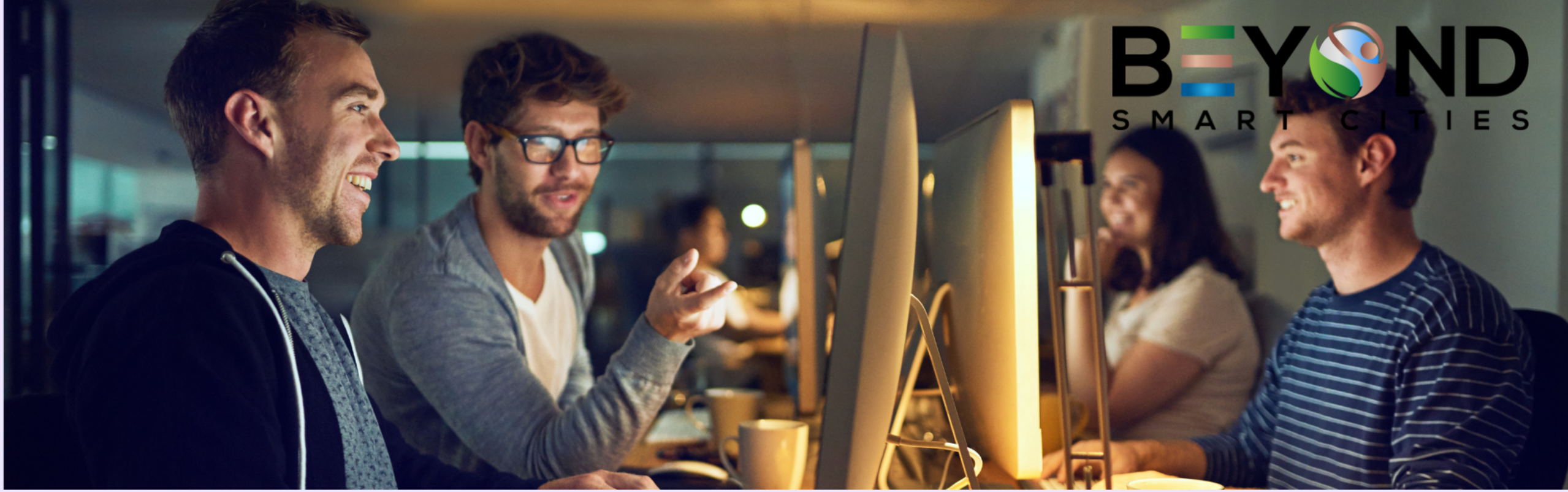


# INTERPRETATIONS OF ENERGY MODEL RESULTS

Energy models are crucial tools for assessing and predicting energy consumption patterns, supply dynamics, and policy impacts. However, the integrity of these results depends on the quality of input data and the assumptions underpinning the model. Anomalies, defined as deviations from expected patterns in data, can significantly impair the reliability of energy model outcomes.

# Learning Objectives

- Introduction and Course Outline
- Review data for anomalies.
- Analyzing and Comparing Modeling Results
- Economic Analysis
- Sensitivity Analysis
- Exceptional calculation methods
- Building Energy Modeling Project Deliverables
- Interpreting Model Results
- Sample Energy Modeling Report
- Summary and Resources
- BEMP Practice Test V.5.1

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# INTRODUCTION

- Energy models are crucial tools for predicting energy consumption patterns, supply dynamics, and policy impacts.
- Anomalies, deviations from expected data patterns, can significantly impair model reliability.
- Anomalies can be identified through descriptive statistics, visual analysis, machine learning techniques, and time series analysis.
- Descriptive statistics calculate mean and standard deviation, visual analysis highlights anomalies, machine learning techniques assess data structure, and time series analysis identifies anomalies relative to temporal patterns.
- Analyzing anomalies is crucial as energy systems become more complex and linked to social and environmental issues.

# ANOMALY DETECTION IN ENERGY MODEL RESULTS

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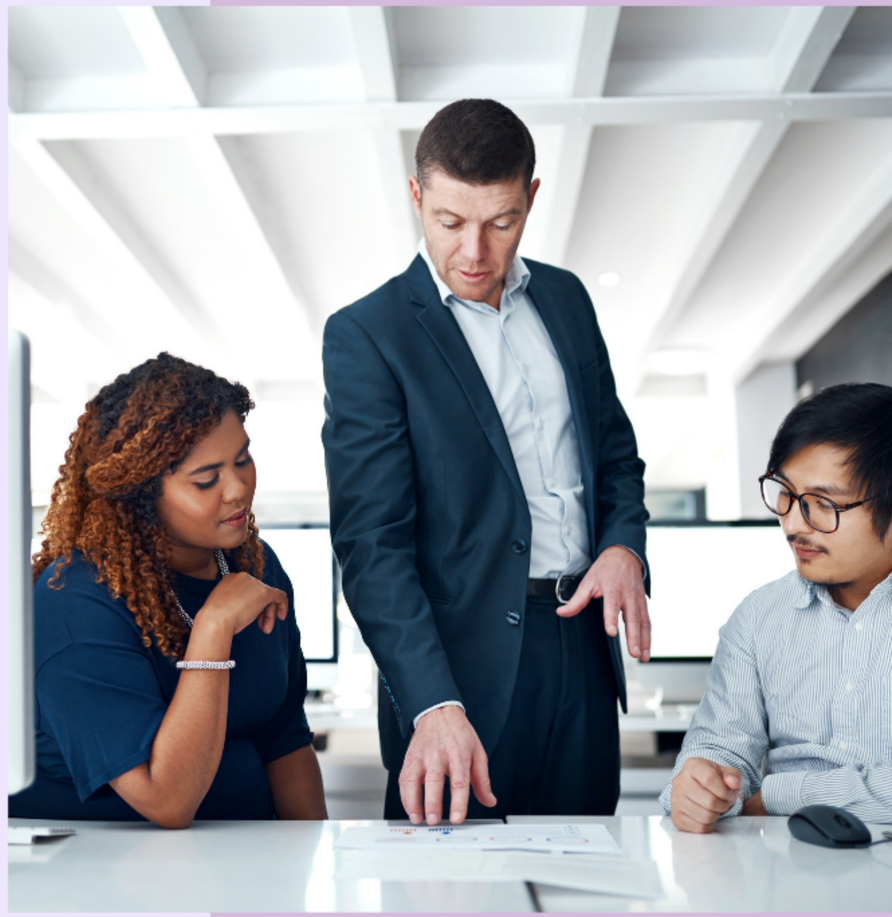
- Energy models are crucial tools for assessing and predicting energy consumption patterns, supply dynamics, and policy impacts.
- The integrity of these models depends on the quality of the input data and the assumptions underpinning the model.
- Anomalies, defined as deviations from expected patterns in data, can significantly impair the reliability of energy model outcomes.



# UNDERSTANDING ANOMALIES

- Anomalies in energy model data can arise from measurement errors, data entry mistakes, or unexpected external factors.
- Anomalies can manifest as outliers or systematic biases, signaling a fundamental issue with the data collection or modeling process.

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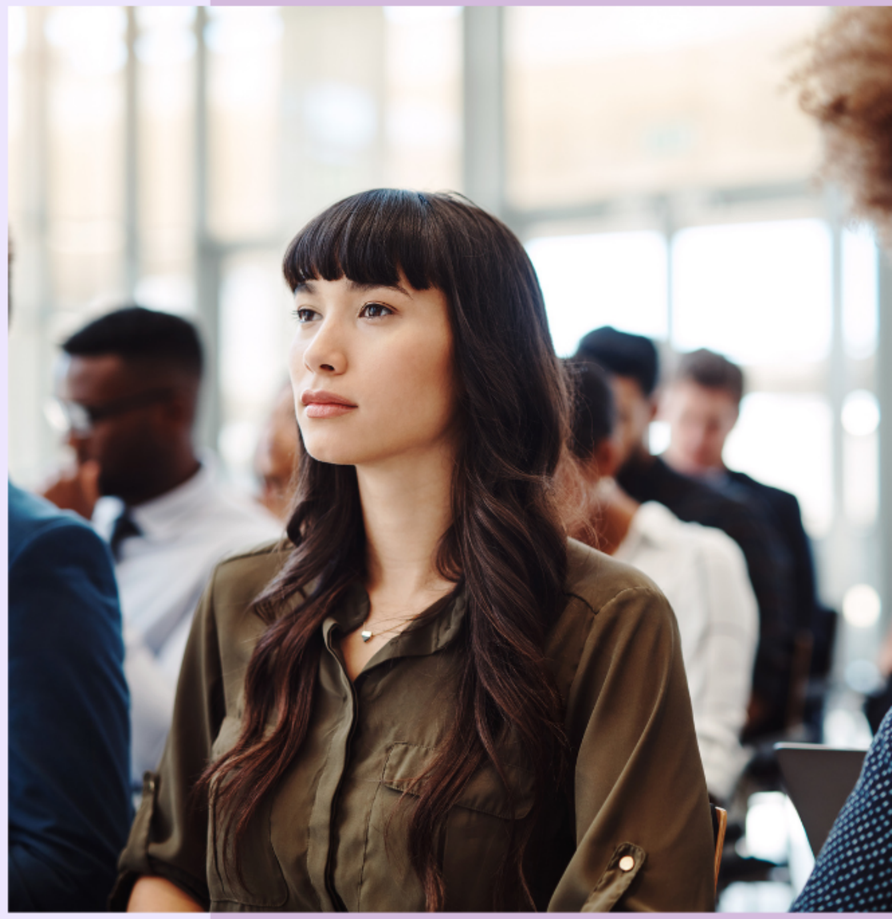
# TYPES OF ANOMALIES

- Outliers: Individual data points that differ significantly from other observations.
- Trends and Patterns: Anomalies can be detected in trends over time.
- Seasonal Effects: Certain anomalies may arise due to seasonal fluctuations.



# IMPORTANCE OF ANOMALY DETECTION

- Anomalies indicate errors in data collection or processing, improving the quality of the datasets used in energy modeling.
- Understanding anomalies helps in refining models, potentially requiring recalibration or a fundamental redesign.
- Erroneous or misinterpreted data can lead to misguided policies, potentially resulting in economic costs or environmental harm.

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# METHODOLOGIES FOR ANOMALY DETECTION

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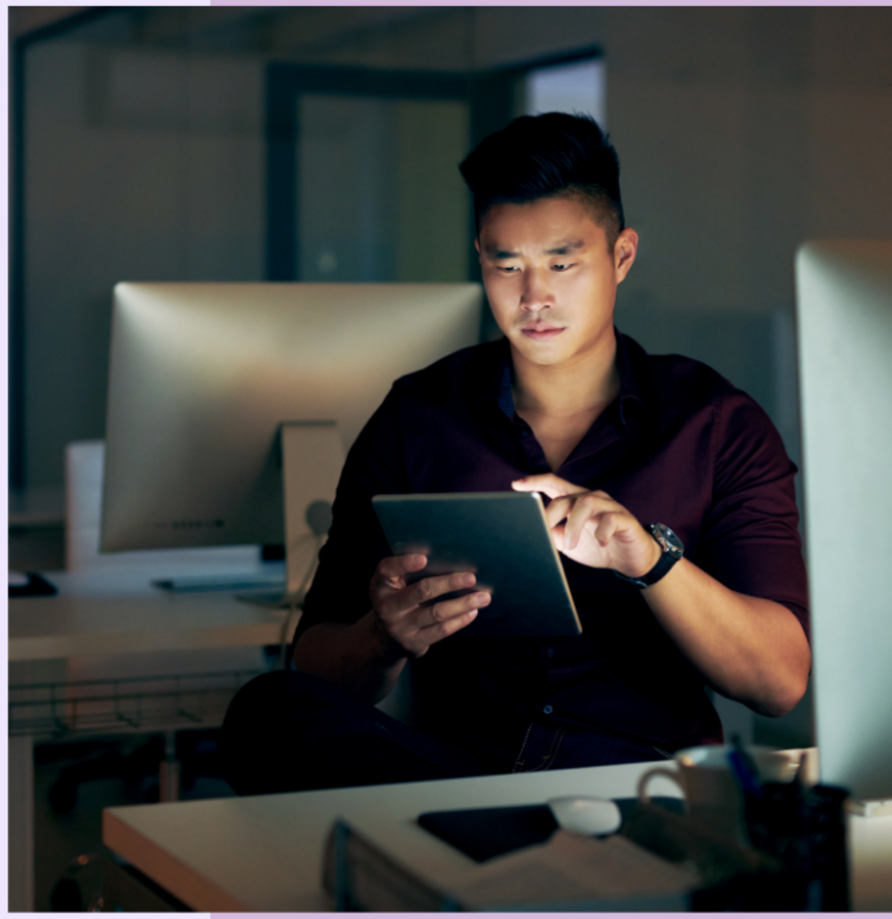
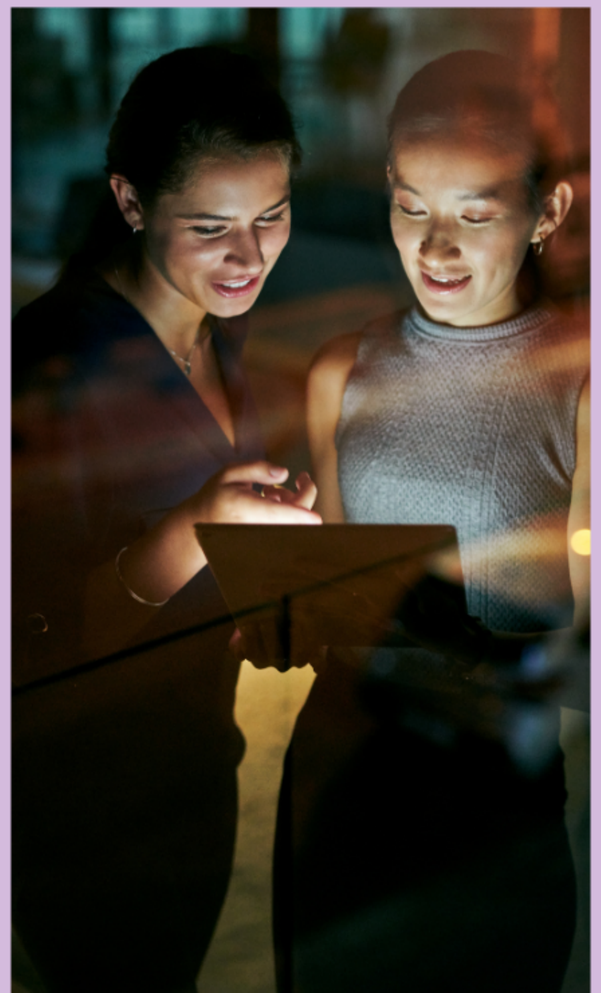
- Descriptive Statistics: Calculating the mean and standard deviation of the dataset.
- Visual Analysis: Highlighting anomalies visually.
- Machine Learning Techniques: Using algorithms like Isolation Forest or One-Class SVM to find outliers in large datasets.
- Time Series Analysis: Identifying anomalies relative to temporal patterns.



# CASE STUDY EXAMPLE



- A city's electricity consumption over a five-year period.
- Analyzing the anomaly: Visual inspection, statistical analysis, contextual investigation, and model adjustment.

**Conclusion**

- Checking data for anomalies is crucial to protect the accuracy of energy forecasts and policy suggestions.

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