There are several open-source frameworks and tools available that can be used to build a reliable energy consumption analysis system for energy-efficient appliances. Here are some popular ones:

1. Apache Kafka: Apache Kafka is a distributed streaming platform that can handle high volumes of real-time data streams. It can be used for data ingestion, processing, and stream analytics in an energy consumption analysis system.
2. Apache Spark: Apache Spark is a powerful data processing and analytics framework. It supports large-scale data processing, batch processing, and real-time stream processing. Spark can be used for data cleansing, aggregation, and applying analytics algorithms in an energy consumption analysis system.
3. InfluxDB: InfluxDB is an open-source time series database that is designed for handling high-frequency time-stamped data. It is suitable for storing and analyzing time-series energy consumption data collected from smart meters and sensors.
4. Grafana: Grafana is an open-source data visualization and monitoring tool. It can be used to create interactive dashboards and visualize energy consumption data, appliance performance, and cost analysis.
5. TensorFlow: TensorFlow is an open-source machine learning framework that offers various tools and libraries for building and training predictive models. It can be used for developing energy consumption forecasting and anomaly detection models.
6. Pandas: Pandas is a popular open-source data manipulation and analysis library in Python. It provides efficient data structures and functions for data preprocessing, cleansing, and analysis in an energy consumption analysis system.
7. Hadoop: Apache Hadoop is a distributed computing framework that can handle large-scale data processing and storage. It provides scalability and fault-tolerance, making it suitable for managing and processing big data in an energy consumption analysis system.
8. OpenStack: OpenStack is an open-source cloud computing platform that can be used to build private or public cloud infrastructure. It offers scalable storage, compute resources, and networking capabilities, which can be leveraged for hosting and scaling the energy consumption analysis system.
9. RabbitMQ: RabbitMQ is an open-source message broker that enables asynchronous communication and data exchange between components in a distributed system. It can be used for reliable data transmission and integration in an energy consumption analysis system.
10. R: R is a widely-used open-source programming language and environment for statistical computing and graphics. It provides a rich set of libraries and packages for data analysis, visualization, and statistical modeling, which can be utilized for energy consumption analysis.

These open-source frameworks and tools can be combined and customized based on your specific requirements to build a reliable energy consumption analysis system for energy-efficient appliances.