Consider the Energy Sector, specifically focusing on Smart Grid technology which monitors electricity consumption in real-time, optimizing energy distribution based on demand and predicting maintenance requirements.

Using the components we've discussed - HDFS, Hive, HBase, Spark, Kafka, Solr, and NiFi - design a solution to manage, analyze, and predict energy consumption patterns for a city-wide Smart Grid system.

Keep in mind the needs to:

- Ingest real-time data from millions of smart meters.

- Provide immediate feedback to grid operators.

- Analyze historical data to predict future consumption patterns.

- Allow quick searches for specific consumer energy profiles.

- Store vast amounts of data securely and efficiently.

What role would each component play in your designed solution?