Problem 2: Energy Production

MGIS 355.01 Business Intelligence

Ryan Carpenter

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Conclusion:

In 1970, twelve western states in the U.S. formed the Western Interstate Energy Compact. This compacts mission focused on fostering cooperation between western states for the development and management of energy technologies across numerous categories of fuel. This unifying agreement within the energy industry has grown to become one of the most pinnacle contractual arrangements constructed within U.S legislation as we begin to conform to greener, more efficient fuel technologies. With the wrangling of quantitative data, researchers have been able to develop trend analysis which will assist government officials in comprehending energy production and consumption within California, Texas, New Mexico, and Arizona.

Population Analysis:

Quantitative data has given researchers the ability to track population increases from 1960 - 2009. The collected data confirms that both California and Texas have averaged the highest annual increases in population. As two of the biggest states in the union this does not come as a surprise. California has consistently remained an annual leader in increasing population, followed by Texas. Trend analysis of population increases can be considered a strong influencing factor within energy consumption between the four studied states.

Consumption Analysis:

As we break down the current consumption trends among Texas, California, New Mexico, and Arizona; the data supports the argument that Texas is currently the highest consumer of total energy and has remained as such through the studied period of 1960 - 2009. Interestingly enough, officials can observe that consumption per capita within these states has actually begun to decrease through time. This is more than likely due to an initial shift towards more fuel-efficient energy production. This could be potentially due to the increasing utilization in renewable energy such as solar, wind, and hydro electric production. This common trend amongst western states is a very positive sign towards the overall goal of transitioning towards cleaner, more efficient energy sources.

When digging deeper into specific industry energy consumption trends, officials will observe that each state does not contain a uniform pattern across commercial, industrial, and residential energy consumptions. When considering these three sectors within each state, one trend becomes more apparent; California and Texas consistently achieve the rank of highest energy consumption among all major categories of fuel. Within the commercial sector, California outpaces all the studied states. As a major player in the commercial industry within the United States, California has consistently ranked among one of the highest states for commercial real estate, technology, and tourism, thus it is expected to have a historically higher commercial energy consumption pattern. Texas on the other hand contains a vastly different industrial complex more focused towards industry and manufacturing. Historical data shows that Texas is a leader in natural fuels, vehicle production, aerospace production, while also ranking first in all manufacturing. With such a strong industrial complex this trend of significantly higher industrial fuel consumption does fall in line with the quantitative research provided.

Trends become interesting when observing the residential sector. As stated, both California and Texas have maintained the strongest pace in increasing population. Once organized, the data displays that California is potentially trending the right direction as residential consumption began to level out in 1999, eventually being over taken by Texas. Forecasting shows that this is likely to increase as time progresses. This could potentially be an indicator that California is already making strides to reduce non-renewable energy consumption within its residential sector with the potential utilization of solar and wind energy production. I would argue that this trend identifies that the residential sector in Texas is in need of more renewable energy practice.

By observing Workbook 2, Dashboard 2 – The data in fact supports my argument that Texas is producing significantly less renewable energy compared to California. With that being said, both Texas and California are consuming more renewable energy Btu's than they are producing. On average we can observe a difference of roughly 50 -100 billion Btu's within both states. This trend will require a radical approach in order to even out the lop-sided production vs consumption trend.

Current Renewable Energy Trends:

As the United States moves towards the usage of cleaner fuels, current renewable energy tactics share a tell-tale sign that California and Texas are making efforts to combat the over consumption of nonrenewable energies. First and foremost, data supports that California is a leader in hydroelectricity production within the commercial and electric power sectors. Within this sector of hydroelectricity, we can observe that Arizona is the current leader of production within the industrial sector. This is somewhat surprising as Arizona is predominantly a landlocked state compared to both Texas and California. Texas on the other hand is seemingly non existent within this space. By increasing the use of this hydroelectrical technology, Texas very well may be able to correct its higher trend of tradition energy consumption.

One of the more positive trends within the state of Texas is the utilization of wind power. Texas is a clear leader within this sector of energy production. As a notoriously flat state, this is an excellent utilization of renewable, clean energy. Currently Texas is producing nearly 100 million kilowatts more of wind power than second place California. This shift towards the utilization of wind power truly did not gain momentum until 2002. Since then we have seen a near ten-fold increase in the utilization of this clean energy.

Final Thoughts:

The quantitative data provided within this study has supplied the means and understanding to state that both California and Texas are the highest consumers of energy, period. With such a high demand in energy across all industry categories, the necessity to shift towards the utilization of renewable energy production such as hydroelectricity, solar, and wind power has become paramount in order to achieve the goals of the Western Interstate Energy Compact. After thorough analysis of energy data within the studied western states, I would advise extreme investment in renewable energy technologies for the state of Texas. Both California and Texas are in need of more up to date energy production methods, but Texas consistently has displayed a lack of renewable energy production combined with the highest overall demand for energy across the board.