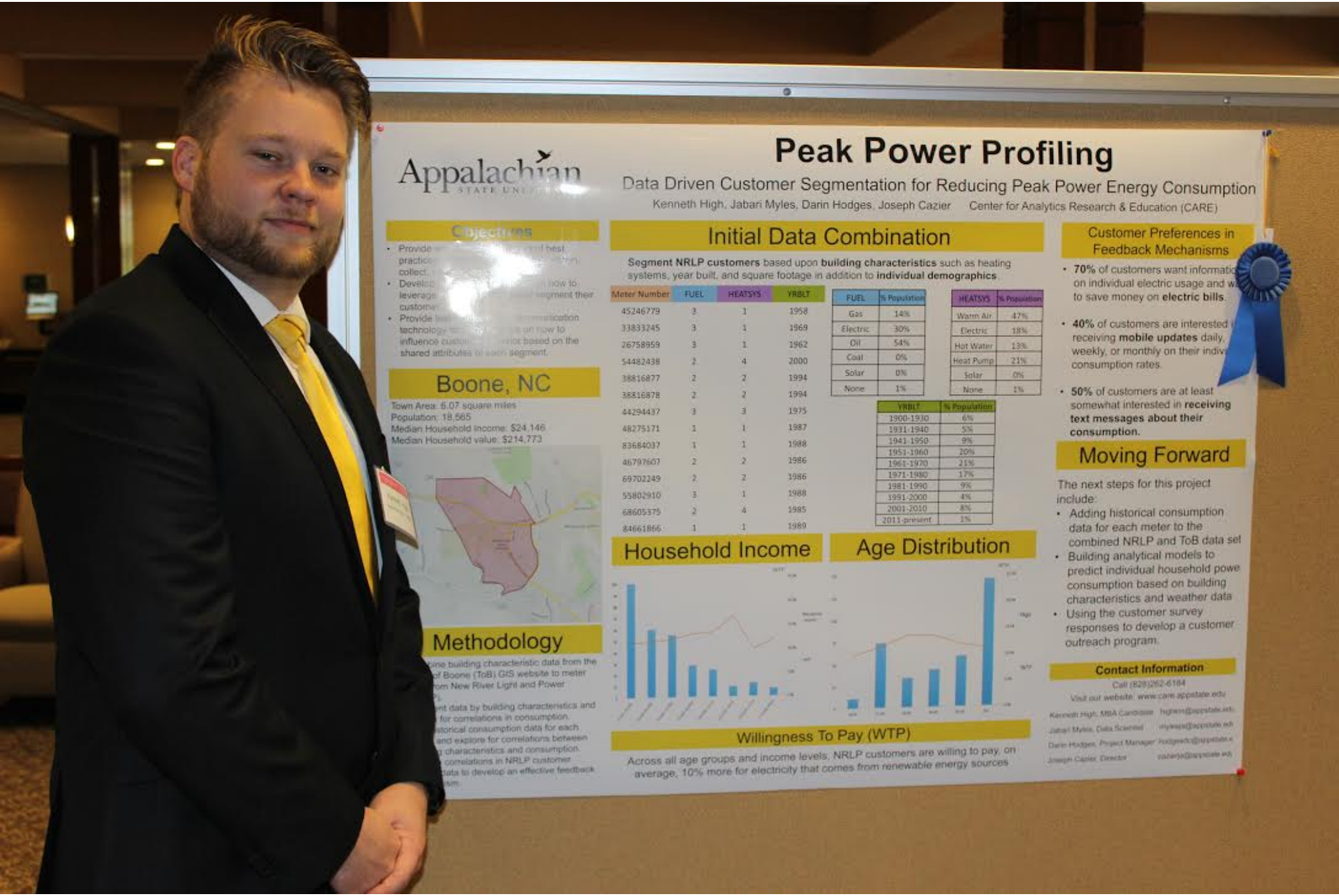
Appalachian
STATE UNIVERSITY
Peak Power Profiling
Data Driven Customer Segmentation for Reducing Peak Power Energy Consumption
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Objectives
Boone, NC
Town Area: 6.07 square miles
Population: 18,565
Median Household income: $24,146
Median Household value: $214,773
Methodology
Initial Data Combination
Segment NRLP customers based upon building characteristics such as heating systems, year built, and square footage in addition to individual demographics.
Meter Number FUEL HEATSYS YRBLT
45246779 3 1 1958
33833245 3 1 1969
26758959 3 1 1962
54482438 2 4 2000
38816877 2 2 1994
38816878 2 2 1994
44294437 3 3 1975
48275171 1 1 1987
83684037 1 1 1988
46797607 2 2 1986
69702249 2 2 1986
55802910 3 1 1988
68605375 2 4 1985
84661866 1 1 1989
FUEL % Population
Gas 14%
Electric 30%
Oil 54%
Coal 0%
Solar 0%
None 1%
HEATSYS % Population
Warm Air 47%
Electric 18%
Hot Water 13%
Heat Pump 21%
Solar 0%
None 1%
YRBLT % Population
1900-1930 6%
1931-1940 5%
1941-1950 9%
1951-1960 20%
1961-1970 21%
1971-1980 17%
1981-1990 9%
1991-2000 4%
2001-2010 8%
2011-present 1%
Household Income
Age Distribution
Willingness To Pay (WTP)
Across all age groups and income levels, NRLP customers are willing to pay, on average, 10% more for electricity that comes from renewable energy sources
Customer Preferences in Feedback Mechanisms
70% of customers want information on individual electric usage and ways to save money on electric bills.
40% of customers are interested in receiving mobile updates daily, weekly, or monthly on their individual consumption rates.
50% of customers are at least somewhat interested in receiving text messages about their consumption.
Moving Forward
The next steps for this project include:
Adding historical consumption data for each meter to the combined NRLP and ToB data set
Building analytical models to predict individual household power consumption based on building characteristics and weather data
Using the customer survey responses to develop a customer outreach program.
Contact Information
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