

Title: *Using ICT & Analytics to Build Demand for Sustainable Power Consumption in Boone, NC*

Submission is for research

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Abstract:

The Center for Analytics and Research Education (CARE) is working with the university-owned, non-profit New River Light and Power Company (NRLP) on a multi-step sustainable energy project. The project ultimately aims to develop a model and implementation plan for using ICT (Information and Communication Technologies) combined with predictive and behavioral analytics to influence more sustainable power consumption in the community. This project involves reducing NRLP consumption during Duke Energy region's peak hours, for which NRLP accrues approximately 50% of its costs. Because Duke Energy must activate an expensive secondary power plant when the NRLP region overconsumes on peak hours, building an accurate peak-power prediction model and encouraging reduced consumption on hours identified by the model is a universally beneficial solution. The project's first step involved the creation of a simple, yet powerful decision tree model that evaluates various weather trends in predicting peak days, and improved upon the accuracy (from 53% to 75%) and false alarm rate (from 4% to 1.5%) of NRLP's original model significantly. With the impending installation of smart meters, NRLP plans to test and improve this model, and, in the future, to use ICT and incentives to encourage users to lower their power consumption. The project involves using both financial and psychological methods to help reach this goal. The objectives, process, and results from the project's first step are outlined in the poster presentation.