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**Title:** Estimating household consumption of natural gas using billing and weather data

**Date/Time:** Tuesday, March 3, 2020 12:30–2:00 p.m.

**Speaker:** Shaofen Grace Deng, PhD, Energy Information Administration

**Chair:** Mike Bellow, USDA/NASS

**Sponsor:** WSS Agriculture and Natural Resources Committee

**Location:** Bureau of Labor Statistics Janet Norwood Conference Center (Please check board for room number once you arrive)

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**Abstract:** This research explores using billing data and weather data to estimate household consumption of natural gas for space heating. The data sources for this analysis were collected as part of the Residential Energy Consumption Survey (RECS). RECS is a periodic study conducted by the U.S. Energy Information Administration (EIA) since 1978. The data collected from RECS include housing characteristics and energy billing data. EIA uses these data to estimate residential energy consumption by fuel, and consumption for individual household end uses. In past cycles of RECS, space heating consumption was estimated based on either non-linear statistical models or engineering models using housing characteristics data, annualized billing data, and annual heating degree days. Since the end uses of natural gas in a household are limited (i.e., many fewer than those for electricity), and heating consumption is assumed to be highly correlated with weather, this research looks into a more direct method for natural gas space heating consumption. Without relying on housing characteristics data, this method is based on a regression approach using natural gas monthly bills and daily temperature data.

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