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Title: Using R for Advanced Statistical Modeling in the National Energy Modeling System

Date/Time: Wednesday, January 16, 2019 12:30–2:00 p.m.

Speaker: Janice Lent, U.S. Energy Information Administration

Chair: Mike Bellow, NASS

Sponsor: WSS Methodology Section

Location: Bureau of Labor Statistics Janet Norwood Conference Center, Room 7 (Please check board in case of change of room)

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Abstract: We discuss three applications of R currently in use in the U.S. Energy Information Administration's (EIA's) National Energy Modeling System (NEMS). The NEMS projects U.S. annual energy production, consumption, prices, and related statistics for publication in EIA's *Annual Energy Outlook*. While the NEMS base code is written in Fortran, the modular system incorporates components written in other languages, including R. We discuss three advanced statistical applications programmed for the NEMS in R: (1) the use of hurdle models to project residential solar photovoltaic system installations; (2) the use of multi-process Bayesian dynamic linear models to project prices of hydrogen gas liquids; and (3) the use of newly-developed time-series calibration methods to ensure that NEMS projects are consistent with the short-term projections EIA publishes in its *Short Term Energy Outlook*. Each application involves the use of contributed R packages (e.g., gamlss, dlm).

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POC email: Mike Bellow, MBELLOW@nass.usda.gov