



## Uses of Big Data with Renewables Report Out

Bri-Mathias Hodge

P.R. Kumar

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# Expectations and Impact

- Applications:
  - Condition Monitoring for Renewable Generators
    - Generators are more distributed, so less sensing
    - Information needs to pass through multiple levels (plant owner to ISO)
  - Renewables Forecasting
    - What timescales?
      - Day-ahead and ~ hour-ahead currently, need for smaller timescales with new technologies
    - Availability of data
  - Identifying behind-the-meter generation
  - Load composition identification (dynamically)
  - Forecasting new BTM generation for planning
  - Data checking (bad data detection) methods for new generators
  - Rate design/distribution markets

# Methods and Approaches

- What are the limitations?
  - Actual data
    - ISOs can't get the data, how can universities?
  - Synthetic data
    - Hard to validate
    - Need time coincident load data to go along with wind and solar data
- How will these tools be made available?
  - Repositories (including links out):
    - ARPA-e GRID DATA repositories
      - DR. Power
      - BetterGrids.org
    - TAMU SmartGrid Center repository?
    - DOE GMLC repository