

Measure Transport for Net Load Forecasting

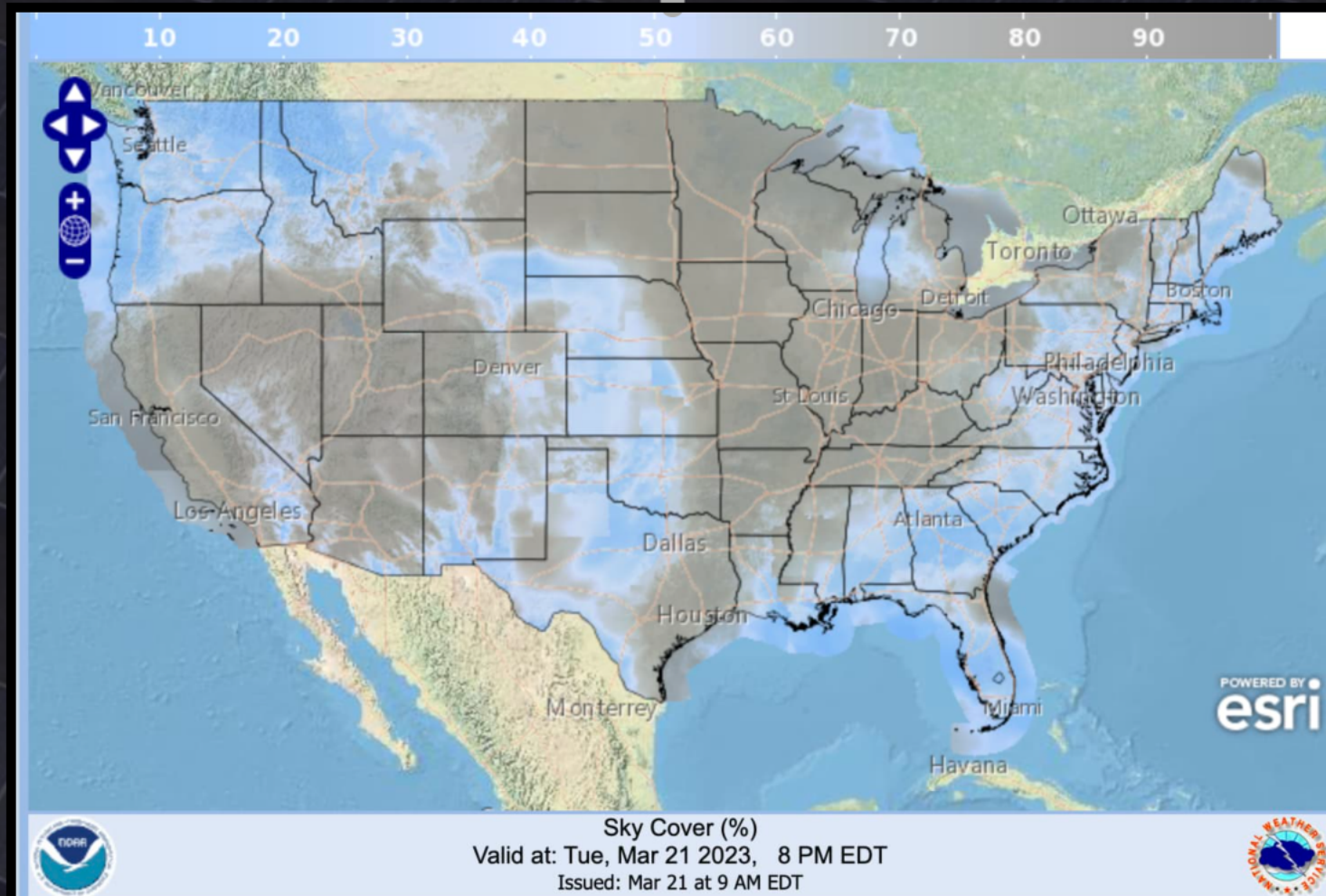
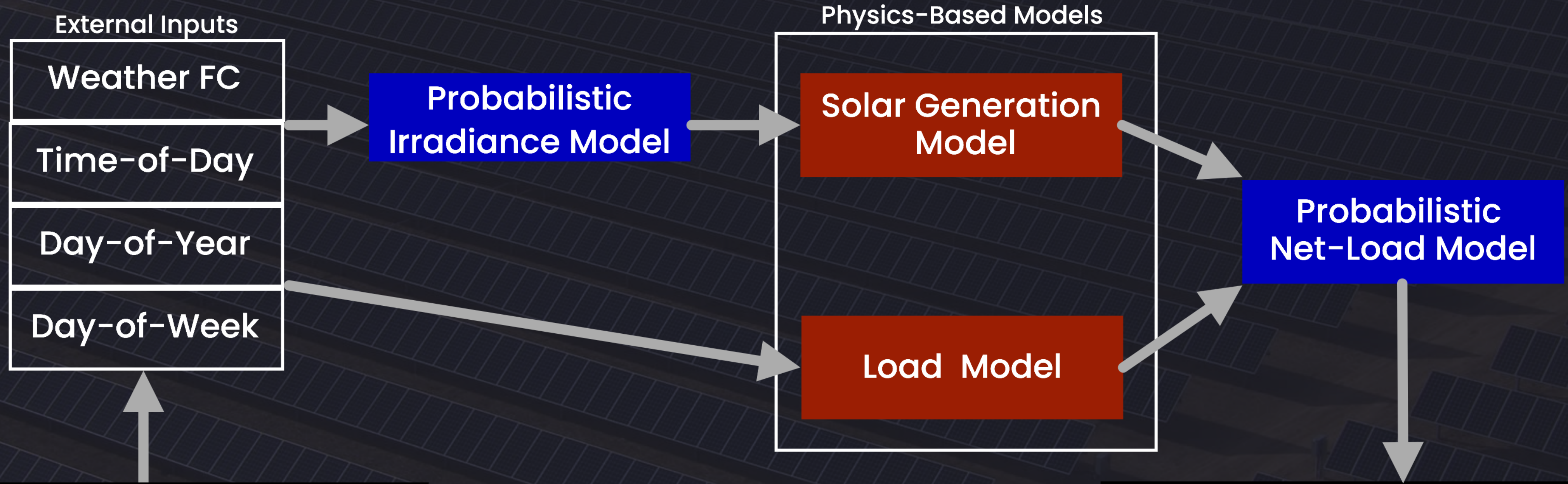


Image adapted from digital.weather.gov

Summary of Approach:

Our goal is to characterize the conditional distribution of net load given weather forecasts and time inputs. To accomplish this, we use historical data to characterize probabilistic models of irradiance and net load while using physics-based models to inject additional prior knowledge about the photovoltaic and energy load systems. We leverage computationally efficient tools from the field of measure transport (e.g., diffusion models, transport maps, normalizing flows) to represent and sample the resulting non-Gaussian distributions over both irradiance and net load.

