

Achieving the Paris Agreement Goals

Projecting Energy Production Sources in the United States
With Time Series Modeling

Summary

- The Environmental Protection Agency (EPA)
 - Seeks to reach the IPCC goals for the Paris Agreement.
- Osborne Analytics
 - Data Science firm of Greg Osborne, hired by the EPA.
- Business Problem
 - We rely on fossil fuels for electricity production.
- Time Series Modeling
 - Project historic electricity production trends into the future.
- Cut Fossil Fuels to Meet IPCC's Paris Agreement Goals
 - Cut the fossil fuels wherever necessary
- Increasing Renewable Power Sources
 - Increase Production rate of renewables to fill the deficit.
- Alternatives
 - Why not Nuclear? Why not Hydro?
- More Research Is Possible.



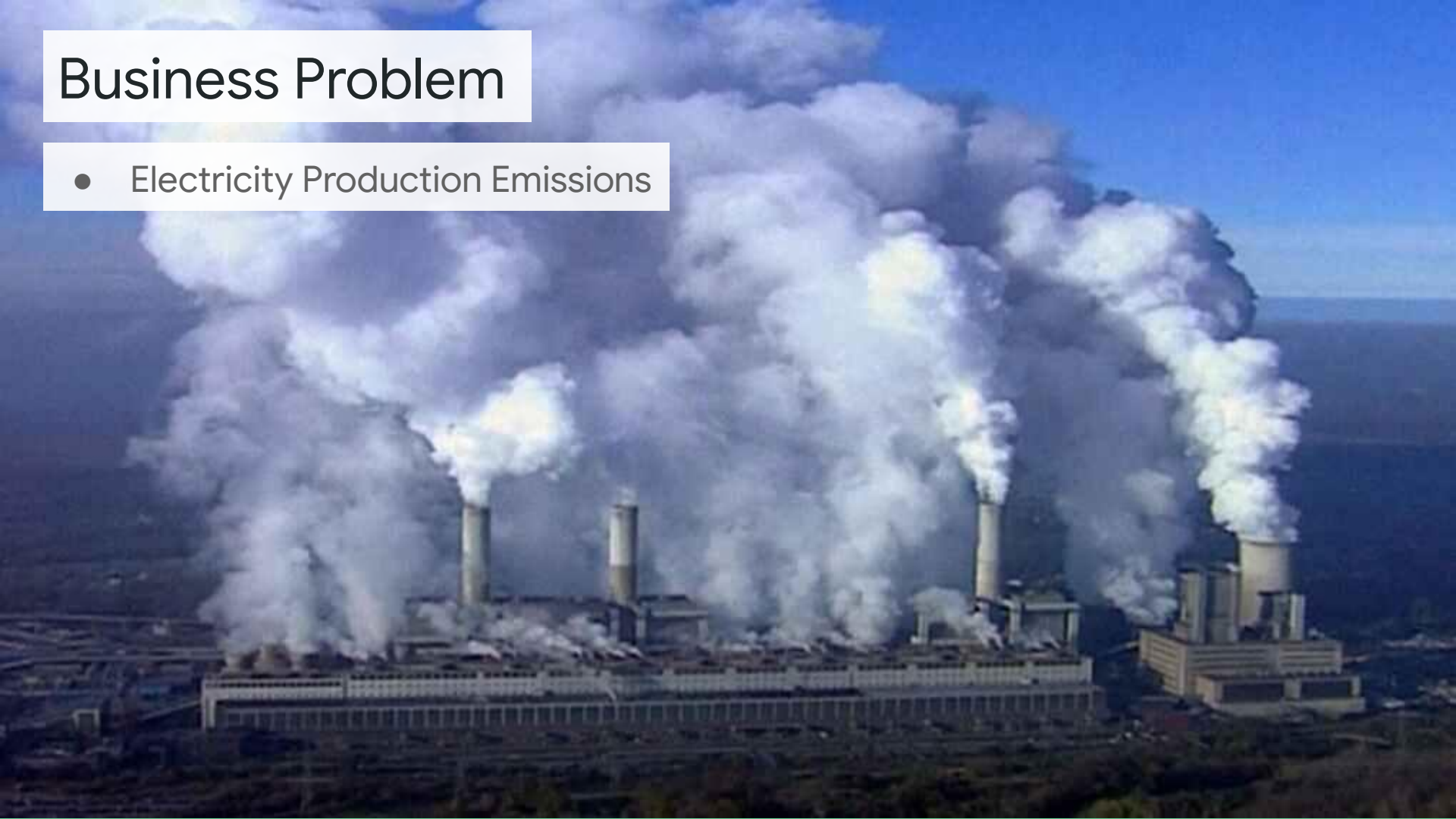
Business Problem

- Failing Our Paris Agreement Commitments

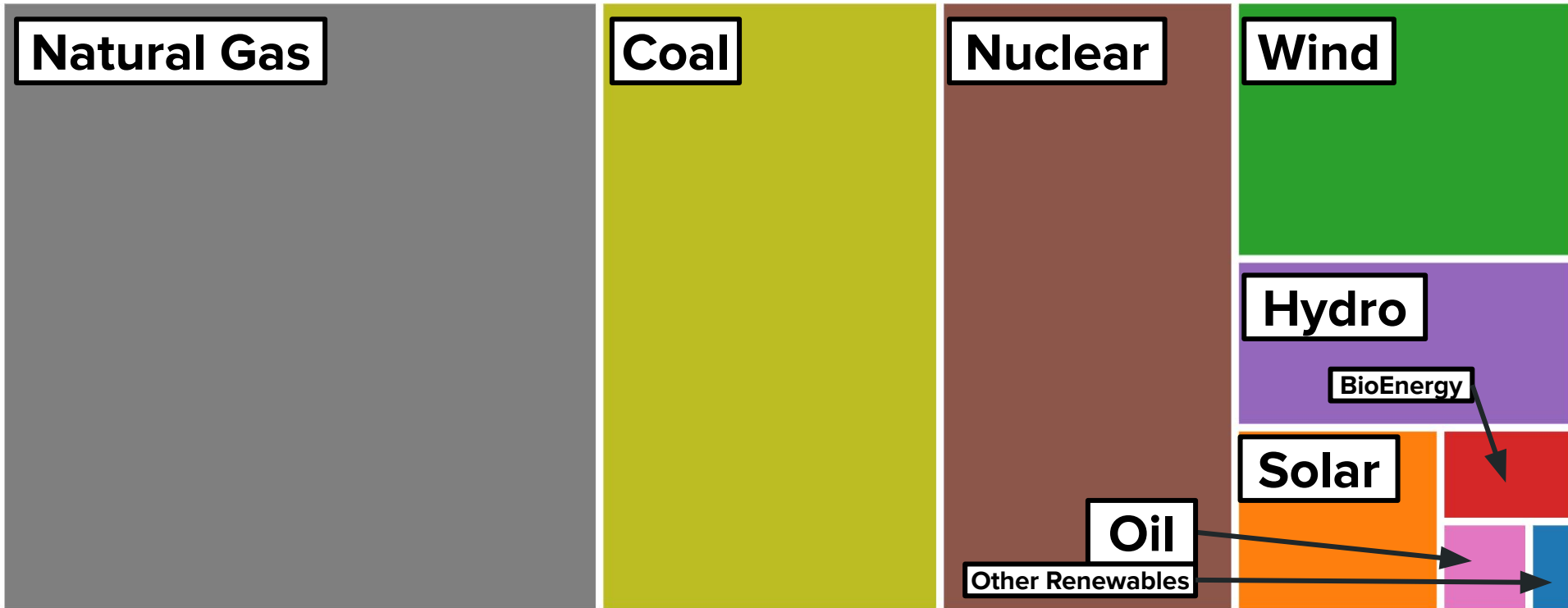


Business Problem

- Electricity Production Emissions



Current Electricity Production Market Share

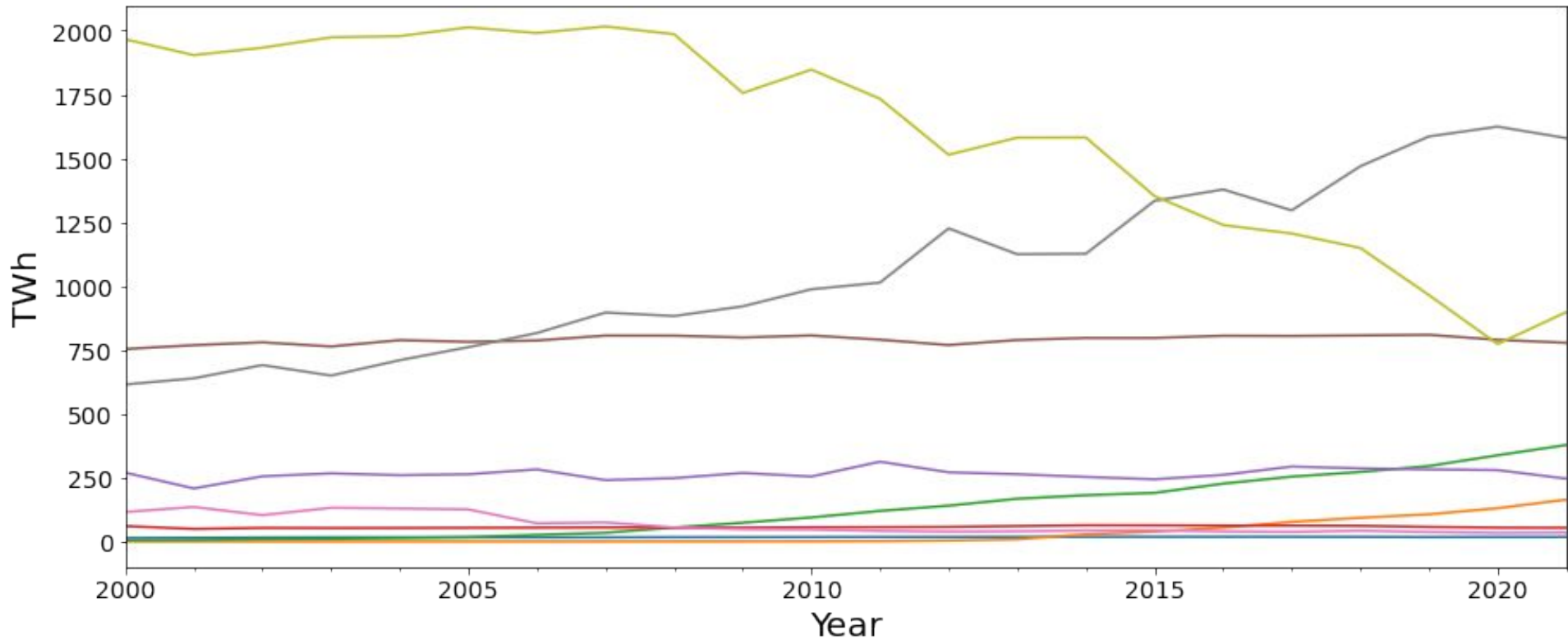


Time Series Modeling

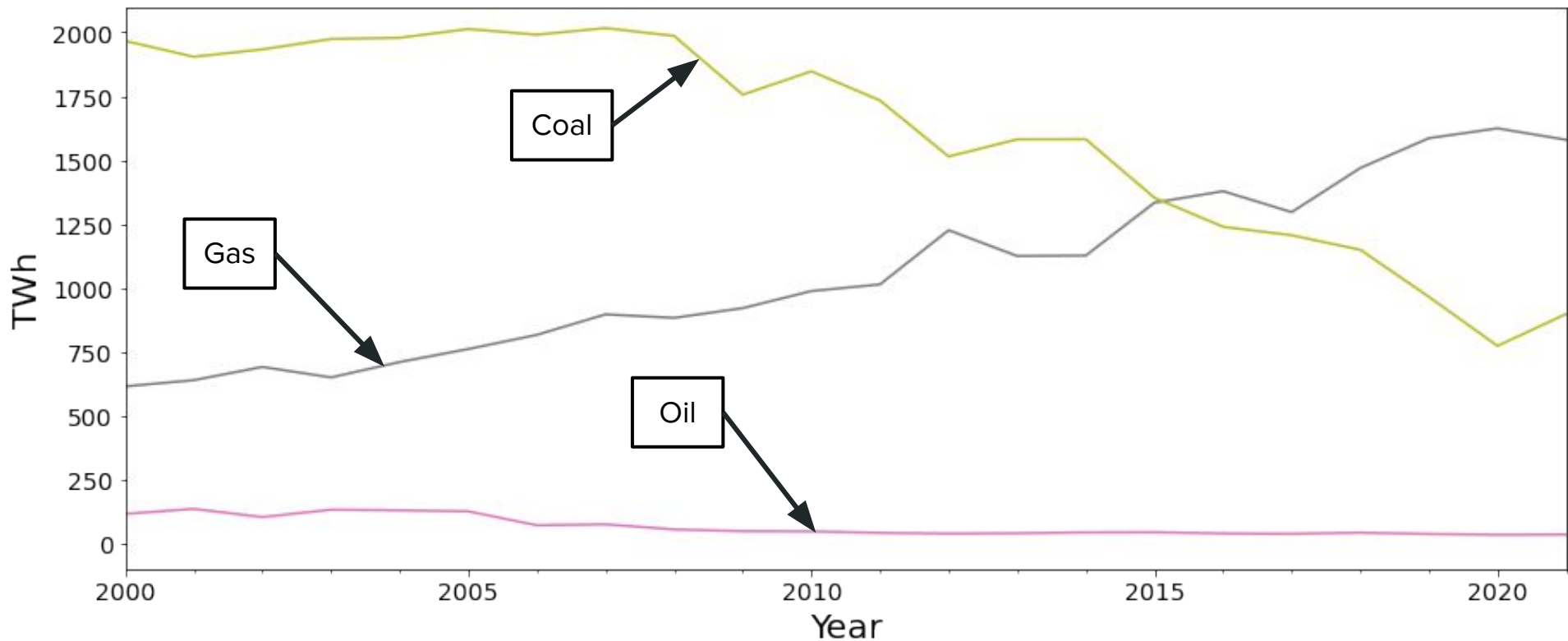


- Model Linear Trends
- Predict the Future

Historic Electricity Production Nine Fuel Sources

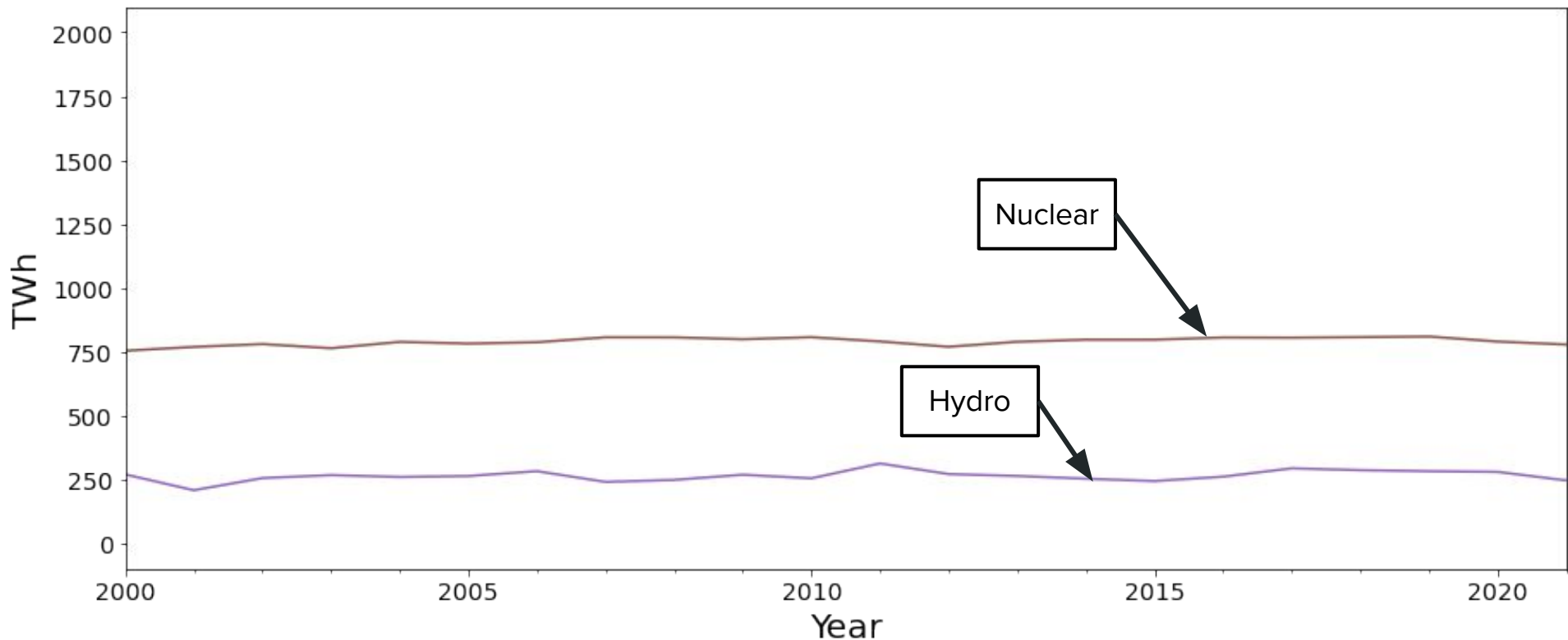


Historic Electricity Production Fossil Fuels



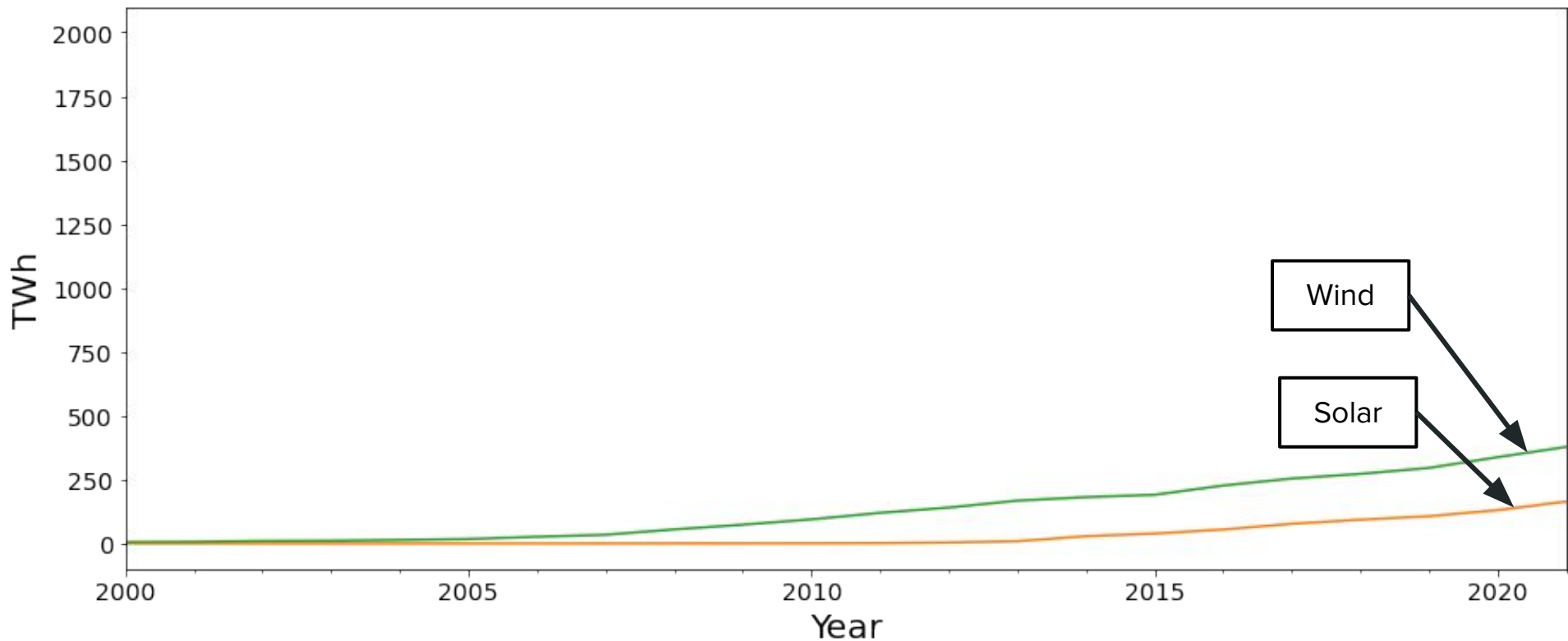
Historic Electricity Production

Nuclear & Hydro



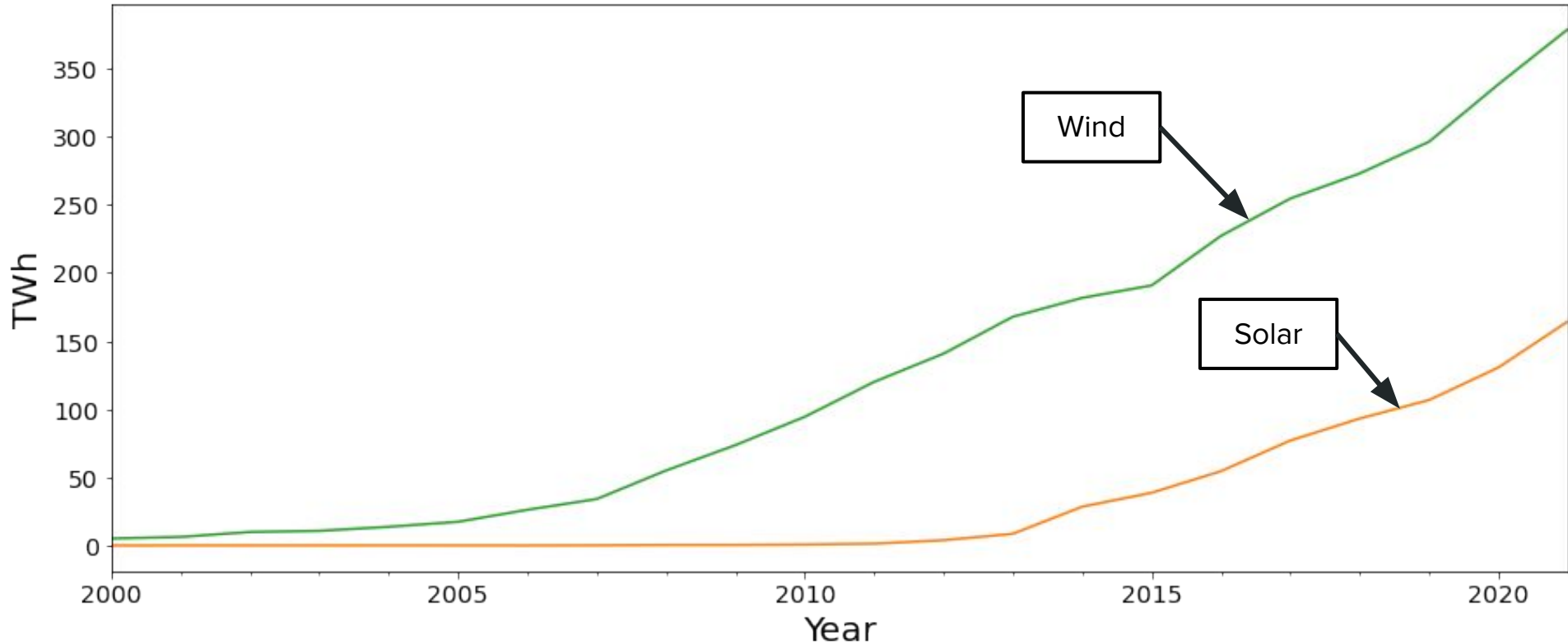
Historic Electricity Production

Solar & Wind

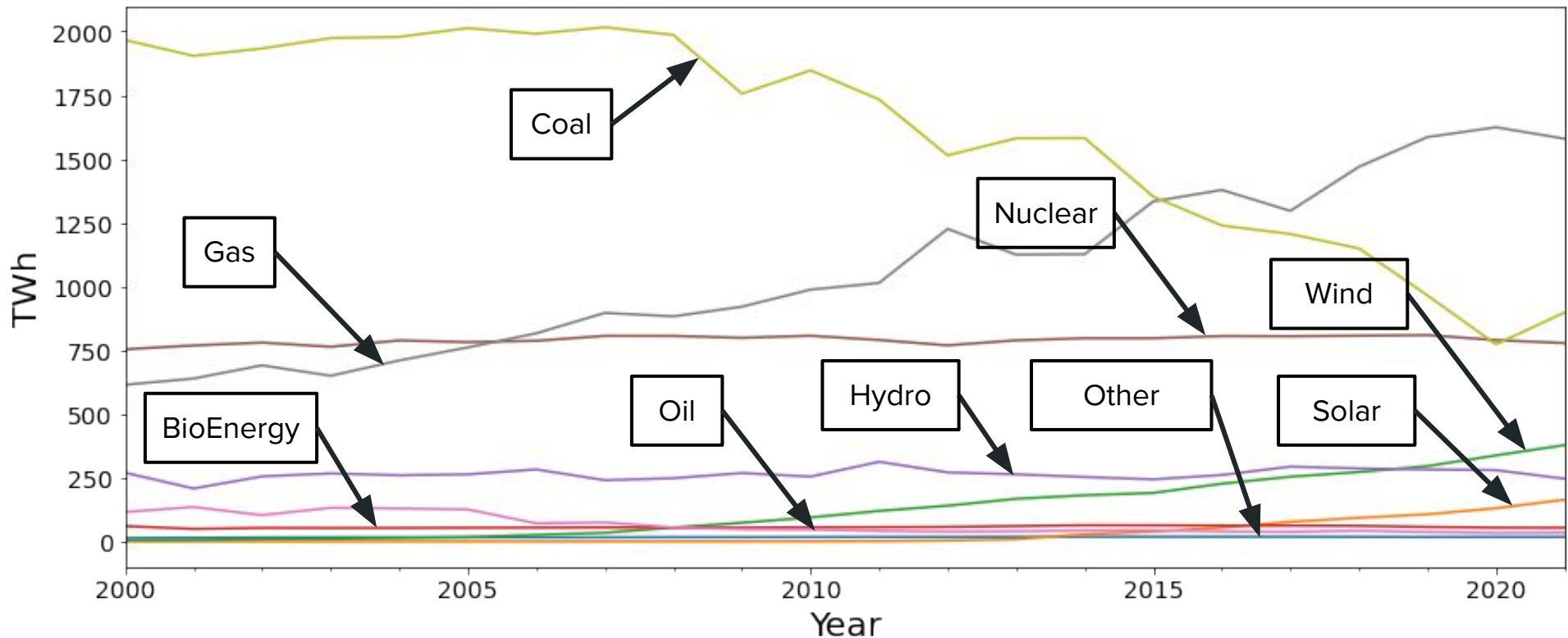


Historic Electricity Production

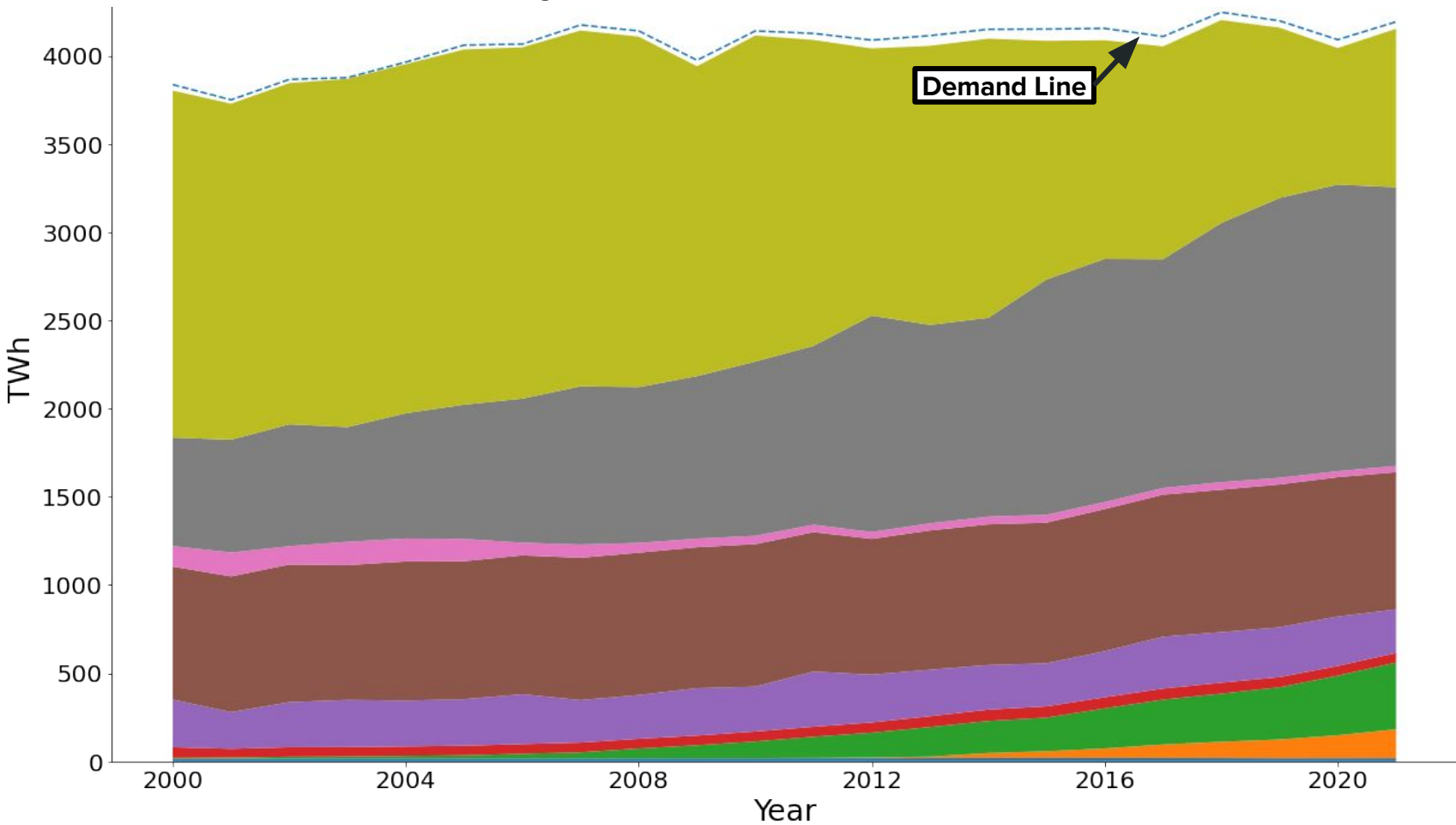
Solar & Wind - Smaller Scale



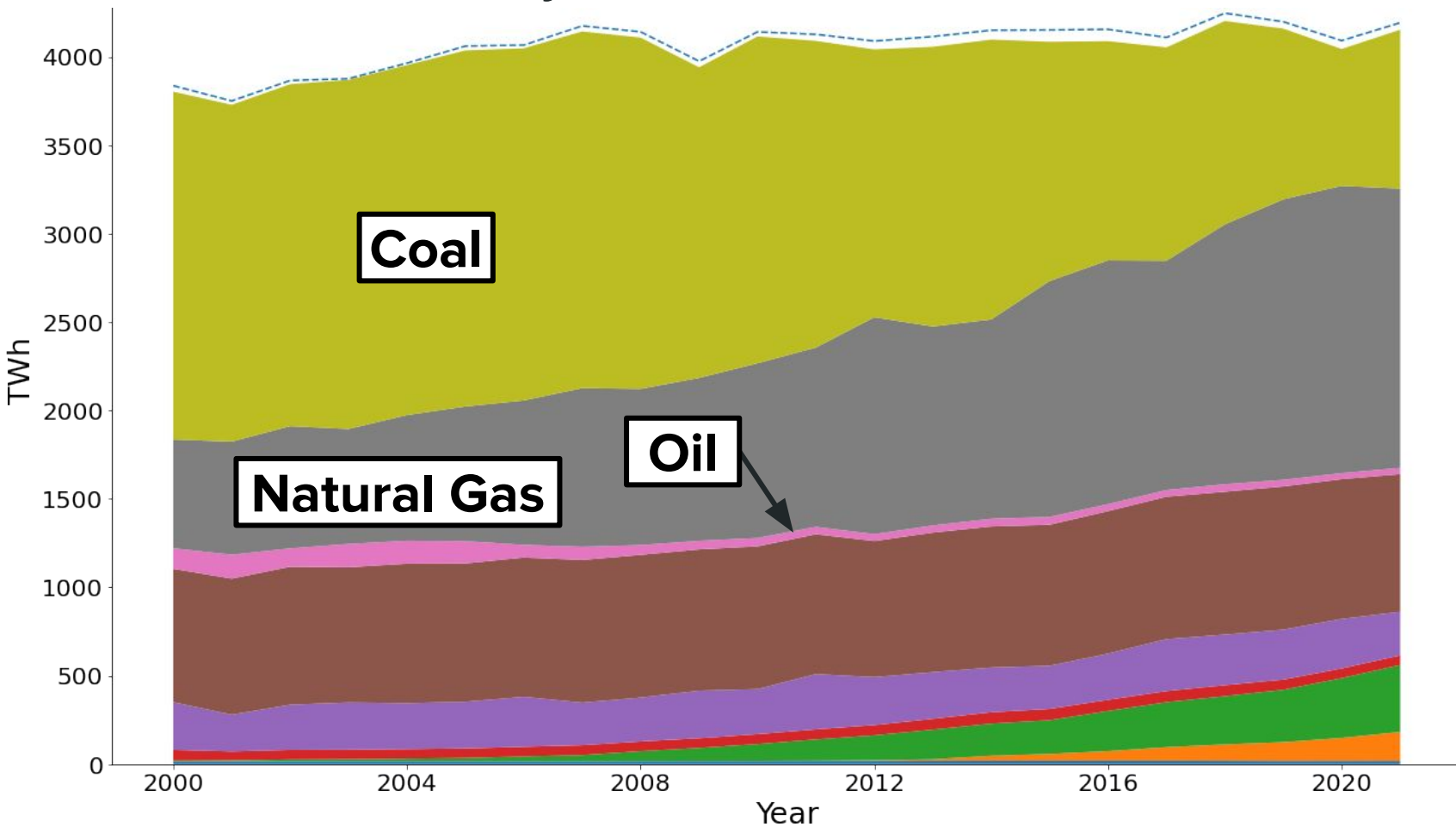
Historic Electricity Production Nine Fuel Sources



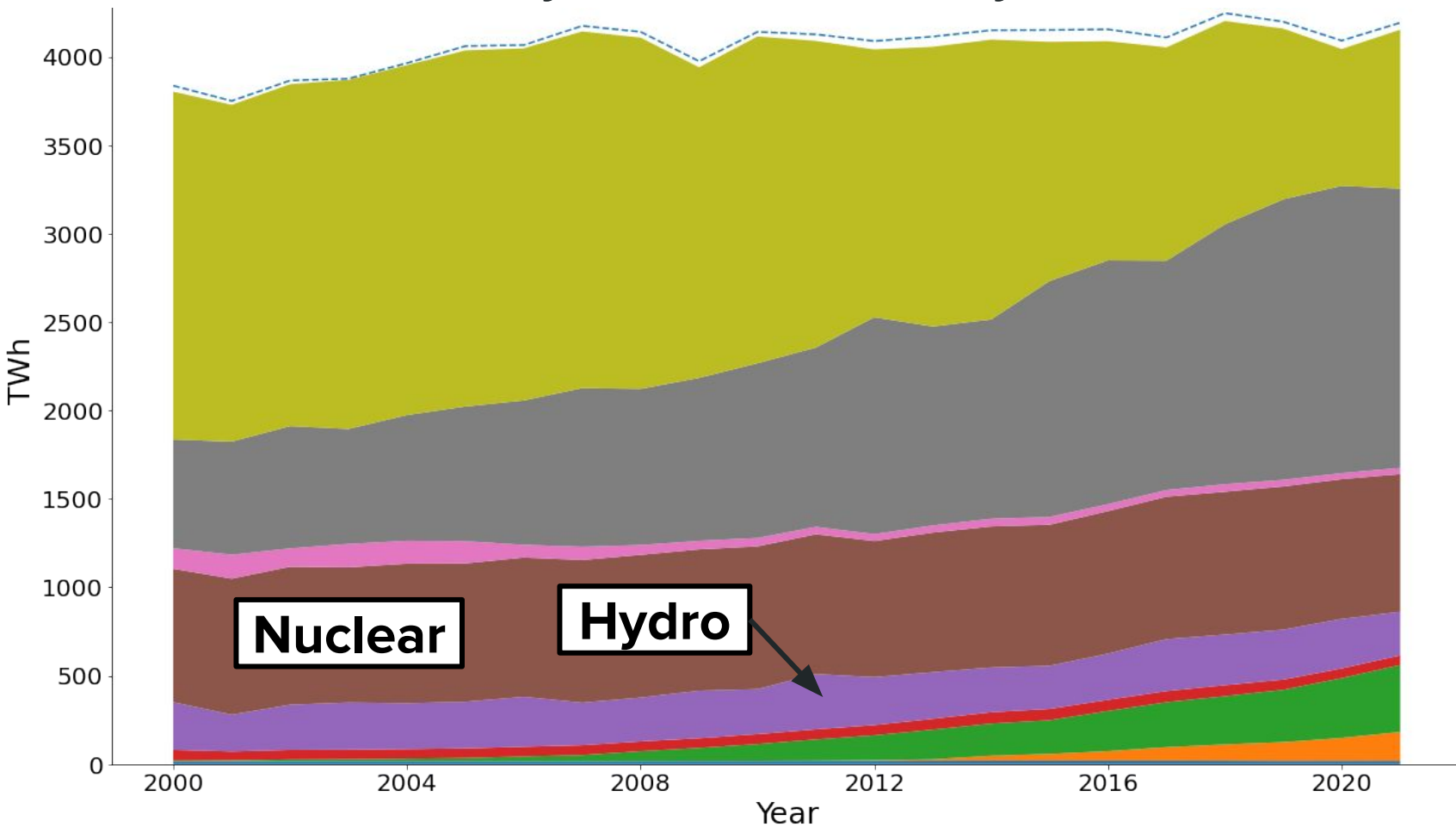
Historic Electricity Production



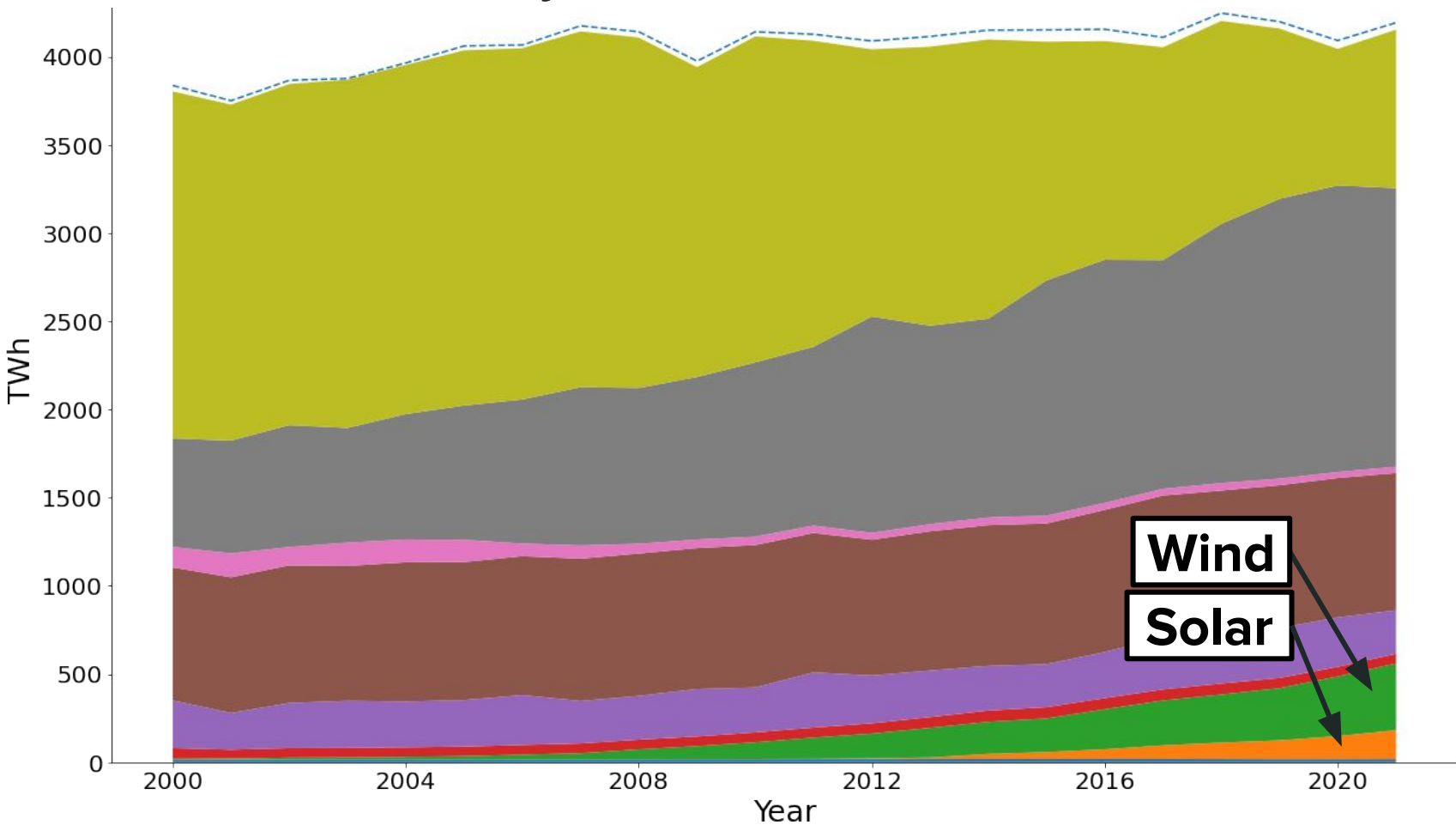
Historic Electricity Production - Fossil Fuels



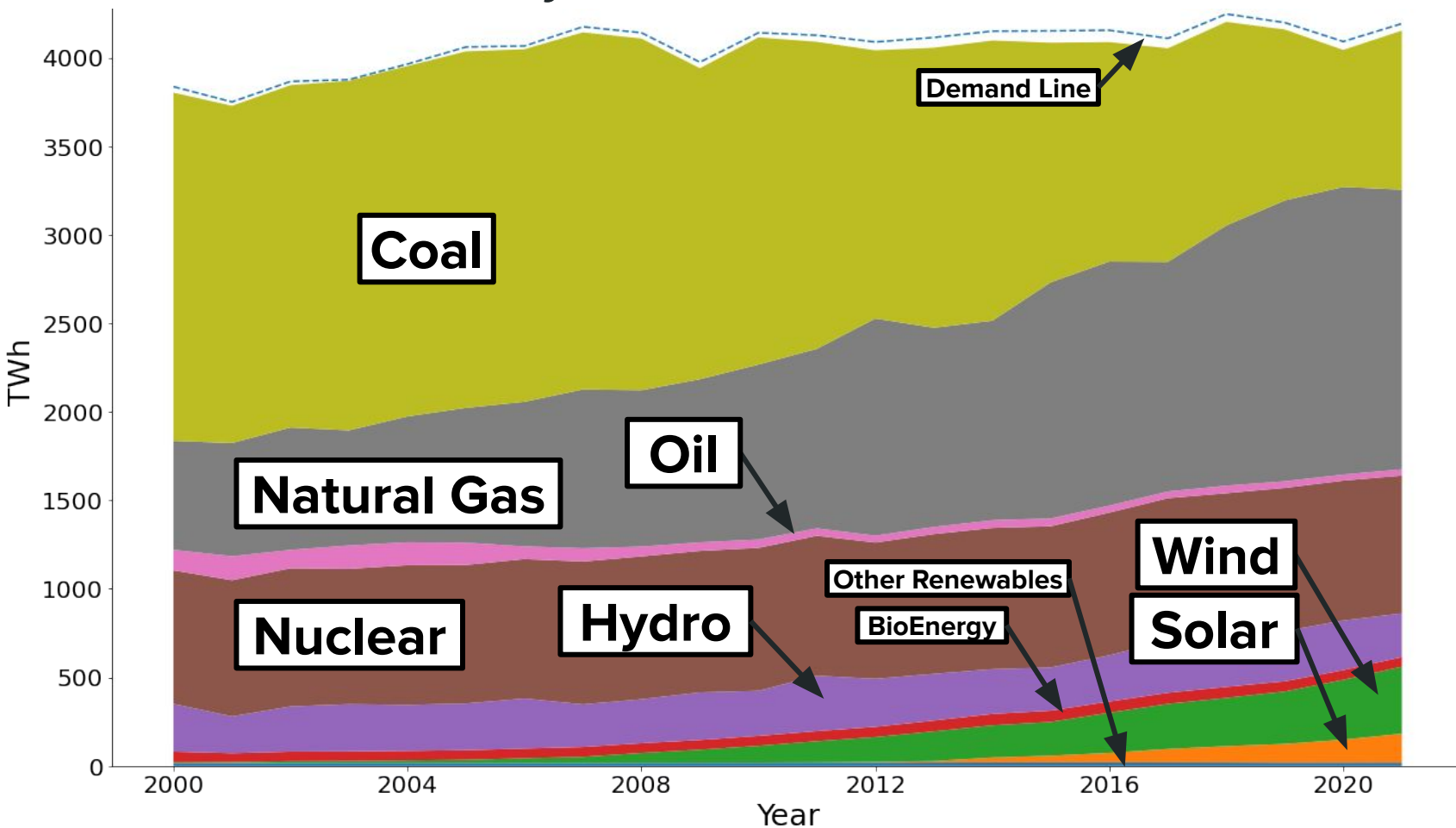
Historic Electricity Production - Hydro & Nuclear



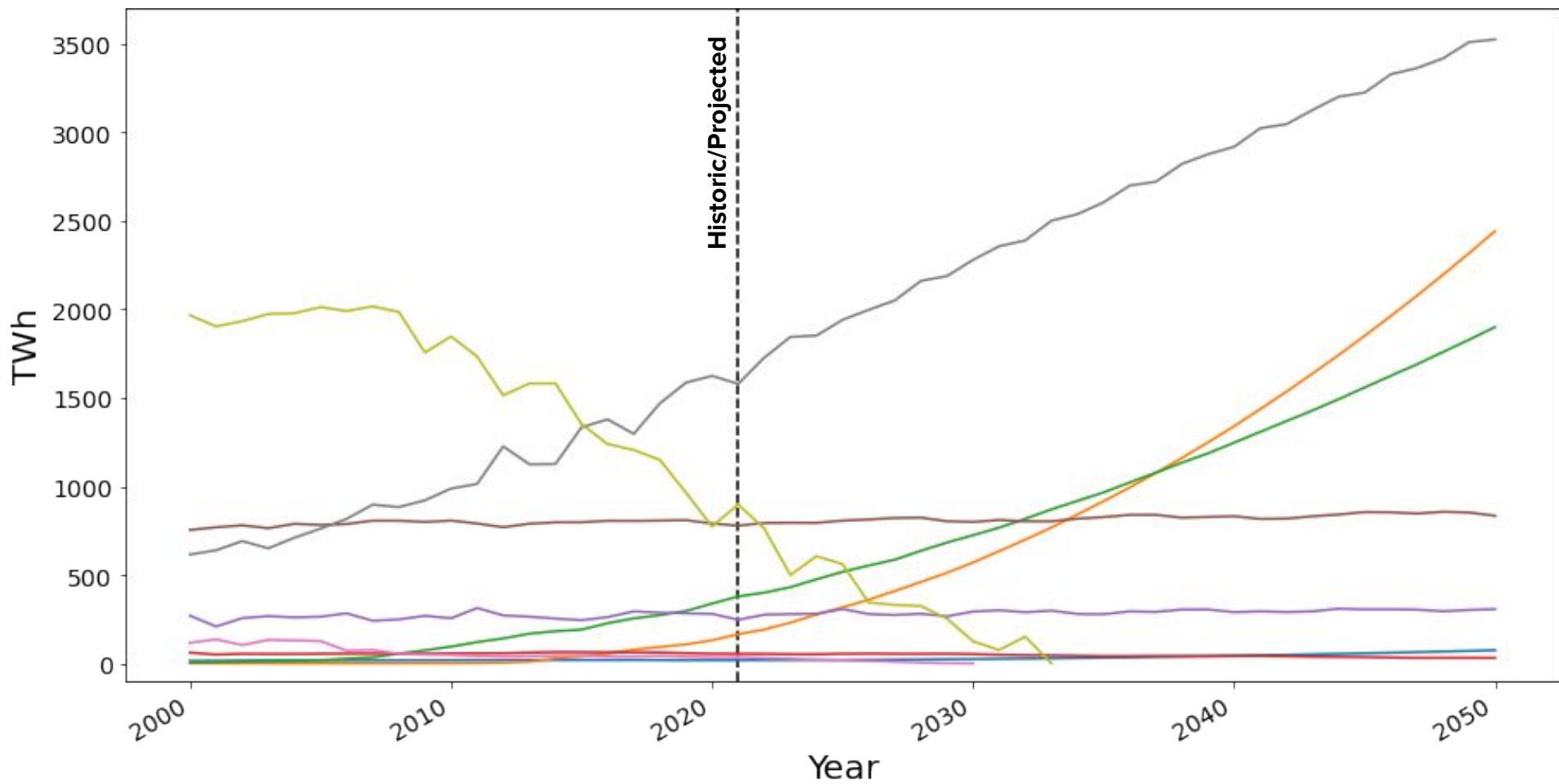
Historic Electricity Production - Wind & Solar



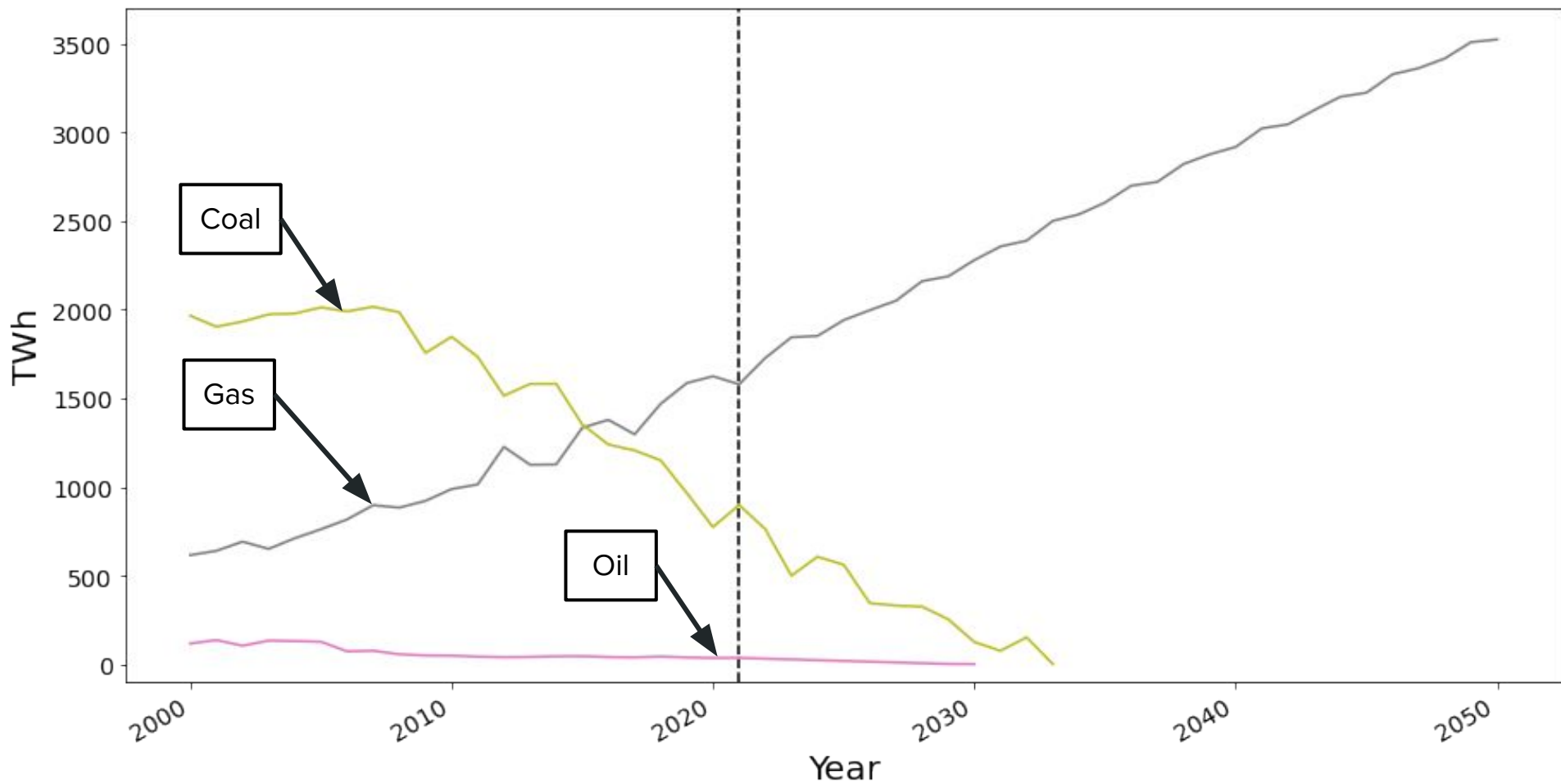
Historic Electricity Production - All Sources



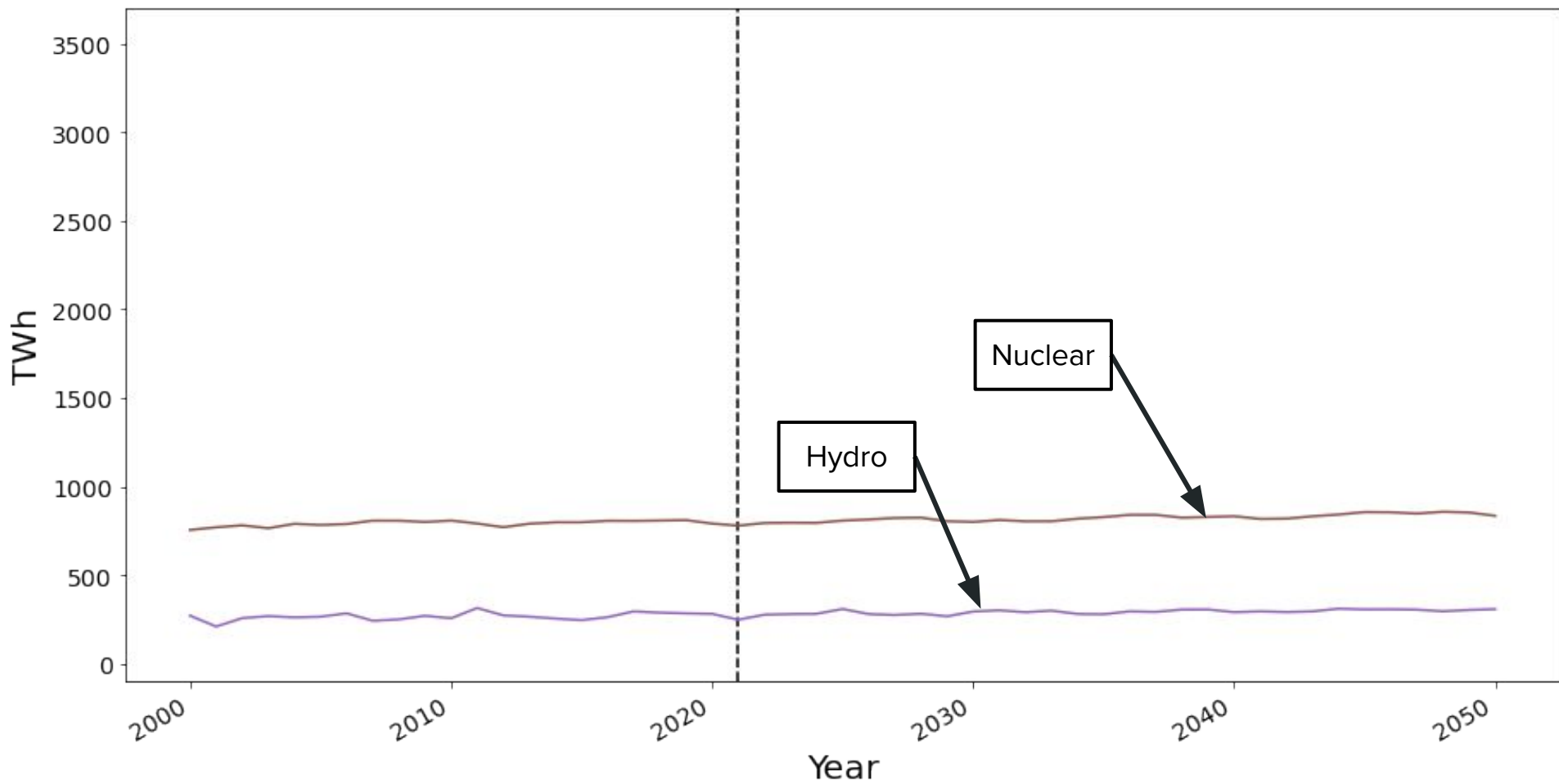
Projected Electricity Production - Model Results



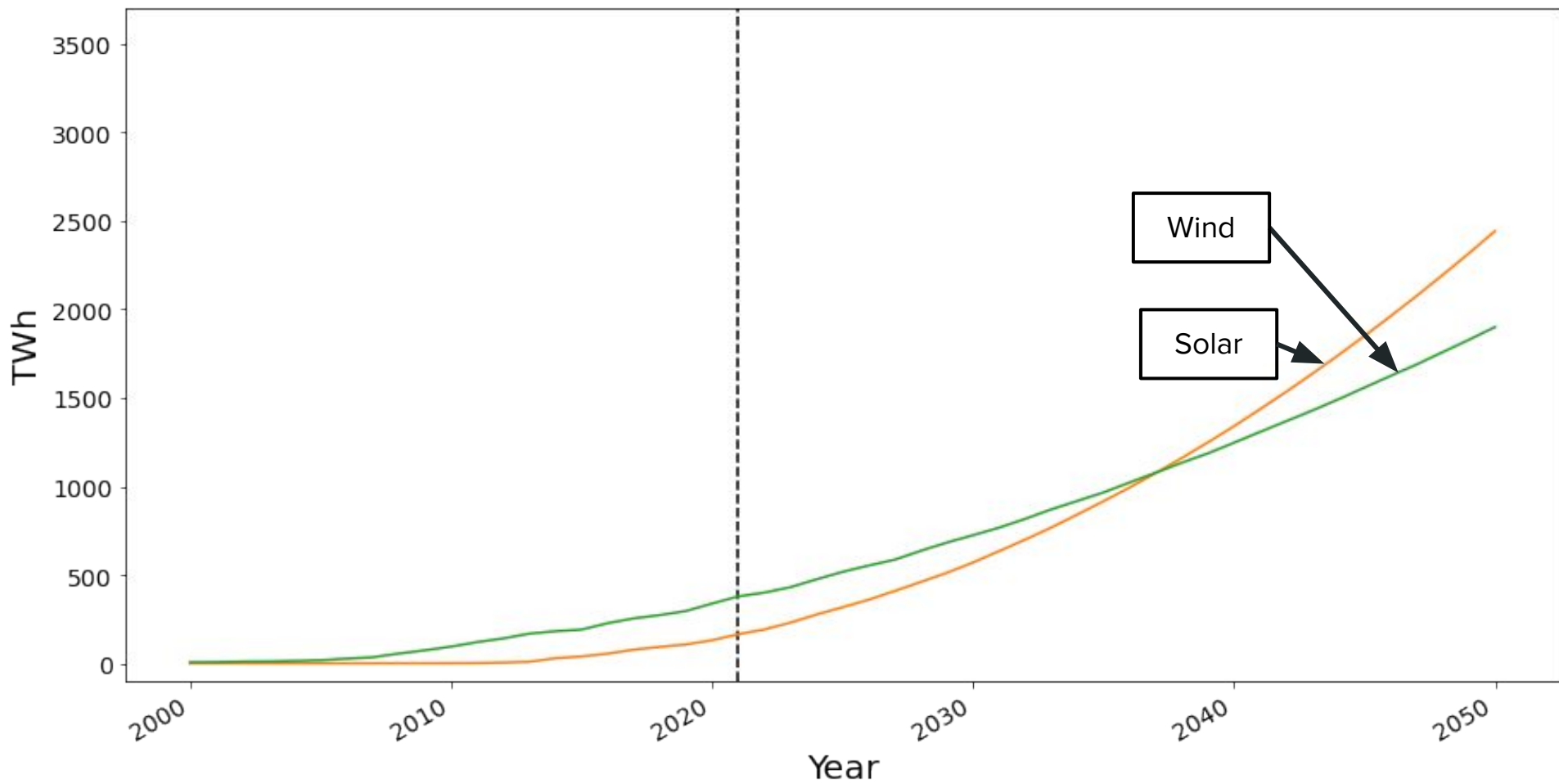
Projected Electricity Production - Fossil Fuels



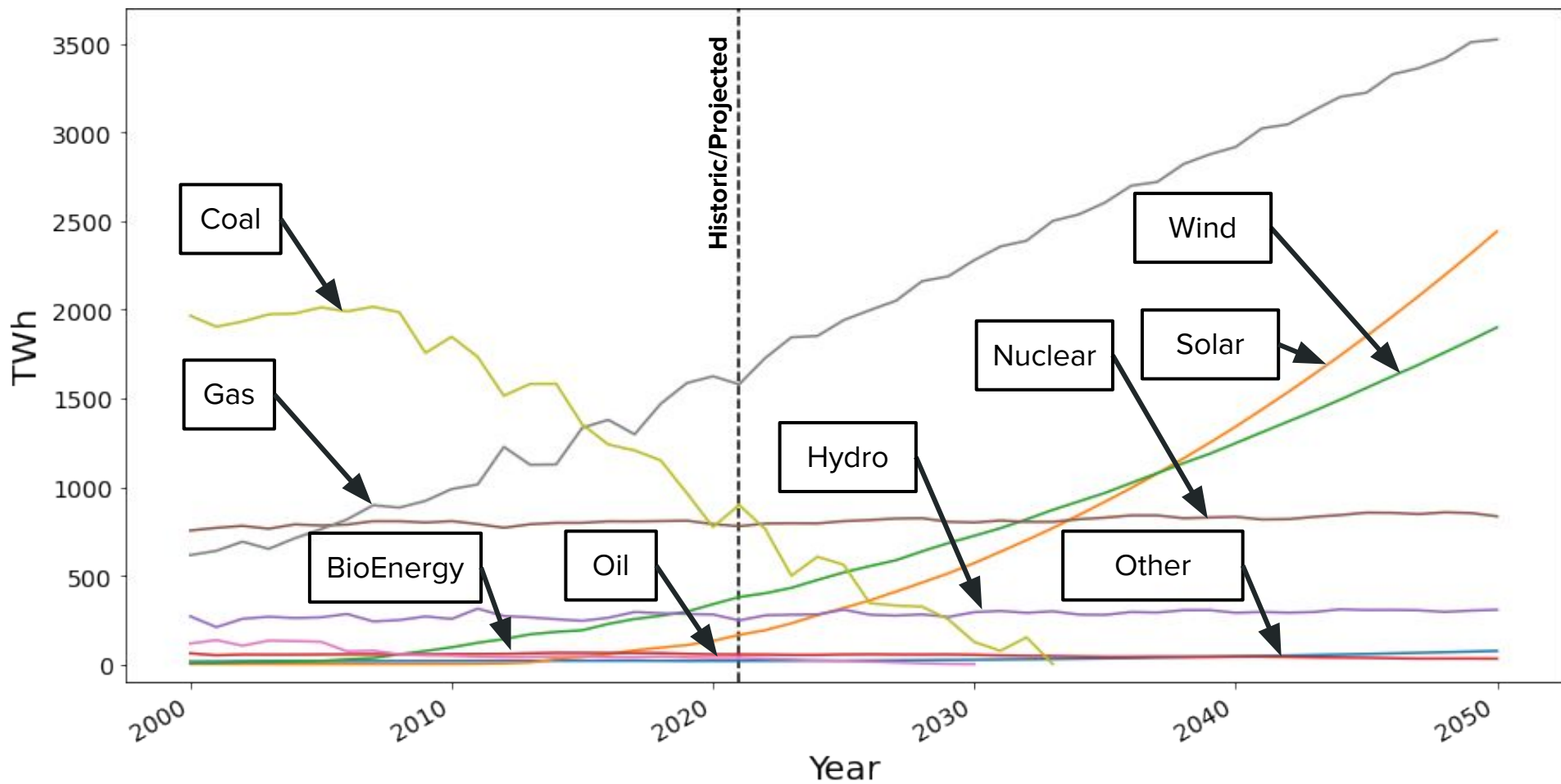
Projected Electricity Production - Hydro & Nuclear



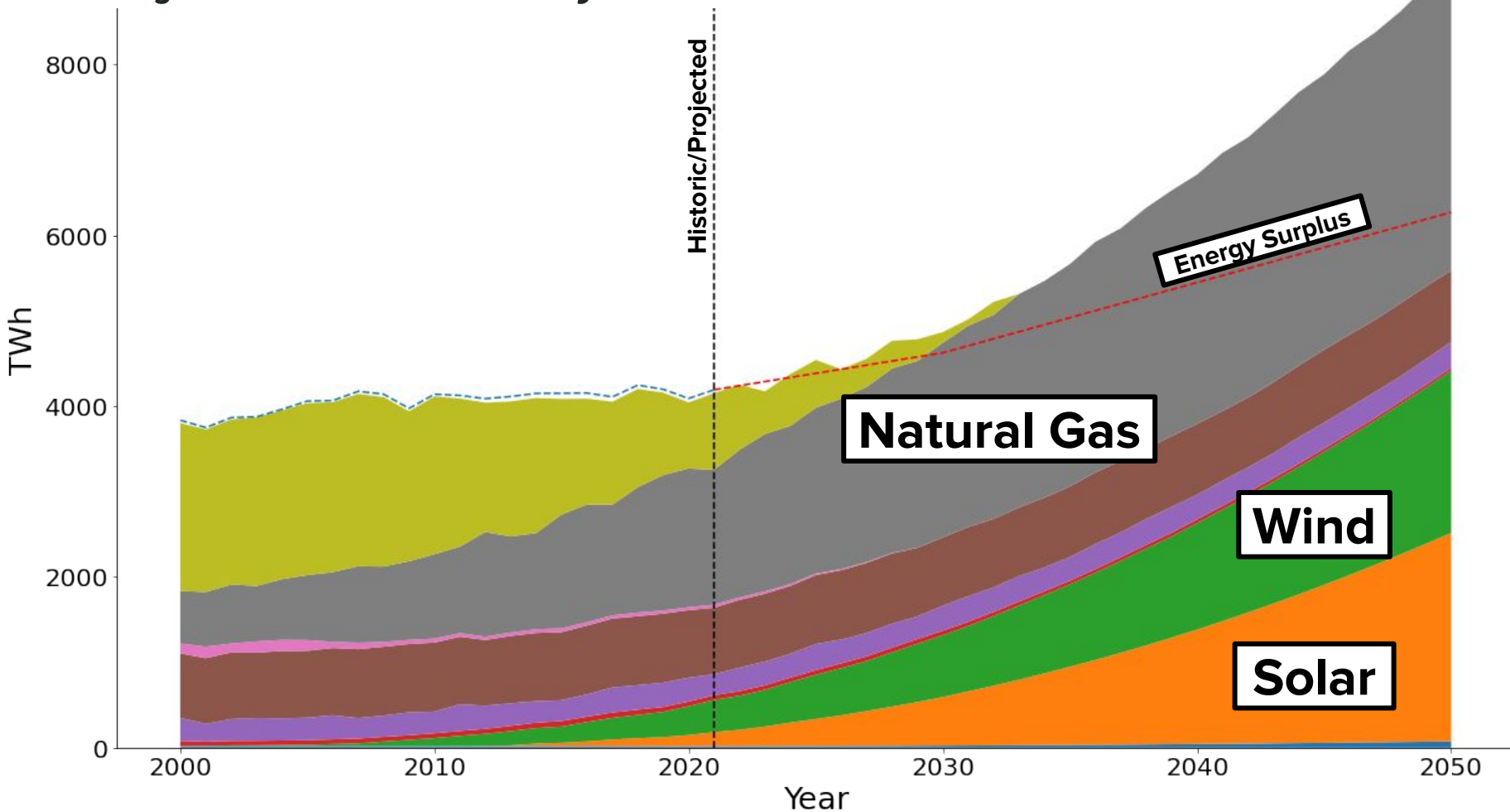
Projected Electricity Production - Solar & Wind



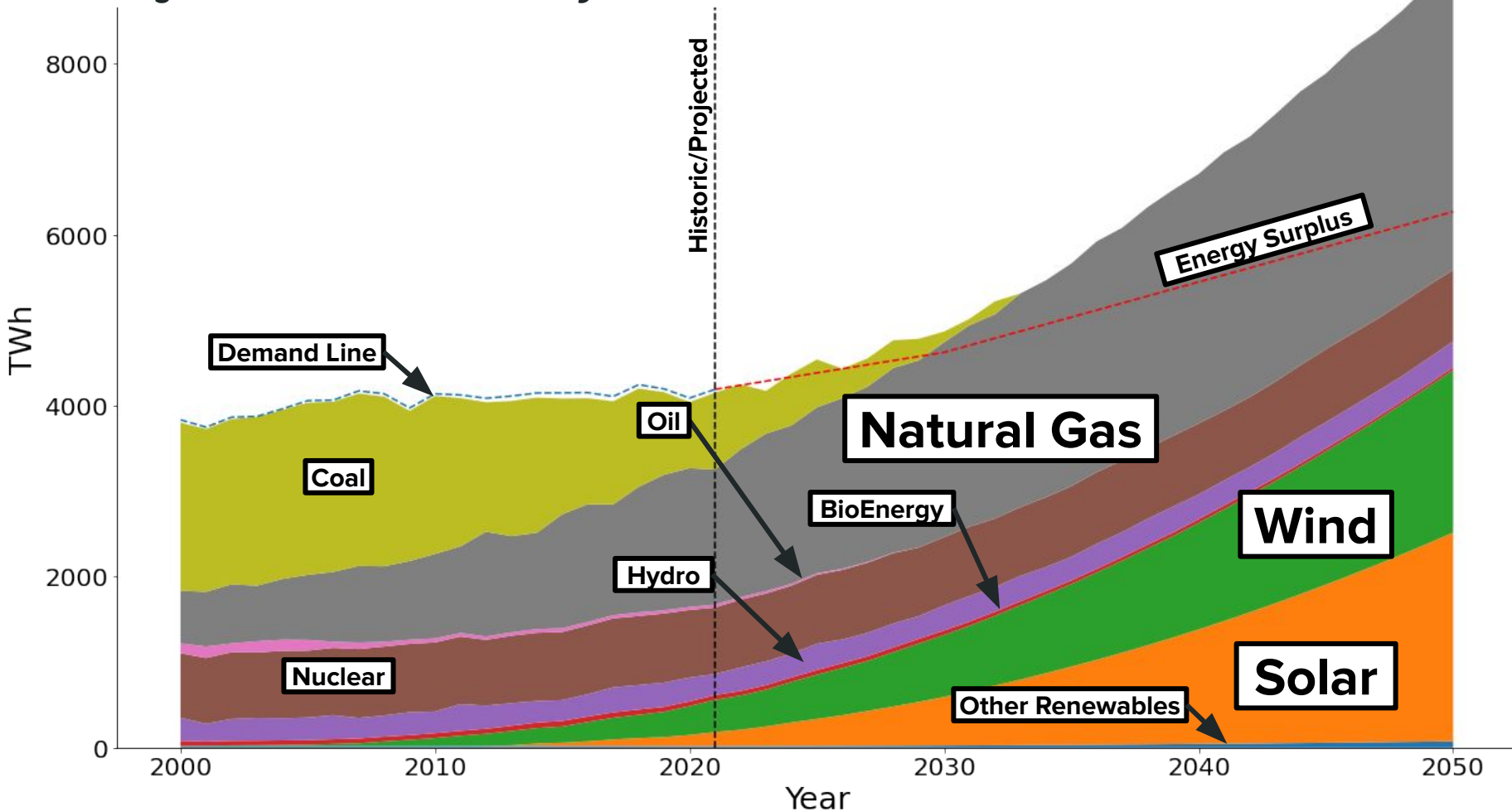
Projected Electricity Production - All Sources



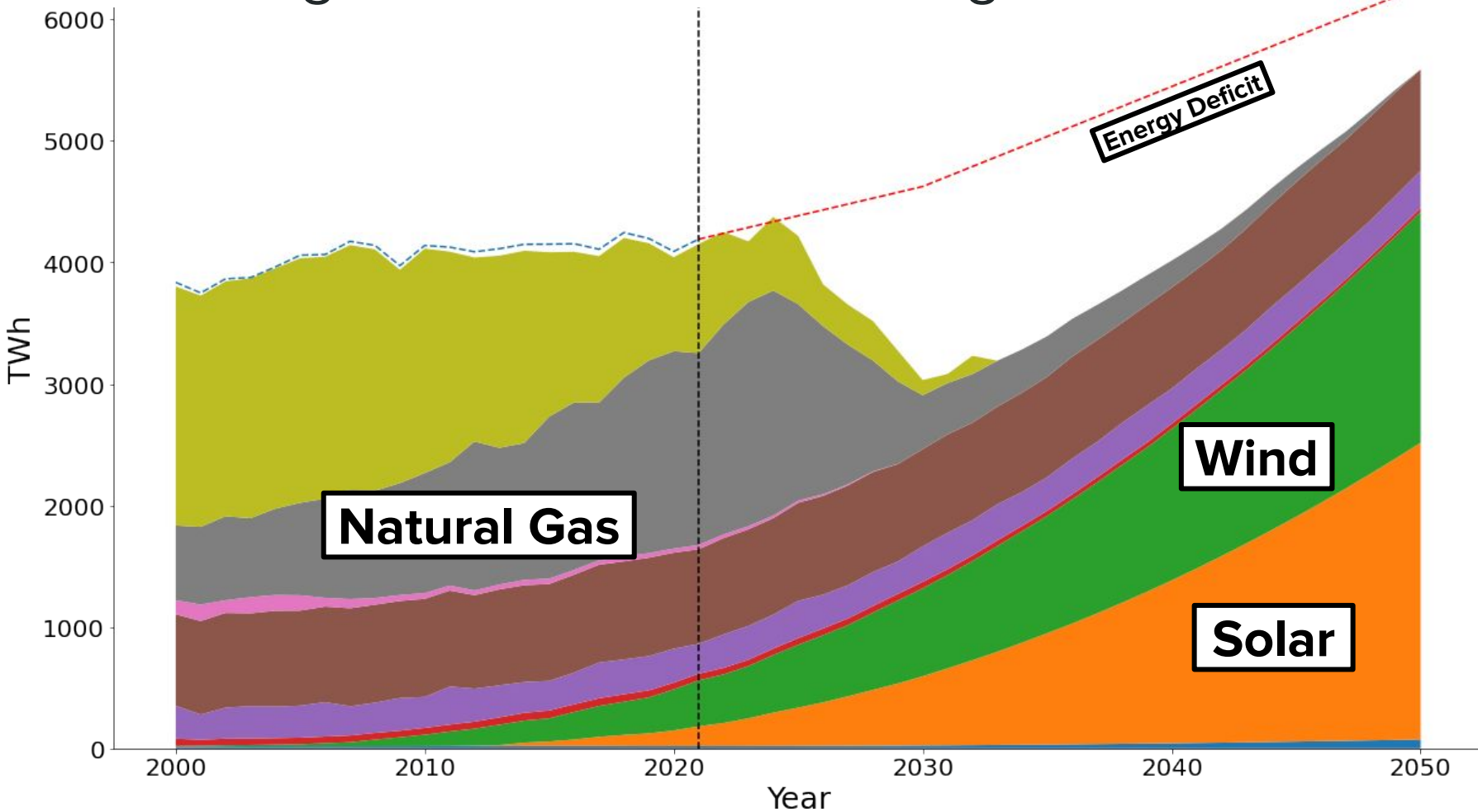
Projected Electricity Production - Model Results



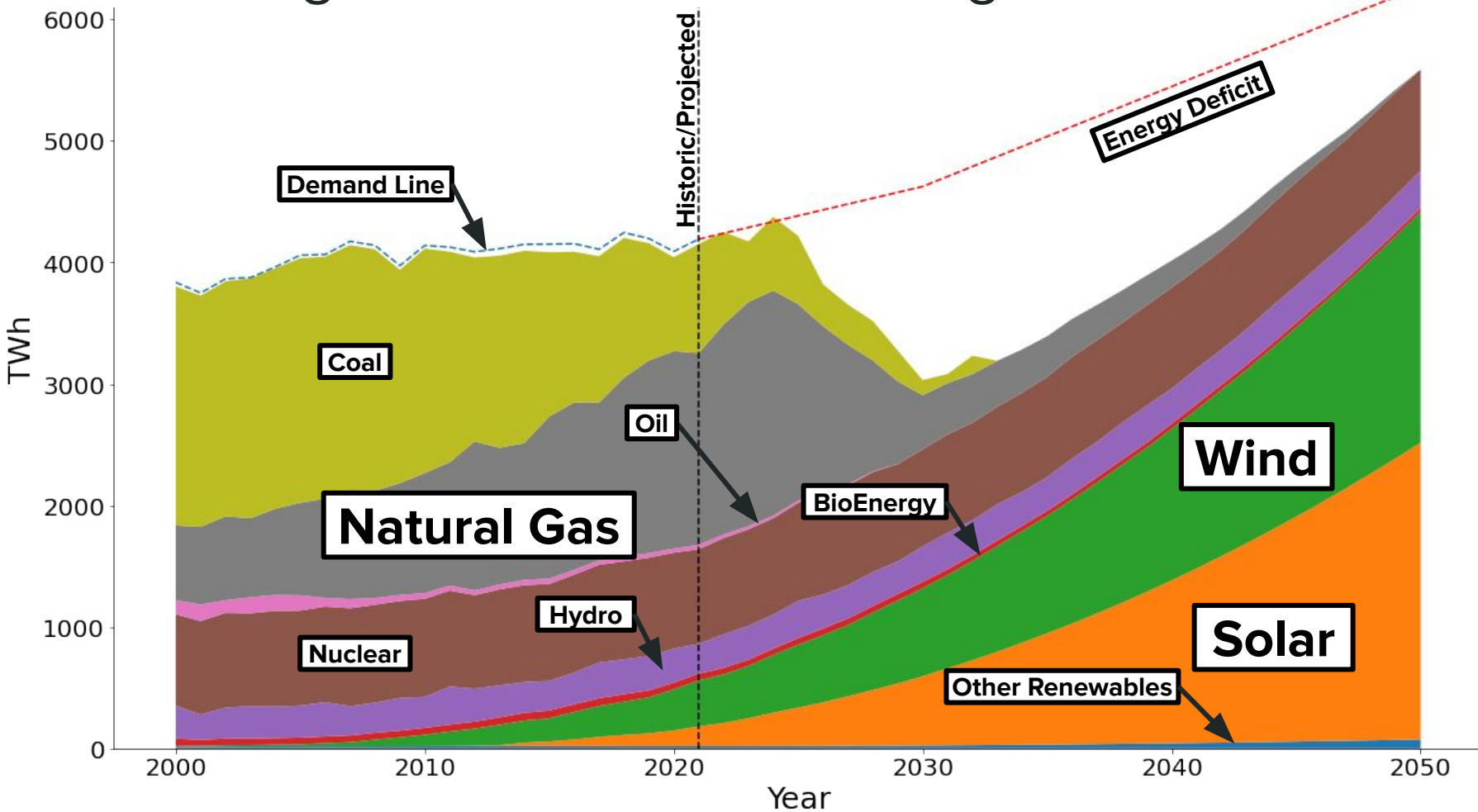
Projected Electricity Production - Model Results



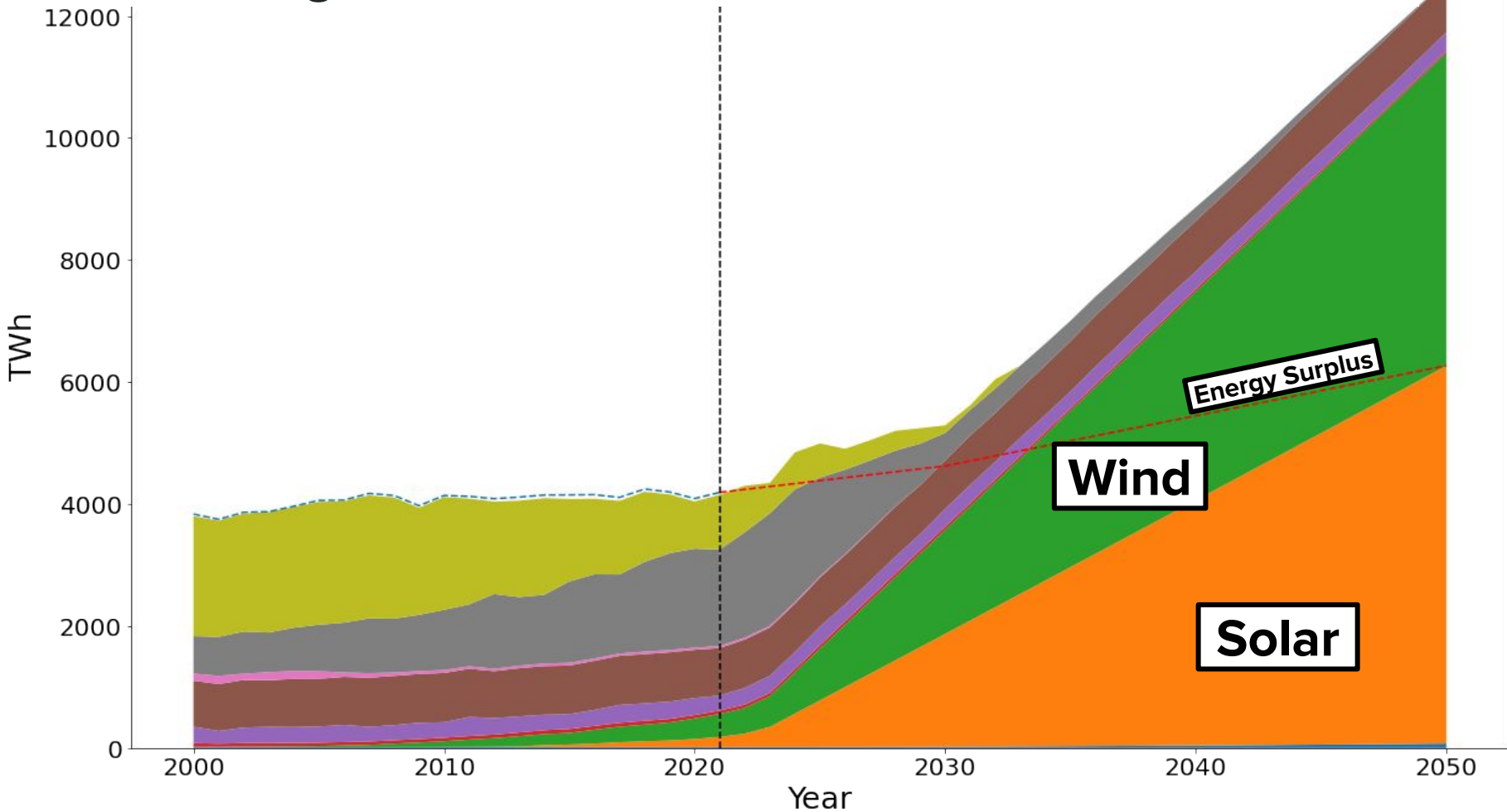
Achieving the Paris Goals - Cutting Natural Gas



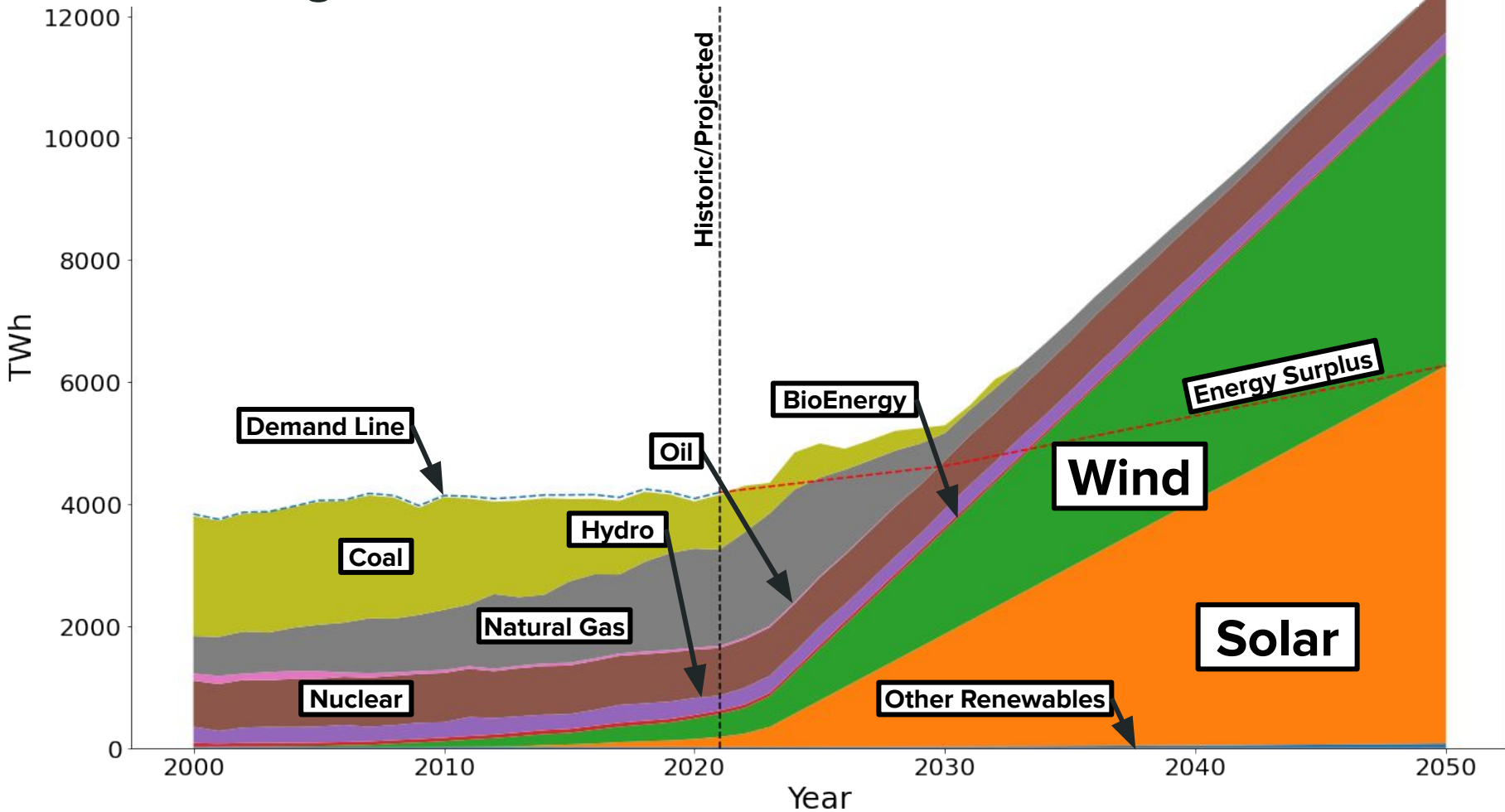
Achieving the Paris Goals - Cutting Natural Gas



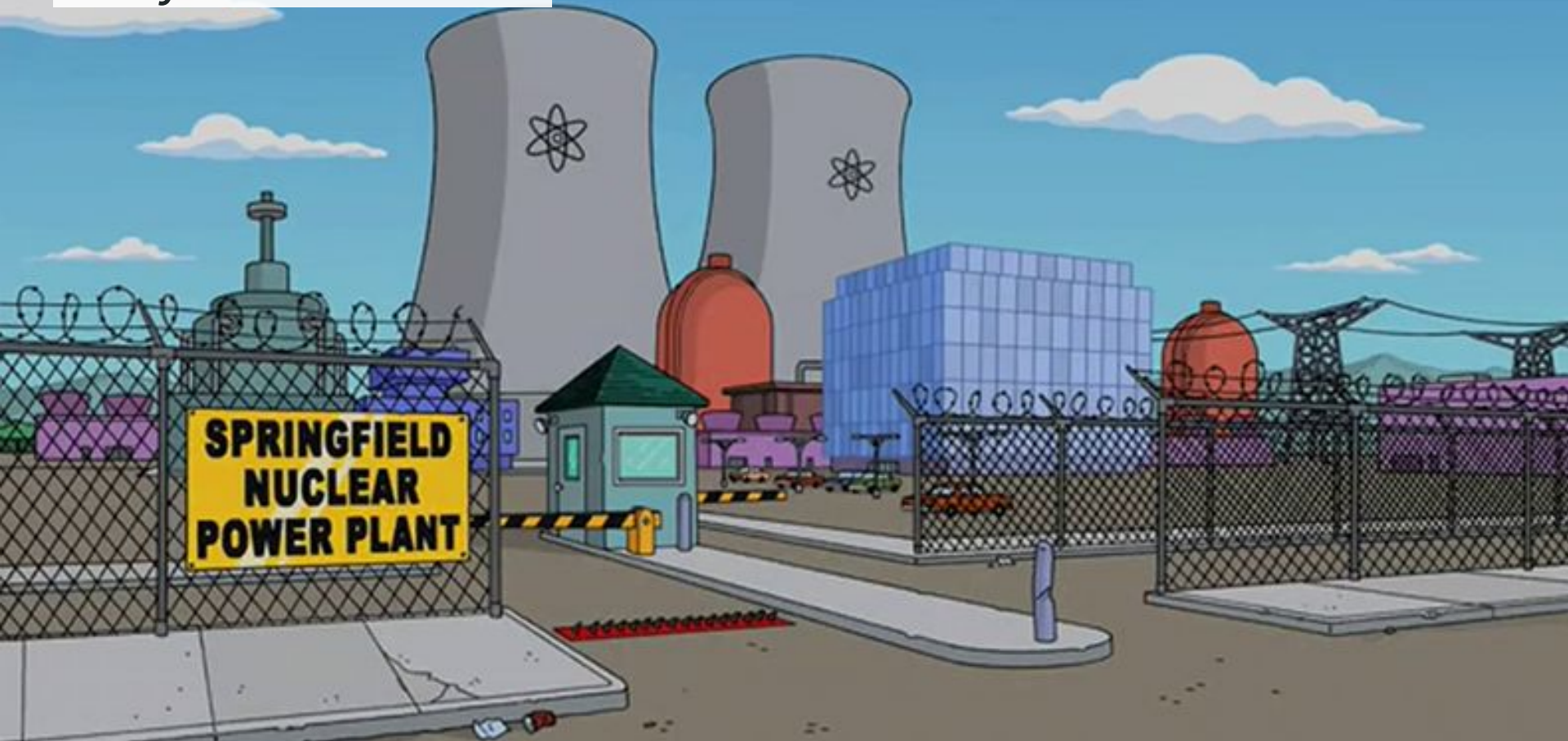
Achieving the Paris Goals - Increase Renewables



Achieving the Paris Goals - Increase Renewables



Why not Nuclear?



Why not Hydro?



More Research Is Possible.

- Include Every Country
- Connect to Temperature
- Use 2022 Data
- Analyze Mining / Drilling Fuel
- Analyze Power Line Losses



Thank You!

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