

Working at EIA: a Case Study



For

*3rd NISS Government Affiliates Virtual Career Fair
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By

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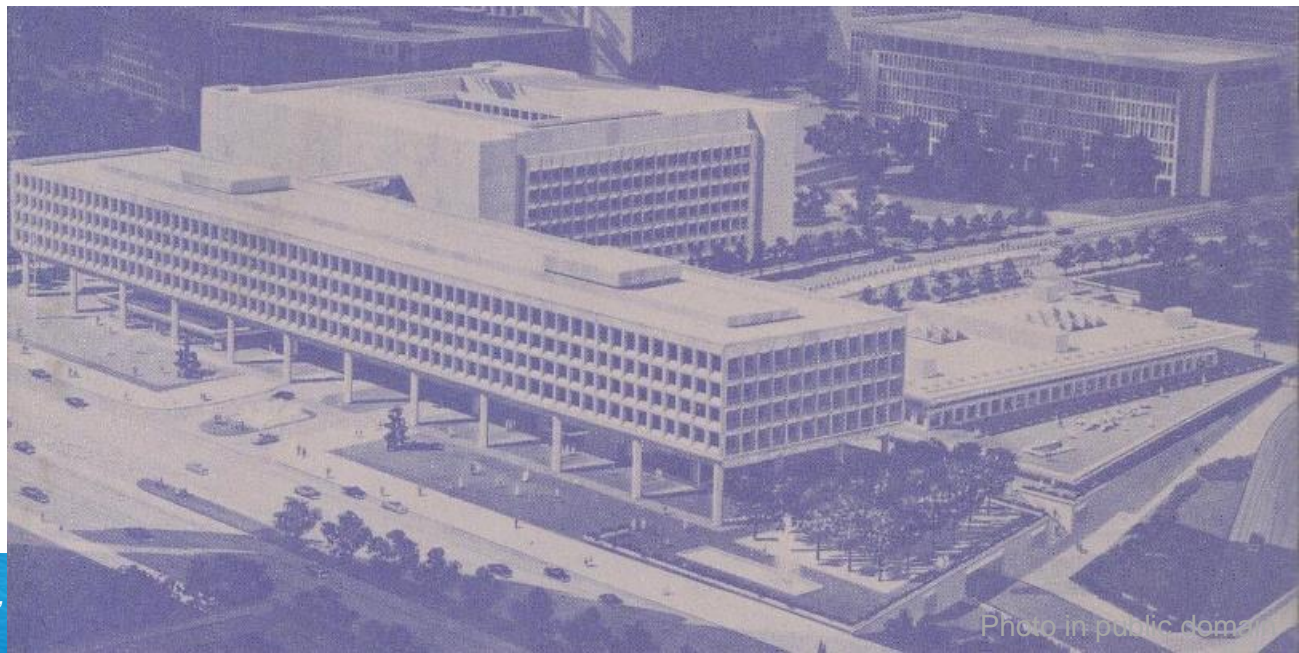
Overview

- EIA background
- EIA products & roles
- EIA employees
- EIA community
- My experience – Pre-EIA
- My experience – at EIA
- Job Fair Questions

DISCLAIMER: I do **NOT** officially represent EIA here, and my views are my own.

EIA – the U.S. Energy Information Administration

- EIA is the principle Federal Statistical Agency within DOE, in Washington, DC
- Created in 1977, along with the formal creation of DOE, under President Carter
- EIA is **Policy Neutral**, by charter
- A little over 300 FTEs, led by a single political appointee, the Administrator
- Probably a similar number of contractors, some onsite and some offsite



EIA products and roles

- **Surveys** :: Conducts 60 some odd surveys generating official U.S. statistics, ranging from hourly (yes, *hourly!*) to **every few years**—most are weekly or monthly
- **Projections** :: Dual function of agency produces official outlooks and projections via modeling—monthly outlooks out to two years, and annual projections out for thirty years
- **Integrated Statistics** :: Compiles and compounds integrated statistics of “total energy” to place survey results in context, both historically and conterminously
- **Analyses** :: Performs regular and *ad hoc* energy analyses (e.g., at request of Congress)
- **Education** :: Large educational component on www.eia.gov (e.g., “Energy Explained” and “Energy Kids”)
- **Principle Economic Indicator** :: Produces one so-called “Principle Economic Indicator,” the Weekly Natural Gas Storage Report

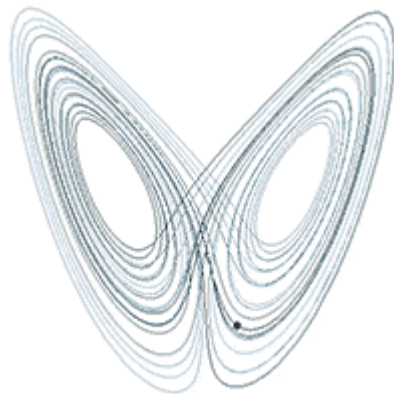
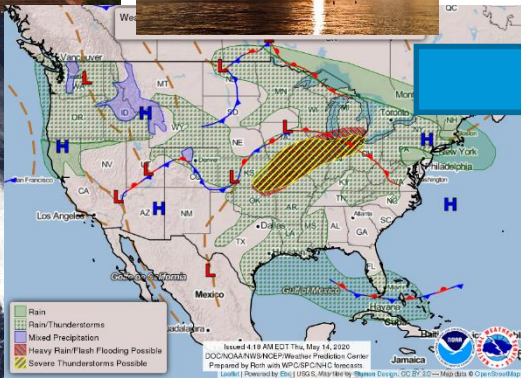
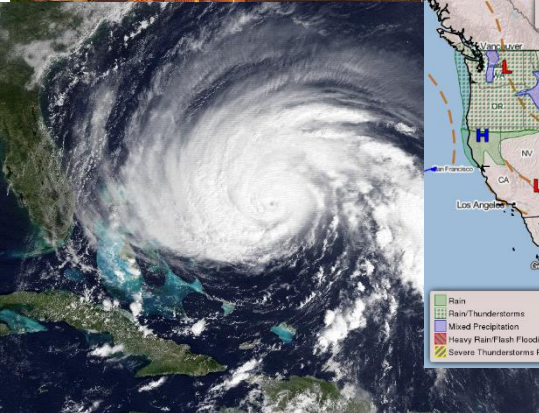
EIA employees

- **“Core Four”** :: Mathematical Statistician (1529), Survey Statistician (1530), Industry Economist (0110), and **Operations Research Analyst (1515)**
 - In practice at EIA, these often feel like just different guises of “Statisticians”—yet the demands of work often require vast expertise across many disciplines
 - No official “Data Scientist” position yet, but things are trending that way...
- Other positions include: Engineers, Management and Program Analysts, Information Technology Specialists, Web Operations Specialists, Public Affairs Specialists, Technical Writers, Summer Interns
- **Management** :: many Team Leads and Office Directors have been promoted from within
 - Team Leads are typically supervisory positions in core series
 - Office Directors and higher are typically in Senior Executive Service (SES)
 - EIA currently has four Senior Level (SL) Technical Experts

EIA community

- Diversity is a strength
- Highly collaborative and engaged workplace environment
- Managerial support for continued training and attending conferences
- Institutional support for many Communities of Interest within EIA
- Often reminds me of academia, though with typically shorter timescales
- **I feel like I'm surrounded by smart people – Nice, smart people at that 😊**

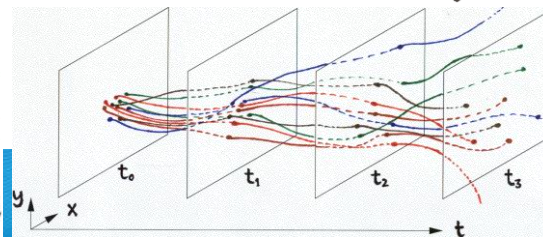
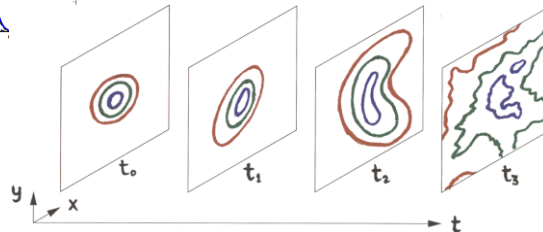
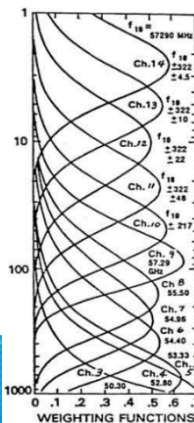
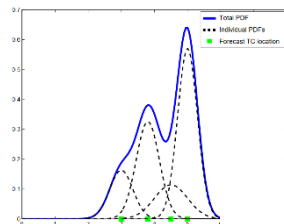
My experience – Pre-EIA



ρ	Mass Continuity
u, v, ω	Navier-Stokes (i.e. $\mathbf{F} = m\mathbf{a}$)
ρ	Equation of State (e.g., Ideal Gas Law)
T	First Law of Thermodynamics
q	Conservation of Water Substance

$$\frac{\partial \phi}{\partial t} + \nabla_n \cdot (\dot{x}\phi) = 0$$

$$\mathbf{x}^a = \mathbf{x}^f + \mathbf{K}(\mathbf{y}^o - \mathbf{H}\mathbf{x}^f)$$

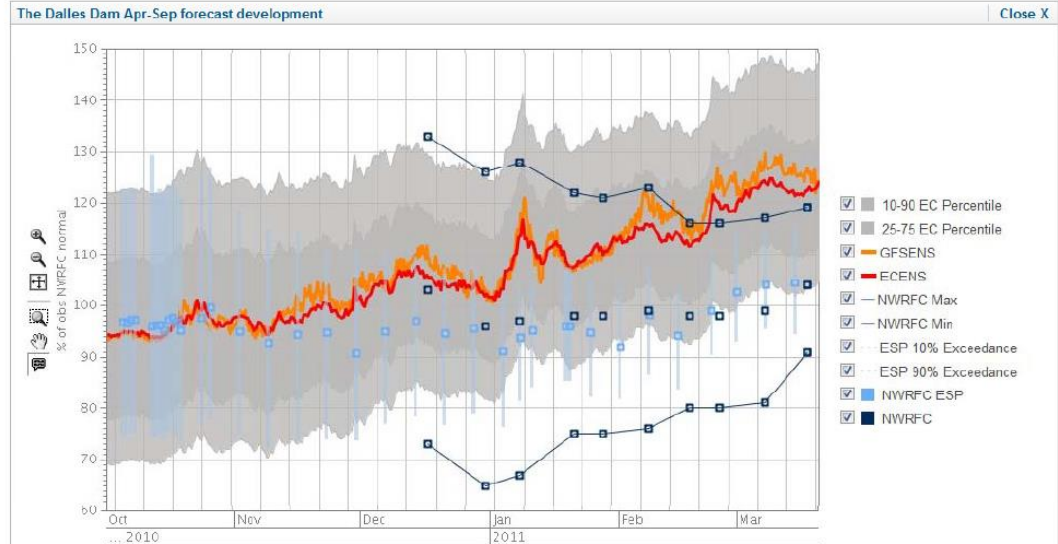


My experience – Pre-EIA, continued

Image: NASA/JPL

Analyzing & predicting Wholesale Electricity supply & demand fundamentals

Looking Forward: Water Supply at The Dalles



Weather & Climate on Mars

My experience at EIA

- I interviewed with three different offices, and I've managed to work with all of them!
- My main job is within: Office Energy Statistics >
Office of Energy Demand and Integrated Statistics >
Residential Energy Demand Team
- Our main product is the **Residential Energy Consumption Survey (RECS)**
 - A study every 4-5 years about how Americans use energy in their homes
 - Study is comprised of two different surveys:
 - Housing Characteristics of randomly sampled homes in the U.S.
 - Energy Supplier Survey – mandatory collection of utility bills for all completed HC surveys
 - Once data have been edited, imputed, etc., we produce **End-Use Estimates**
 - I arrived at an exciting transition time in the team's approach and methodology, and I had an outsized influence over the new approach, relative to my seniority

My experience at EIA, continued

- I have also done a part-time detail with the Electricity Team on a new, high visibility project as part of the Administrator's "**Electricity Initiative**"
 - Collecting publicly available data from organized wholesale electricity markets
 - Need to wear many hats for this!
- I have also helped with the Projections (**Short Term Energy Outlook**) while a colleague was out of the office for half a year; in particular forecasting hydropower generation
- I am an active member of EIA's **Data Science Working Group**, engaged in pilot projects using cloud resources to gauge the readiness of our agency to expand there
- **Basically, I get to keep learning new things, and the agency/community enables this 😊**

Job Fair Questions

1. What are the job opportunities for statisticians in your organization?
“Core Four” job series – surveys or projections
2. Describe the range of skills statisticians need to succeed in your organization
Quantitative, curiosity, team-oriented, good communication, subject-matter expertise
3. What is the career path for statisticians in your organization?
Not one-size-fits-all, but often stay within job series through promotions, potentially into management/leadership or non-supervisory technical positions
4. Is your organization currently hiring statisticians?
YES! Direct Hire positions within usajobs.gov (see links at end of presentation)
5. What advice would you give to students based on your experience?
Learn to code!, delve deep into subjects, take some risks, seize opportunities, stay positive, don't burn bridges, question everything but so too give the benefit of the doubt

usajobs.gov Direct Hire notices

- GS 11, 12, & 13 openings (\$72,030 to \$133,465 per year in Washington, DC)
- Industry Economist (open thru 9 Apr 2021):
<https://www.usajobs.gov/GetJob/ViewDetails/565179000>
- Statistician (typically “Survey Statistician”, open thru 16 Sep 2020):
<https://www.usajobs.gov/GetJob/ViewDetails/545898200>
- Mathematical Statistician (open thru 16 Sep 2020):
<https://www.usajobs.gov/GetJob/ViewDetails/545898400>

- Operations Research Analyst positions come up periodically too, but not Direct Hire

Credits for images on slide 7:

- * weather images in public domain (Wikipedia and NOAA)
- * Lorenz 63 attractor gif from Dan Quinn under [Creative Commons Attribution-Share Alike 3.0 Unported](#) license (Wikipedia)
- * TC location chart from Jim Hansen (NRL)
- * Satellite weighting functions from AMSU-A, taken from ECMWF