



*Financial Matters Designed For  
Clean Energy Adoption*

**JET Meeting**  
October 28, 2020

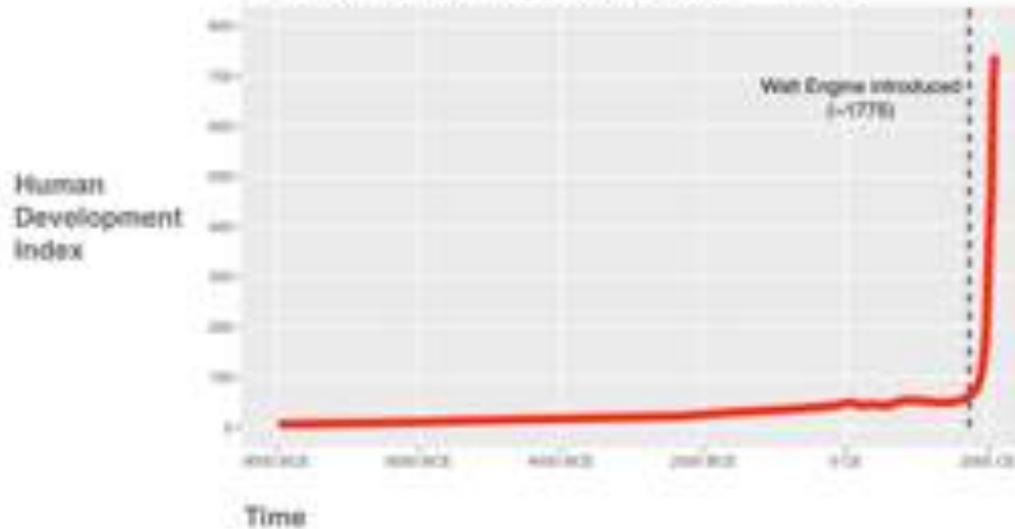
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## Human Productivity: Entering the 2<sup>nd</sup> Step

**Step 1:** Overcoming limits of physical muscle power 1775

**Step 2:** Overcoming limits of mental mind power ~ May 1997

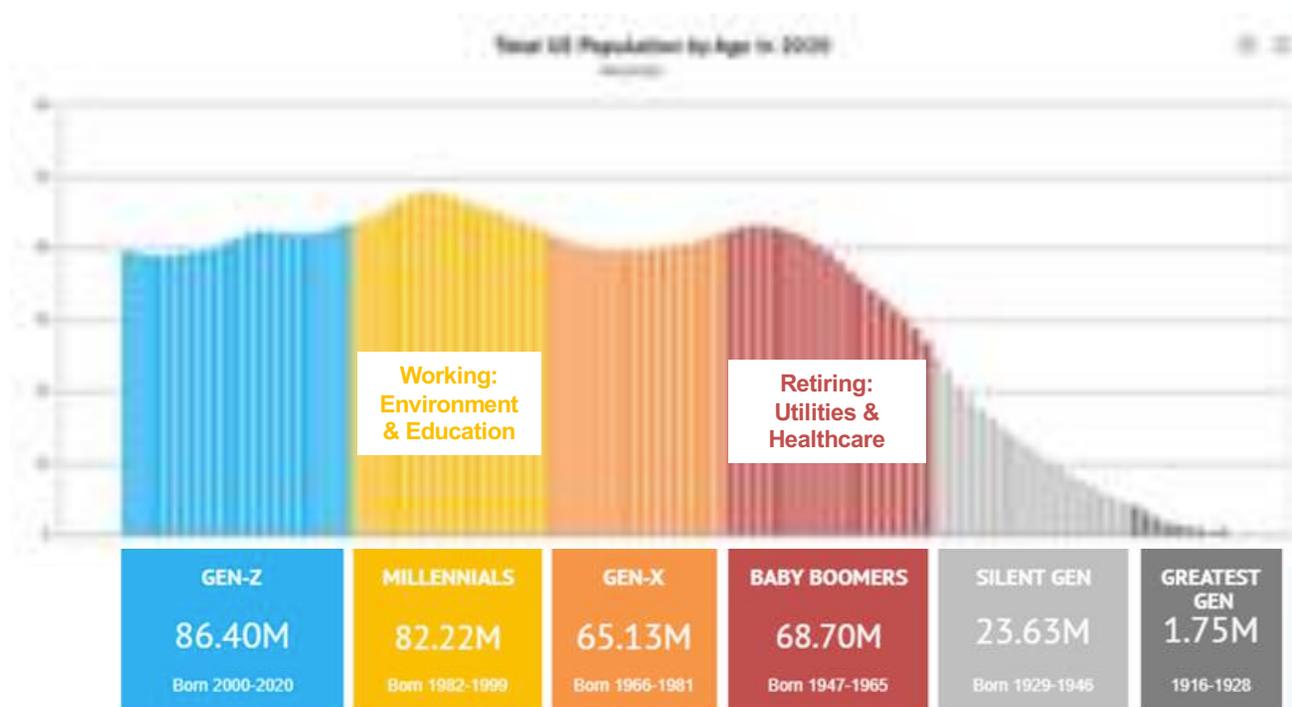
Human Development Over Time



Source: Ian Morris: Stanford University

- Feb 10, 1996: Garry Kasparov beats IBM supercomputer in Philadelphia
- **May 11, 1997: Deep Blue IBM supercomputer beats Garry Kasparov in NYC**
- Jan 13, 2011: IBM Watson plays and wins Jeopardy against 74-time champion Ken Jennings
- March 15, 2016: Google's AlphaGo beats world champion Lee Sedol 4-1 in "Go" (oldest human game)
- August 2020: 40% of Financial Institutions use AI for credit risk management. Loan processing uses up to 5,000 metrics (up from ~10 in FICO era) and can fund in less than 10 seconds.

# Biggest, Wealthiest Generation in the World...Retirement Begins



1. Will care about electricity cost (#3 out of 175 CPI Inflation items)
2. Facing lowest interest rates since 1930 and rates may go negative
3. Pulling money out of the market leaving Millennials with growing influence for money managers

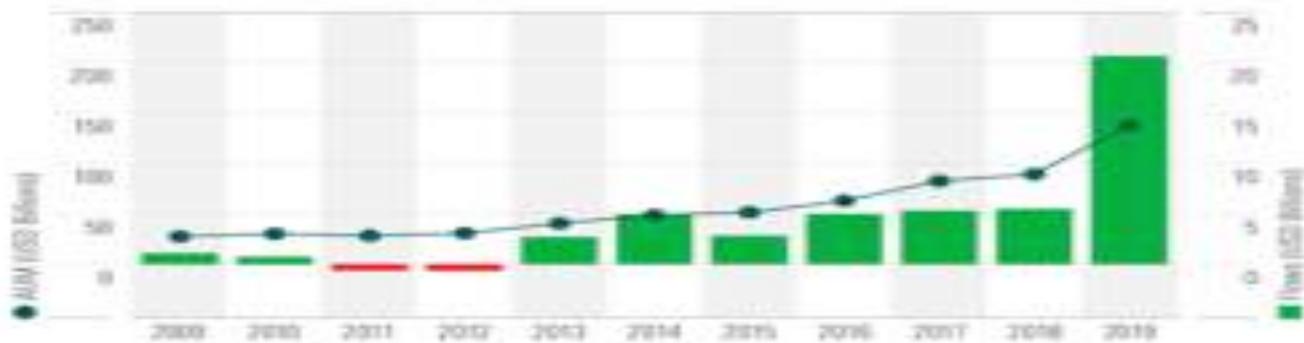
Source: US Census Bureau

# ESG Funds... Fast Growing and Outperforming

The sustainable funds universe grew to 303 open-end and exchange-traded funds in 2019, up from 270 the year before. The group has grown considerably in the past five years. At the end of 2014, it totaled 111 funds, and a decade ago, 100 funds.

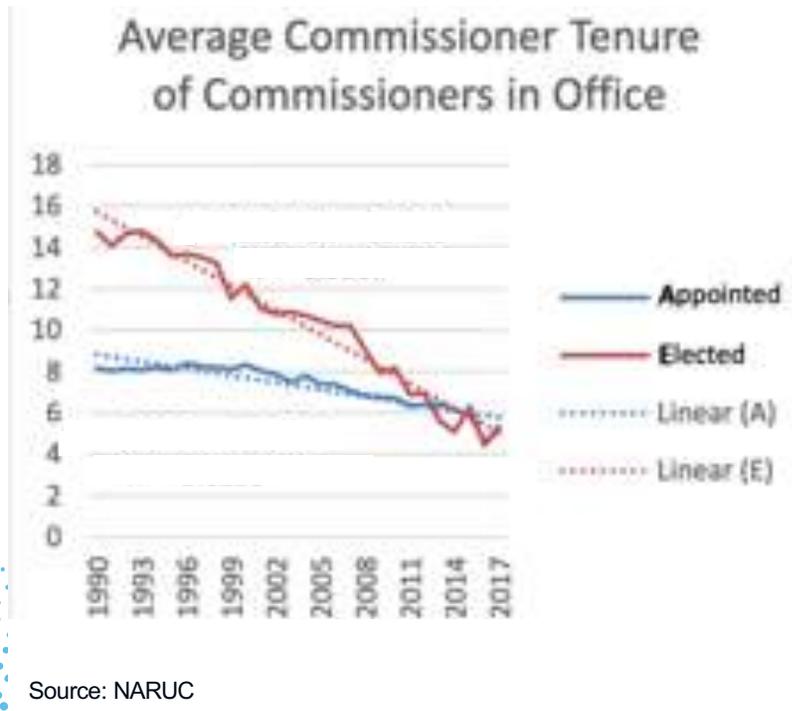
Morningstar March 2020

Sustainable Funds Estimated Annual Flows



Source: Morningstar Direct. Data as of 12/31/2019.

# Commissioners Lack Experience

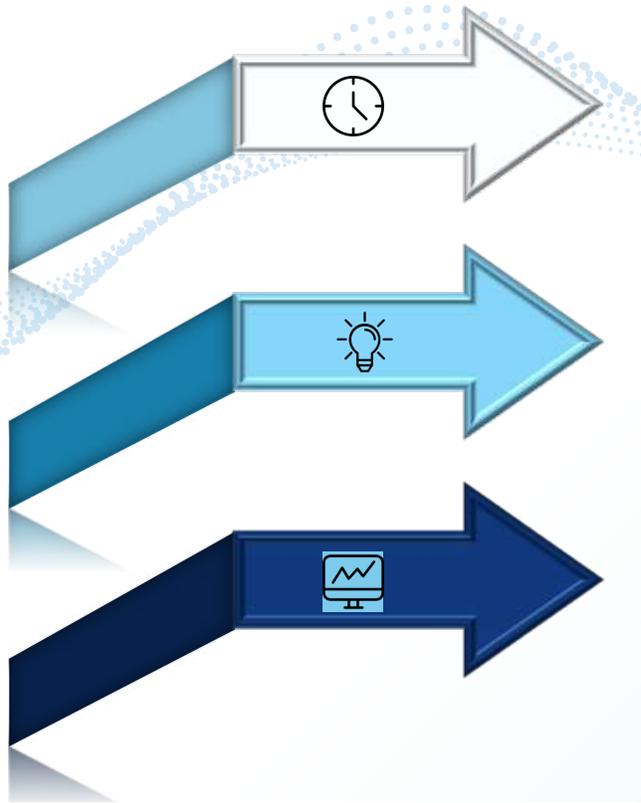


Tendency to accept prior commissioner decisions

Updating and absorbing all information from all parties has become more important than ever

# Incremental Iterations for Rapid Change

## PSS Addresses Key Questions Using 3 Tools...



1

### Financial Education

What is risky now and why? Which parties are motivated to act on old and new rules? What attributes attract capital? What is holding back progress?

2

### Direct Support of Policy Change

Which policies create productive results and which ones are outdated and hurt progress? What cases, dockets, reviews can make a difference now? Can greater financial expertise be injected into the process? How can policy balance requirements for affordability, decarbonization, and ownership?

3

### Modern Analysis For Decisionmakers

Do old financial tools work any more when confronted with new realities like negative interest rates, deflation, zero cost fuel, rising healthcare costs, short asset life cycles, greater emphasis on energy burden, disproportional impacts, and local ownership?

# Transitioning from Fossil

## New Parties

- Private Companies (Developers, Users of former industrial assets)
- Institutional Investors

## Old Policies

- COS (Stranded Assets, Legacy costs)
- Culture of shifting risks (Commission and Utilities together)

## Creative Minds

- Combine interests of multiple parties. Cities & Counties need to propose packages to save themselves
- Find risk reward sensitivities unique to each location

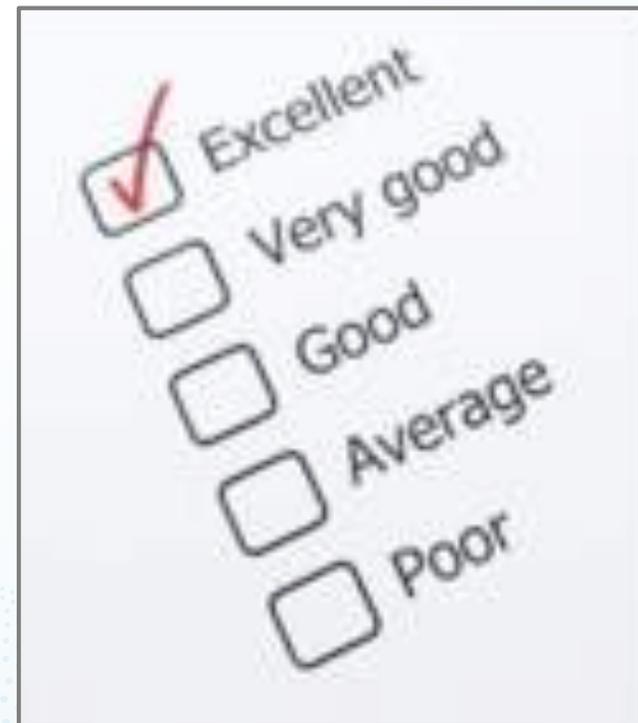
# What's PSS Doing?

Scorecard for Fossil Transition with Rocky Mountain Institute, Crest Policy Research, Western Grid Group, and Others

## Why?

It's hard for private parties to understand the unique features of an old power plant. We can't wait for all other assets to be sold before anyone wants to look at an old power plant.

Getting key metrics and features in a database will help draw more people into the discussion



# Let's Get Active:

## Get Private Companies Involved

- Create packaged solutions (multiple options)
- RMI, PSS Finance Lab, Others started a Scorecard for brownfield sites to catalog asset characteristics
- **You: Understand who can use the remaining assets: land, switchyard, top-notch civil structures, rail, other infrastructure.**

## Work to Change COS (Cost of Service) ROE (Return on Equity) Targets and bands

- Decade plus of low inflation and falling interest rates, but ROE targets stay the same with a ½ percent band? Crazy!
- System is an avalanche of incremental changes so this way seems more effective than a wholesale change.
- **You: Get involved in supporting ROE target setting activities in the states you are working in.**

## Securitization Should be used as a new tool to creatively fund transition work

- Many States starting to draft legislation to retire fossil
- **You: Make sure it addresses power plants and transition costs**



# Coal Transition: Unique and Large

## **Asset:**

- Large property 100s or 1,000s of acres
- Excellent civil construction: Buildings, parking, roads
- Logistics in place: Switchyard, substation, transmission, Rail, internet, rights of ways, natural gas, setbacks, water, sewage

## **Liability:**

- Stranded costs
- Ash pond reclamation
- Coal mine on site
- physical access
- Taxes

## **Packaging Ideas: Target the Industry/Company. Don't hope they will find you**

- Data Centers (Video Rendering, Cryptocurrency, Blockchain) with solar or other
  - a) Growth industry worldwide (new enduring jobs, more power at location over time)
  - b) Needs massive amounts of electrical power, but little space per watt
  - c) Can stabilize grid (frequency response and load shedding) and protect peaking reserve requirement



# You + PSS Can Transition Energy Better Together

## Financial – Policy – Technology

### PSS Delivers Financial Support



Targets Outdated Policies to Make Room for New Policies and Align Motivations

Educates Industry on Changes in Risk, Return, Motivation of Stakeholders

Performs Analysis to Bring Expert Witnesses Into Processes and Cases that Matter

Joins Forces from Many Disparate Organization to Focus on Specific Bottlenecks to Progress

Speeds Industry Adoption of Necessary Technologies for a Sustainable Future