

**MINUTES OF THE REGULAR
MEETING OF THE COMMISSION**

February 22, 2022

1. Call to Order | Pledge of Allegiance

The regular meeting of the Board of Commissioners of Public Utility District No. 1 of Whatcom County was called to order at 8:00 a.m. by Commissioner Christine Grant. Said meeting was open to the public and notice thereof had been given as required by law. Those present via Zoom teleconference included Commissioner Mike Murphy, Commissioner Christine Grant, Commissioner Atul Deshmane, and Legal Counsel Jon Sitkin. Staff attending via Zoom teleconference: Chris Heimgartner, General Manager; Steve Jilk, In-House Consultant; Ann Grimm, Executive Assistant; Rebecca Schlotterback, Manager of Contracts and Regulatory Compliance; Brian Walters, Assistant General Manager; Annette Smith, Director of Finance; Duane Holden, Director of Utility Operations; Aaron Peterson, IT/SCADA Technician; Mike Macomber, IT/SCADA Technician; Andrew Entrikin, Broadband Program Manager; and Traci Irvine, Accountant I.

Public attending via teleconference:

Dave Olson, CMI	Jack Wellman, Puget Sound Energy
Scott Wallace, Citizen	Lauren Turner, P66
Daniel Kirkpatrick, Citizen	Rick Maricle, Citizen

2. Approval of Agenda

(Recording Time on Video: 01:17)

No changes made.

3. Consent Agenda

(Recording Time on Video: 02:12)

- a. Approval of Meeting Minutes of the Regular Meeting, February 8, 2022; and
- b. Approval of the Claims of February 22, 2022:

VENDOR NAME	AMOUNT
APPLIED DIGITAL IMAGING	123.74
BAY CITY SUPPLY	117.72
BHAM TECH COLLEGE	1,690.00
BONNEVILLE POWER ADMINISTRATION	715,627.00
CENTRAL WELDING SUPPLY	375.77
COMCAST	186.57
COMCAST - NWRC	300.00
CULLIGAN NORTHWEST	211.71
DELTA ELECTRIC MOTORS	7,118.73
EDGE ANALYTICAL LABORATORIES	29.00
FERNDALE ACE HARDWARE	83.43
FLOWSERVE FSD CORPORATION	4,069.53
GENEVA CONSULTING	3,708.50
GUARDIAN SECURITY SYSTEMS, INC	211.78
INDUSTRIAL SUPPLY, INC	13.22
INSIGHT PUBLIC SECTOR, INC.	3,356.47
INTERNAL REVENUE SERVICE	22,379.34
IVOXY CONSULTING LLC	26,735.00
KAMAN FLUID POWER LLC	426.45
KCDA PURCHASING COOPERATIVE	428.98
NORTH COAST ELECTRIC COMPANY	1,529.91
NORTHWEST CASCADE, INC.	118.50
NORTHWEST PUMP & EQUIPMENT	16,100.07
PARAMOUNT SUPPLY COMPANY	199.12
PAYLOCITY	144.73
PAYROLL	243,351.03
PUD #1 OF WHATCOM COUNTY	429.43
PUGET SOUND ENERGY, INC	598.77
RH2 ENGINEERING, INC	1,752.37
SCHNEIDER ELECTRIC	7,465.74

TUPPER MACK WELLS PLLC	10,675.00
UTILITIES UNDERGROUND LOCATION	19.35
VALVOLINE	125.72
WA FEDERAL VISA CARD MEMBER SERVICES	3,152.01
WA ST AUDITOR'S OFFICE	3,248.00
WA ST DEPT OF REV PRIVLGE	245,648.63
WA ST DEPT OF REVENUE	76,288.02
WASHINGTON ALARM, INC.	126.58
WESTERN CONFERENCE OF TEAMSTERS	9,173.50
WORKSPACE DEVELOPMENT LLC	13,593.77
GRAND TOTAL	\$1,420,933.19

ACTION: Commissioner Murphy motioned to APPROVE THE CONSENT AGENDA OF FEBRUARY 22, 2022. Commissioner Deshmane second the motion. Motion passed unanimously.

- 4. Public Comment** *(Recording Time on Video: 2:56)*
Rick Maricle followed up on Deshmane’s comments made on the Snake River Dams at the February 8 meeting.

5. Old Business

- a. Broadband Program Update** *(Recording Time on Video: 9:23)*
Entrikin recapped that two bills in the Legislature continue to move forward, SHB 1673 and SB5715 Whidbey Tel is looking at grant opportunities to support fiber at Point Roberts. Entrikin shared the map depicting “Funded Fiber Routes and Anchor Institutions”. The Port issued a press release regarding the news of funding received and plan of work.

Grant added that Whatcom County EDI funds for the grant’s required local match now needs to be secured. She also attended WPUDA’s “Day on the Hill”.

Murphy met with Entrikin to learn more about broadband in the County, restrictions and more.

- b. Approve Resolution No. 812 – Public Discourse Policy** *(Recording Time on Video: 33:09)*
Sitkin reported that no additional comments by the Commission were received on the draft policy.

ACTION: Commissioner Deshmane motioned to APPROVE RESOLUTION NO. 812 ADOPTING THE DISTRICT’S PUBLIC DISCOURSE POLICY. Commissioner Murphy second the motion. Motion passed unanimously.

- c. Approve Amendment No. 2 – Washington State Department of Fish and Wildlife /WRIA 1 Regional Water Supply Grant** *(Recording Time on Video: 41:26)*
Schlotterback reported the amendment covers an additional amount of funding provided by WDFW is \$28,000, for a final grant total of \$228,000; and WDFW extended the term of the grant to December 15, 2022.

ACTION: Commissioner Murphy motioned to APPROVE AMENDMENT NO. 2 TO GRANT WITH WASHINGTON DEPARTMENT OF FISH AND WILDLIFE TO SUPPORT DEVELOPMENT OF THE WRIA 1 REGIONAL WATER SUPPLY AND MANAGEMENT PLAN IN THE AMOUNT NOT TO EXCEED \$228,000.00, A TERM EXTENSION TO DECEMBER 15, 2022, AND AUTHORIZE GENERAL MANAGER TO SIGN THE CONTRACT. Commissioner Deshmane second the motion. Motion passed unanimously.

6. New Business

- a) Approve Resolution No. 816 – Cancellation of Warrant** *(Recording Time on Video: 54:00)*
Warrant No.1140369 issued on February 1, 2022 in the amount of \$399.26 to Pacific Underwriters was issued to the wrong vendor and has not been tendered. The District has requested that the County cancel Warrant No. 1140369 and will not be reissued by the County. A separate check was issued by the District.

ACTION: Commissioner Murphy motioned to APPROVE RESOLUTION NO. 816 AUTHORIZING CANCELLATION OF WARRANT. Commissioner Deshmane second the motion. Motion passed unanimously.

- b) Approve Work Order No. 01-02-22 – Eagle Eye Aerial LLC.** *(Recording Time on Video: 55:38)*
Walters reported that District staff in coordination with Eagle Eye Aerial has developed a Scope of Services under that includes inspection of all 102 of the District’s 115 kV transmission structures, associated equipment, the 115 kV conductor spans, and the three 115 kV substations will be aerially

inspected.

ACTION: Commissioner Deshmane motioned to APPROVE WORK ORDER NO. 01-02-22 WITH EAGLE EYE AERIAL SOLUTIONS FOR AERIAL SERVICES RELATED TO DRONE ASSISTED INSPECTIONS OF DISTRICT ELECTRIC FACILITIES FOR A COST NOT TO EXCEED \$51,800 AND AUTHORIZE THE DISTRICT'S GENERAL MANAGER TO EXECUTE THE WORK ORDER DOCUMENT. Commissioner Murphy second the motion. Motion passed unanimously.

c) Discussion on Moving to Action Notes/Minutes *(Recording Time on Video: 1:01)*

The Commission and Heimgartner discussed changing the format of the District's Meeting Minutes from summary/transcript style to reflect *summary* or *action taken only*, as a shortened format and not to include summarized/verbatim discussion. The Minutes will now include a time stamp of the recording (by agenda item) for simple cross-reference. Sitkin added a bill introduced in the Legislature may require a hybrid style of including in-person with audio/video recordings of some public meetings. COVID OPMA restrictions are expected to be lifted by Governor Inslee soon.

ACTION: No action taken or requested.

7. General Manager's Report *(Recording Time on Video: 1:09)*

Strategic Plan Initiatives – beginning to work with Jim Darling/Leeward Strategies. Commissioner one-on-one meetings with Darling will be scheduled within the next week and a workshop for all to discuss will be forthcoming.

Tour of Phillips 66 Refinery – Heimgartner met with Lauren Turner and representatives last week.

Electric Industry Overview – Heimgartner is presenting this afternoon at WWU's Energy Institute and provided a preview of his presentation. (Clerk Note: Slides will be attached to the Meeting Minutes and posted on website.)

8. Commissioner Reports *(Recording Time on Video: 2:19)*

Murphy – Met with Chris Heimgartner and Andrew Entrikin;
Attended the WPUDA Board of Directors meeting;
Will attend the Whatcom Watershed Information Network's Water Symposium tomorrow.

Deshmane – Attended the Watershed Management Team meeting;
Attended the WPUDA Energy Committee.

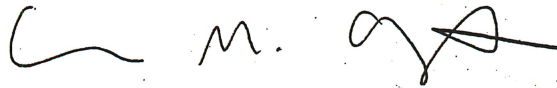
Grant – Attended WPUDA Telecom and Energy Committee meetings;
Attended the Port/PUD Broadband Steering Committee;
Met with City of Bellingham Public Works staff to discuss carbon reduction planning.

9. Public Comment *(Recording Time on Video: 2:45)*

None made.

10. Adjourn

There being no further business for the meeting, Commissioner Grant adjourned the regular meeting at 10:44 a.m.



Christine Grant, President/Commissioner



Atul Deshmane, Vice President/Commissioner

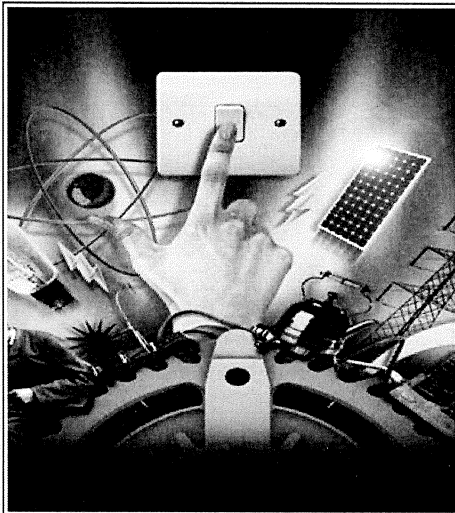


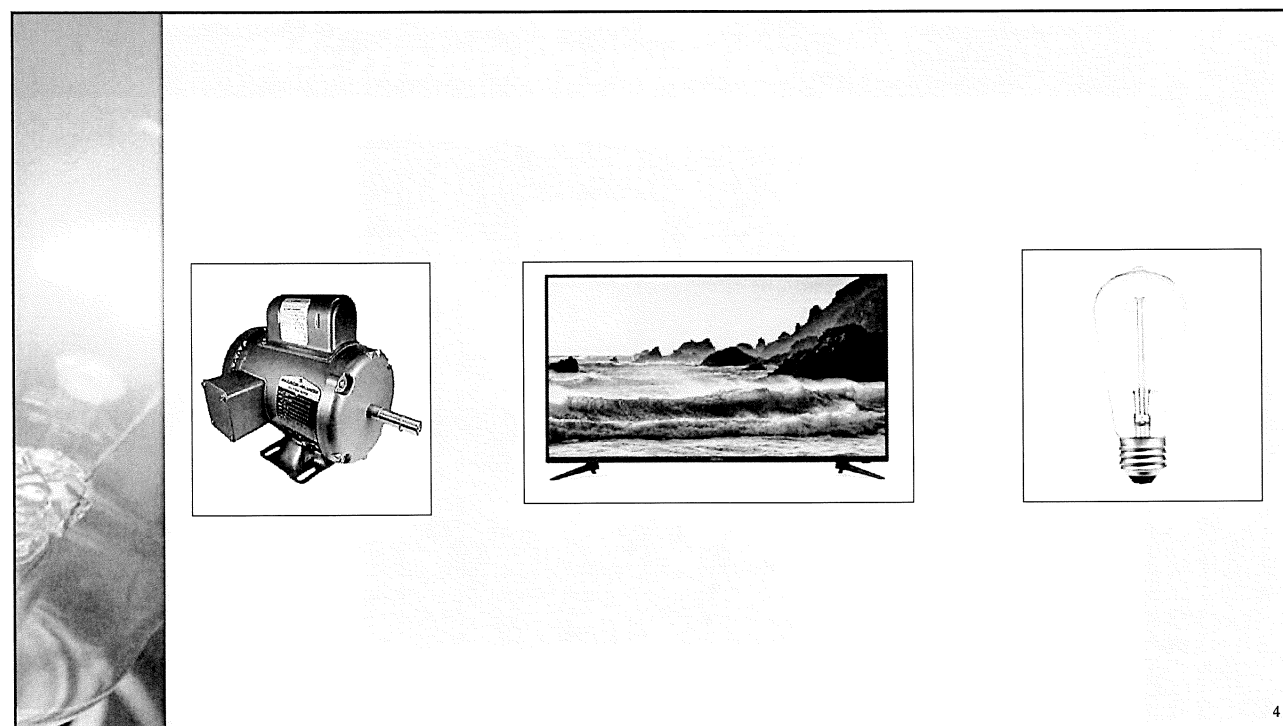
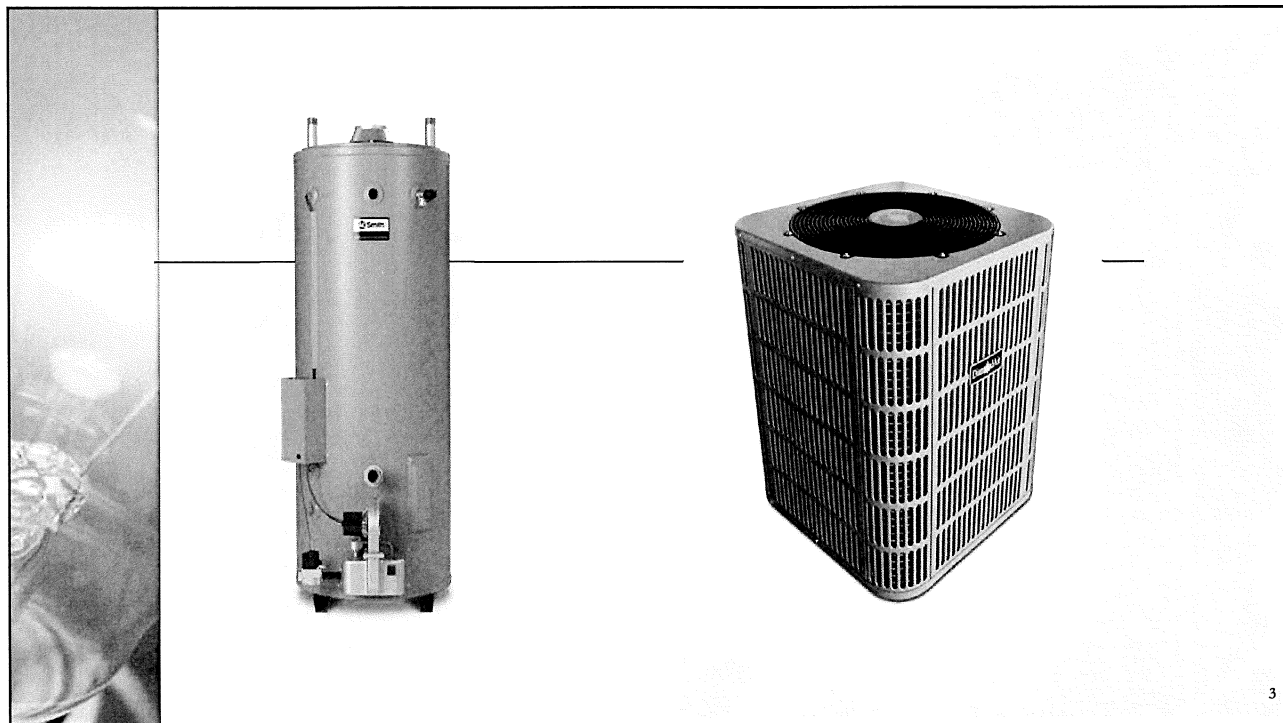
Mike Murphy, Secretary/Commissioner



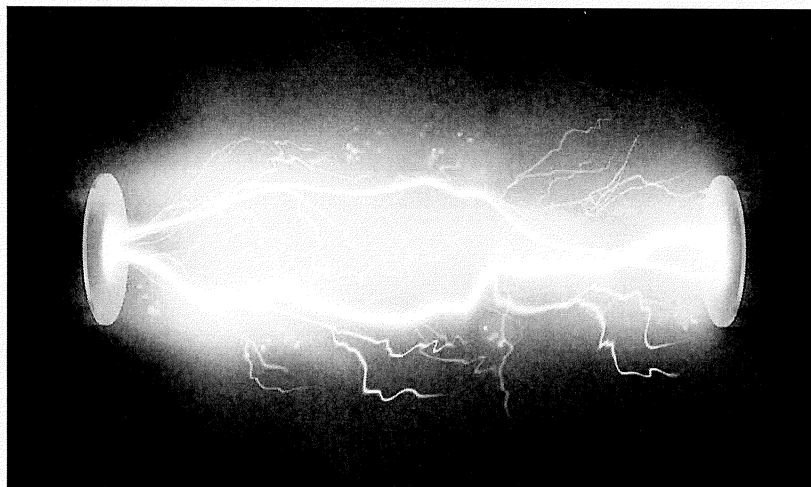
Electric Industry Overview

Do you want electricity????





3 Systems Govern the Industry



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3 Systems

- Legal System
- Economic System
- Physics

6

Legal System

- Laws
- Regulations
- Governance
- Contracts

7

Economic System

$$\Sigma(G) + \Sigma(T) + \Sigma(D) + P = R$$

8

Physics

$$\oint \mathbf{E} \cdot d\mathbf{A} = q / \epsilon_0$$

$$\oint \mathbf{B} \cdot d\mathbf{A} = 0$$

$$\oint \mathbf{E} \cdot d\mathbf{S} = -d\Phi_{\mathbf{B}} / dt$$

$$\oint \mathbf{B} \cdot d\mathbf{S} = \mu_0 i + \mu_0 \epsilon_0 d\Phi_{\mathbf{E}} / dt$$

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Topics for Discussion

1. History of Industry

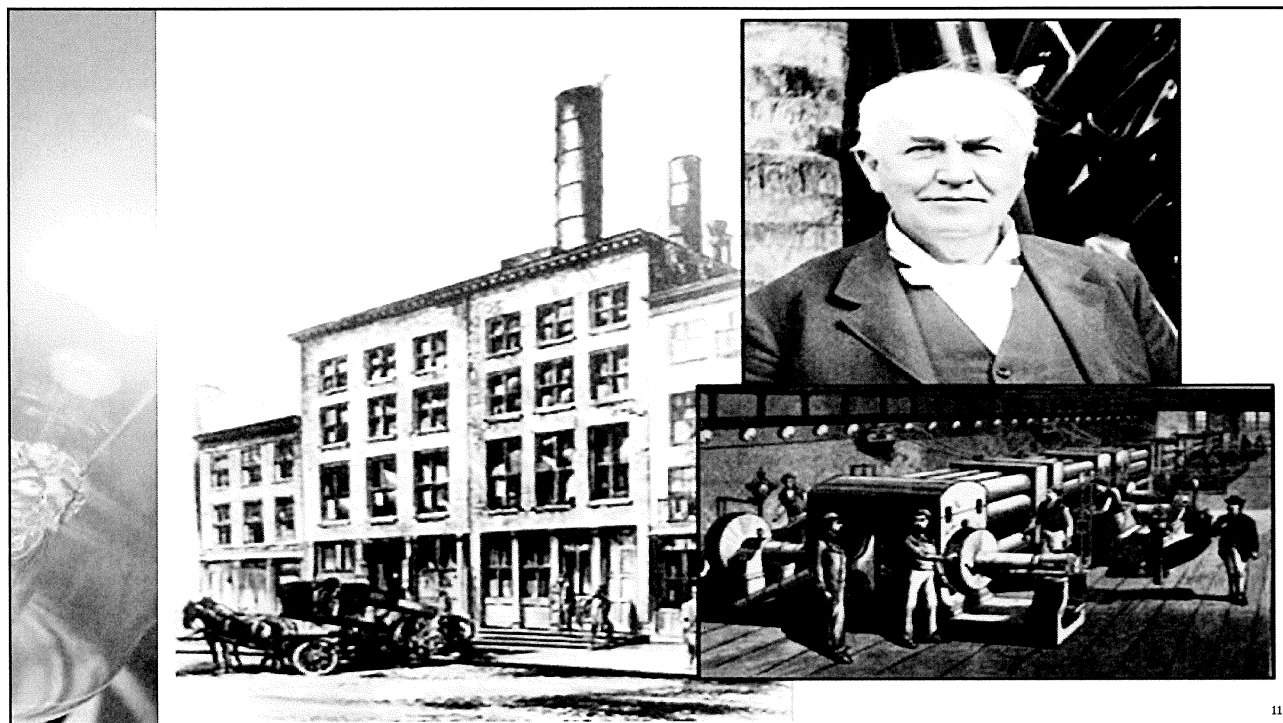
2. Development
in Information
Age

3. Current Status

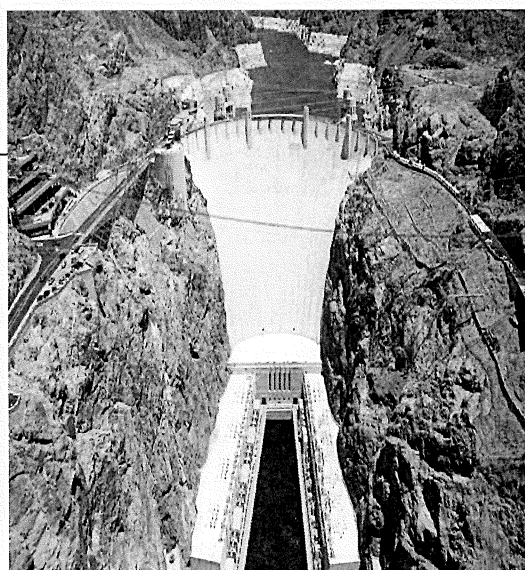
4. Future Trends

5. Long Term

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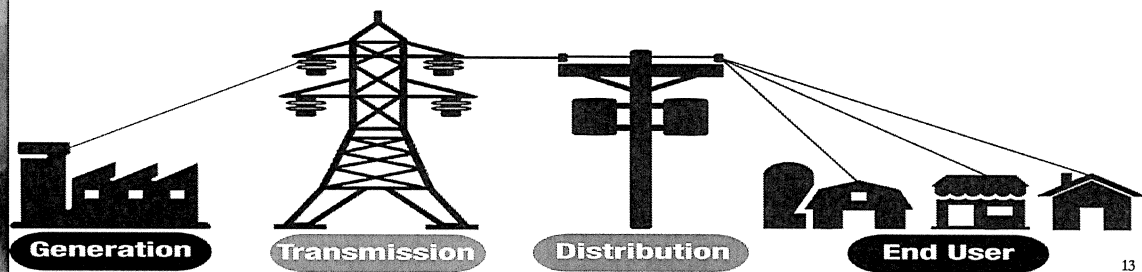


Early on Generation



Critical Facts

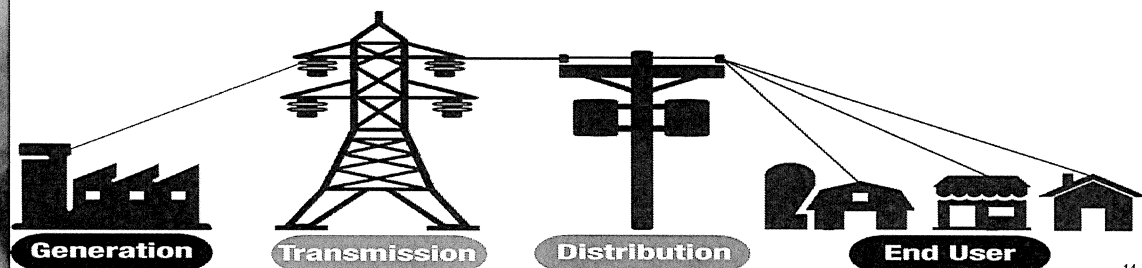
- Dams not near population centers
- Don't burn stuff in my backyard
- (Forced generators to be distant from customers)
- Electricity has to be produced the instant its consumed
- (Generators need to be run to follow the load (dispatch))



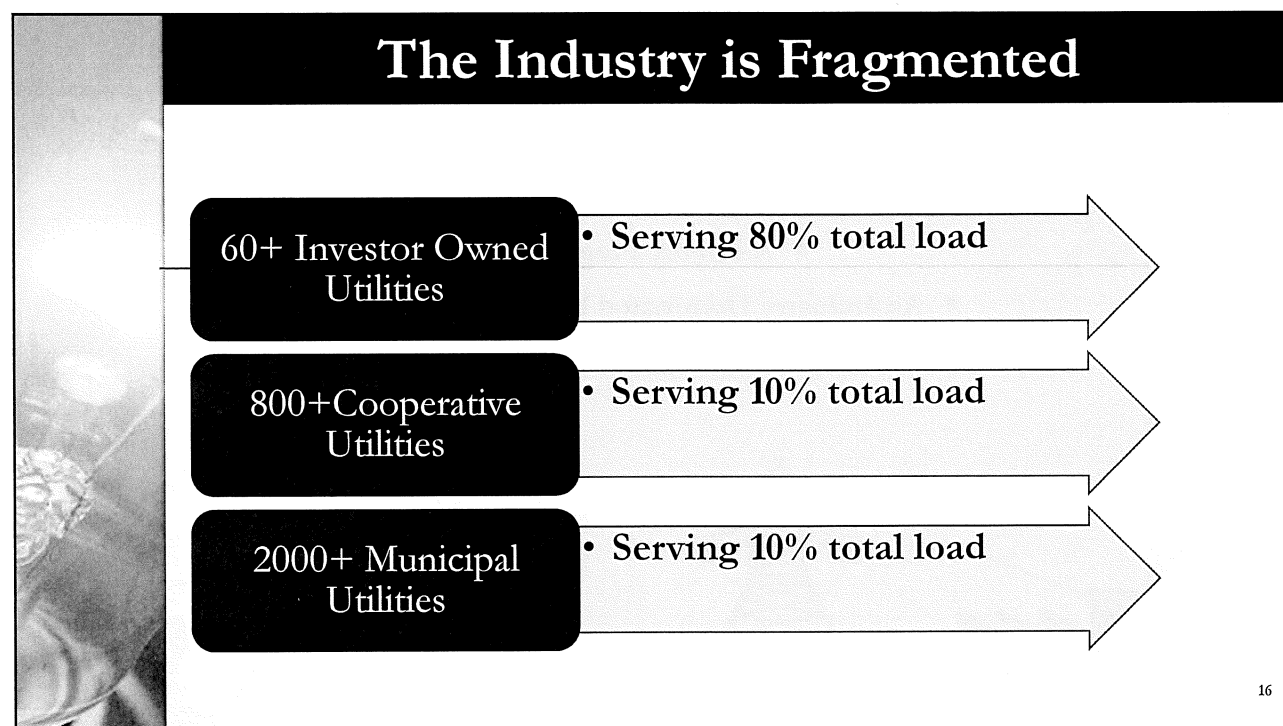
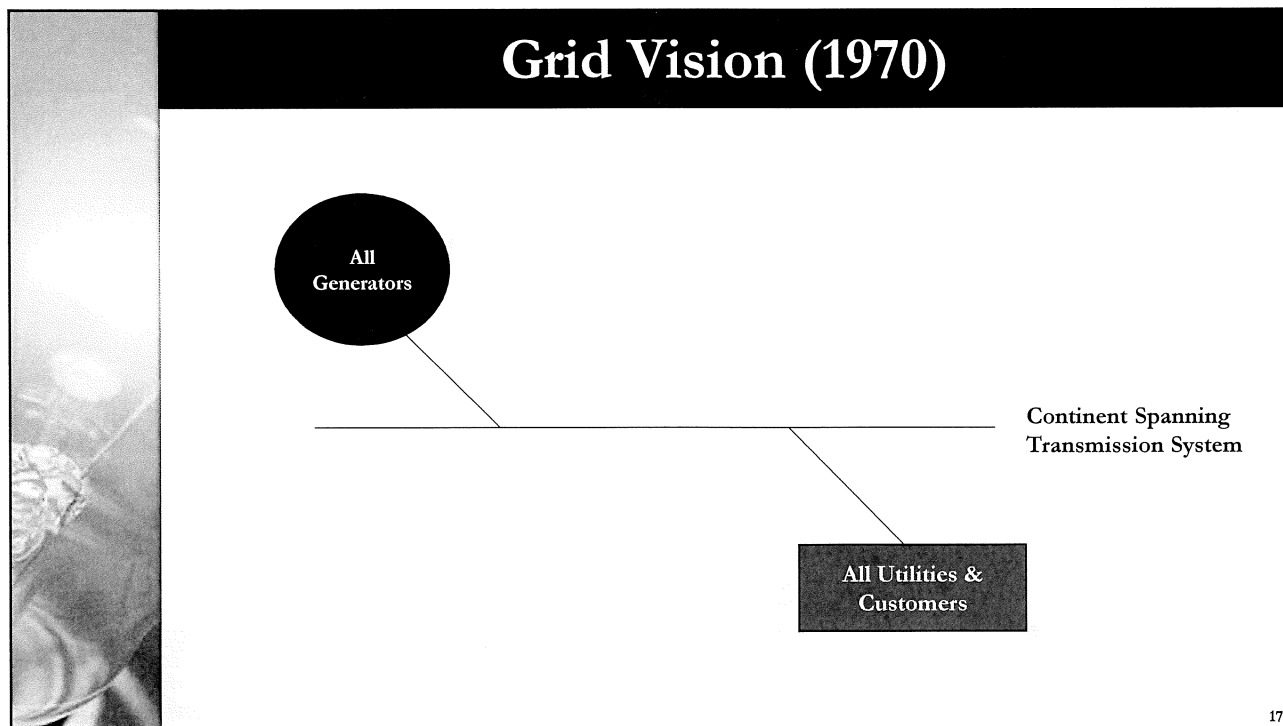
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Critical Facts Result In

- Vertically Integrated Industry
- A Highly Fragmented Industry
- An Industry Dominated by the Central Station Model



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Then.....

- **Regulations Changed (F.E.R.C., N.E.R.C.)**
- **Legislation Changed**
- **Public Sentiment Changed**
- **Technology Changed**
- **Markets Developed (ISO)**

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This Caused.....

- **Utility Industry Consolidation (somewhat)**
- **Vertical Dis-Integration**
- **Choice for Customers**
- **Market Power for Customers**

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Economic System From Utility POV

$$\sum(G+P) + \sum(T+P) + \sum(D+P) = R$$

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Economic System from Customer POV

$$\sum(G+P) + \sum(T+P) + \sum(D+P) \leq SG$$

20

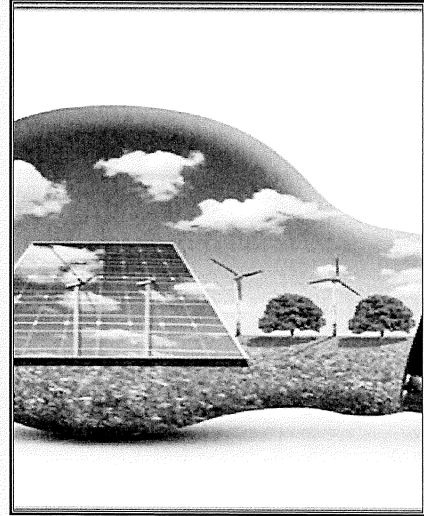
Generation Sources Today

Utility Sources

- Hydro
- SMR (Nuclear)
- Nuclear
- Geothermal
- Fossil Fuel
- Bio-Mass
- Bio-Gas
- Solar
- Wind
- Tidal
- Wave

Distributed Sources

- Geothermal
- CHP
- Solar
- SMR (Nuclear)
- Bio-Mass
- Wind
- Tidal
- Wave



Most new sources do not follow the Central Station Model, they are non-dispatchable.

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Current Trends - Costs

- Declining costs of battery storage, and improving and varied chemistries
- Declining costs of hydrogen fuel cells
- Declining costs of electrolysis and storage of hydrogen
- Declining costs of non-carbon generation (except nuclear)
- Increasing costs of compliance for carbon-based energy
- Flat or declining consumption currently observed in most US markets

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Current Trends – Legal and Regulatory

- Increasing regulation of carbon-based sources of energy
- Strong incentives for certain renewables
- Markets maturing and automating
- Utility governance directly involved in shift to low carbon sources

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Current Trends – Public Sentiment

- Intensifying public sentiment against carbon-based energy sources (varies greatly by country and regions within countries)
- Customers in many markets want a “green” choice for power source
- Economic development targets business attraction with “green” choices
- Increasing share of power generated behind the meter

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Industry Announcements

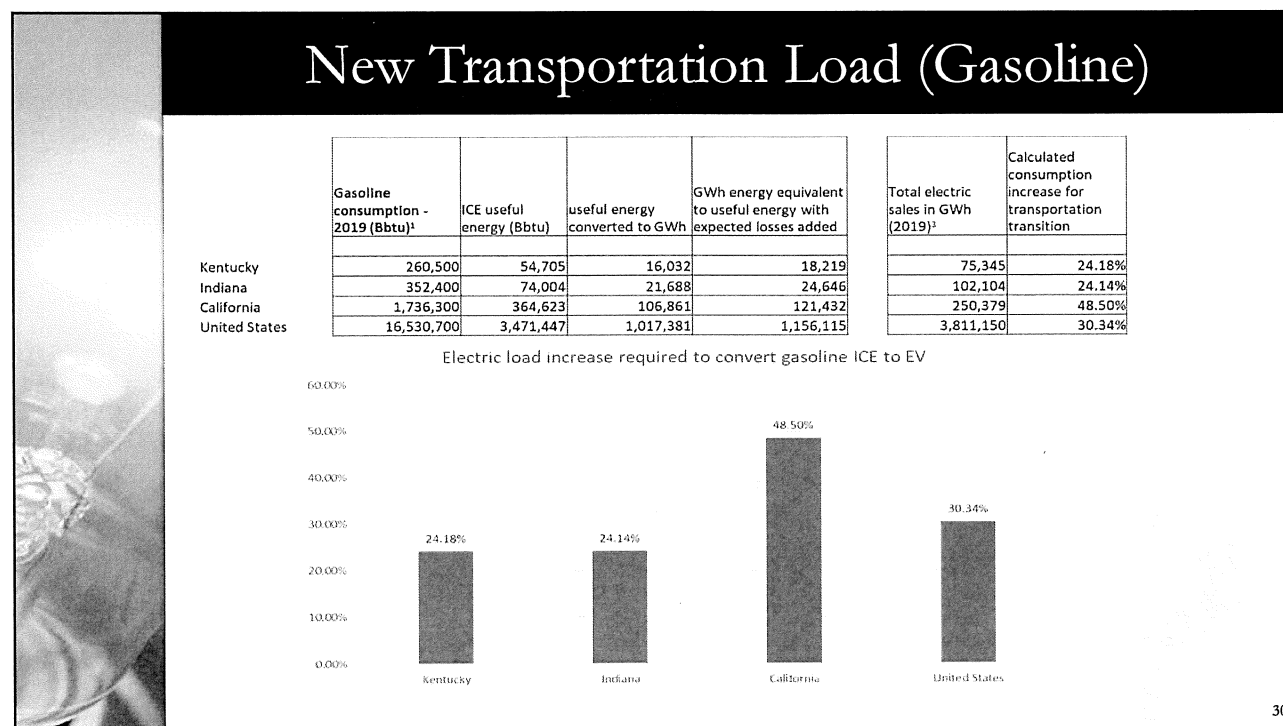
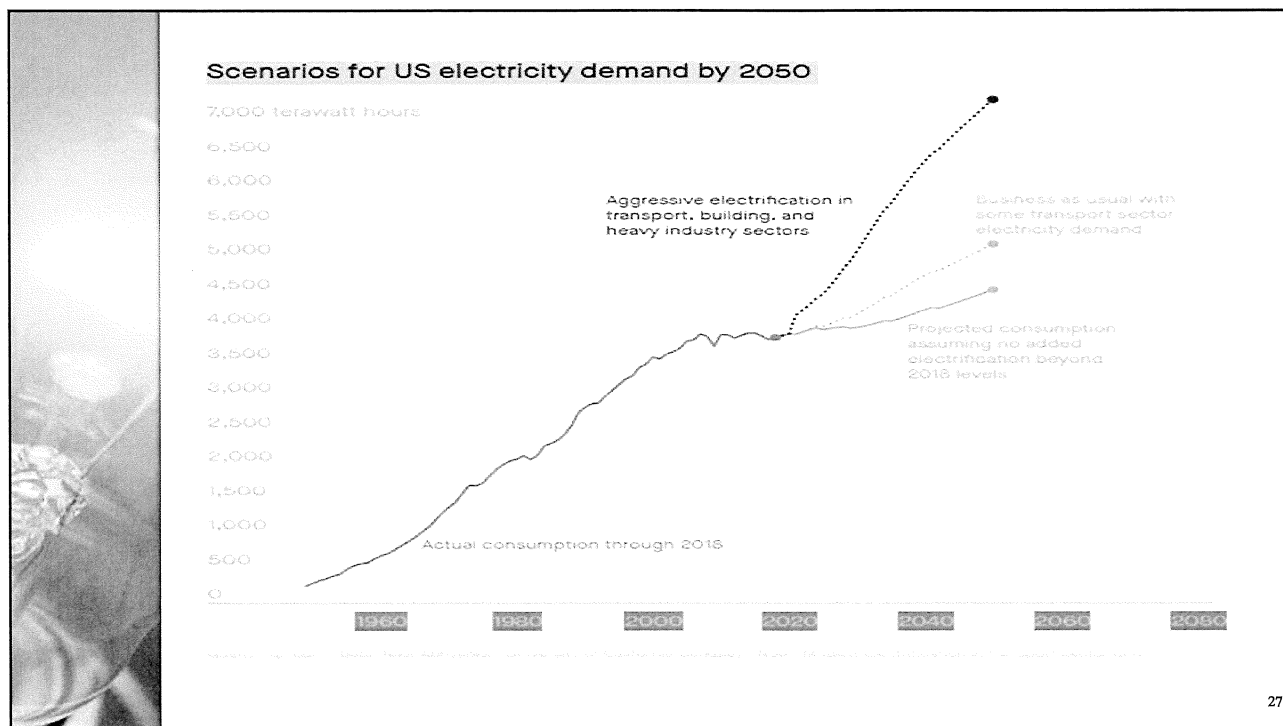
- GM – All electric by 2035
- Lotus – Currently designing “last” ICE driven car
- Honda – Ready now to convert to all EV
- Audi – All electric by 2035
- VW – Half electric by 2030
- Ford – Mustang EV, F-150 Lightning
- Great Britain – Phasing out diesel trucks beginning 2040
- California – Bans sale of new gasoline powered cars by 2035

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Industry Announcements

- Volvo to go all electric by 2028
- Hummer truck reborn as an EV
- Jeep Wrangler available as PHEV
- Rivian begins producing pickup trucks
- Honda begins mass production of Clarity hydrogen fuel cell car
- New York announces banning new RICE cars by 2035
- Chrysler announces an all electric lineup by 2028
- Rolls Royce announces all electric lineup by 2030
- ABB announces fast charger that can fully charge any car in 15 minutes

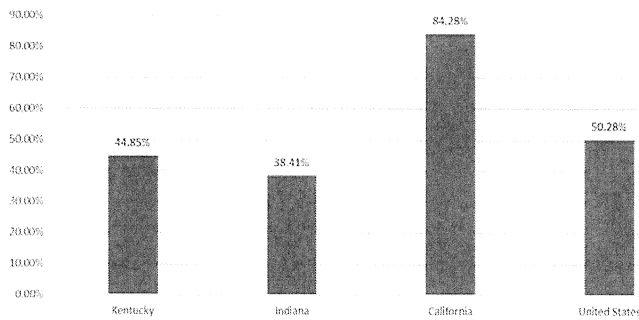
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New Transportation Load (All Fossil)

	Total Petroleum consumption - 2019 (Bbtu) ¹	ICE useful energy (Bbtu)	useful energy converted to GWh	GWh energy equivalent with expected losses added	Total electric sales in GWh (2019) ²	Calculated consumption increase for transportation transition
Kentucky	483,200	101,472	29,739	33,794	75,345	44.85%
Indiana	560,800	117,768	34,514	39,221	102,104	38.41%
California	3,017,200	633,612	185,693	211,015	250,379	84.28%
United States	27,401,600	5,754,336	1,686,430	1,916,398	3,811,150	50.28%

Electric load increase required to convert all petroleum ICE to EV

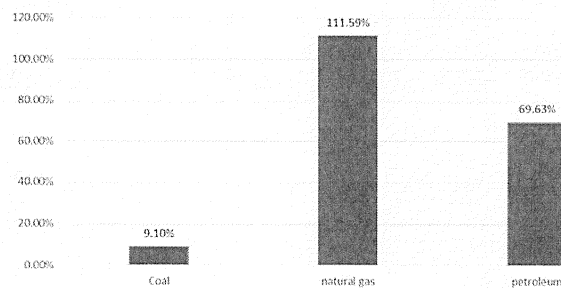


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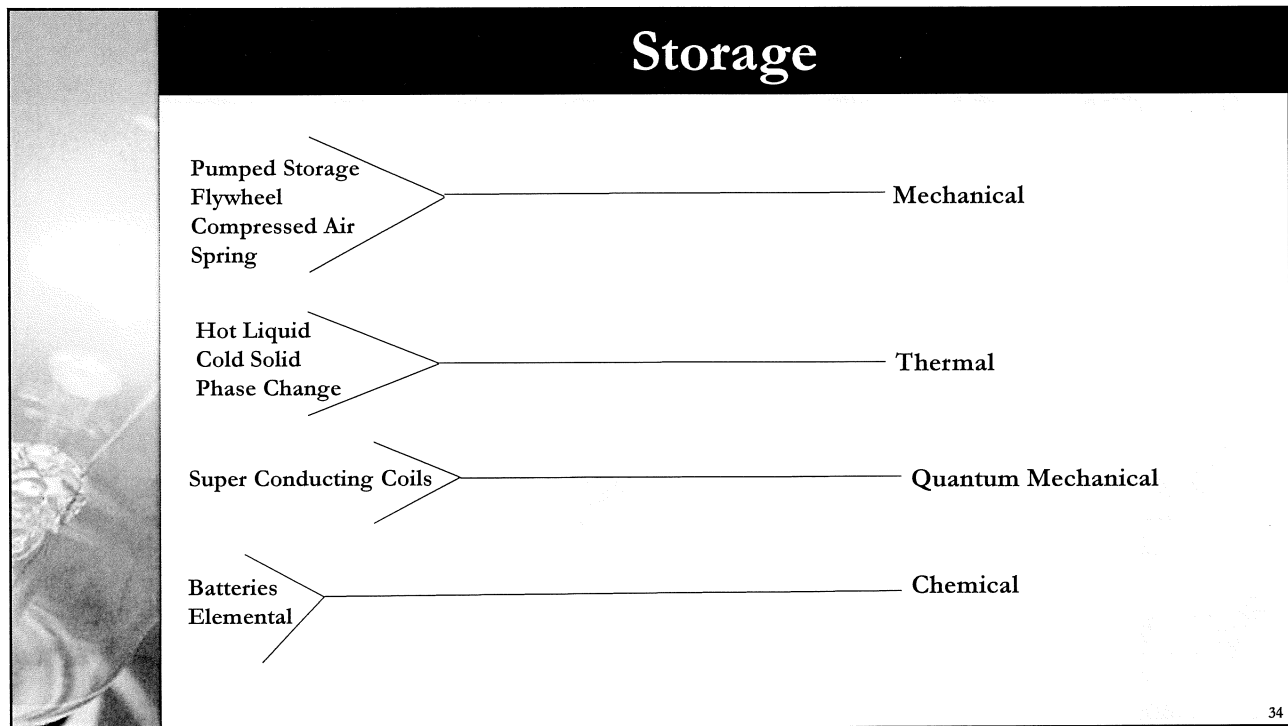
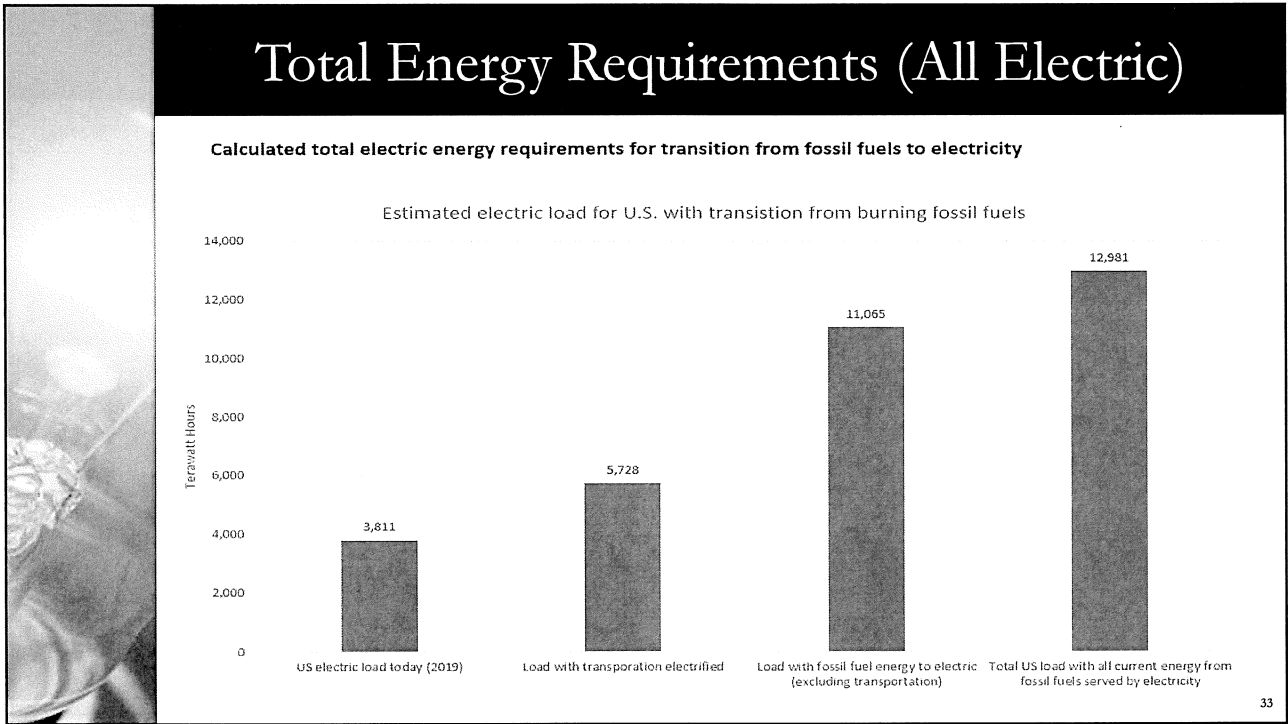
New Load All Fossil to Electricity

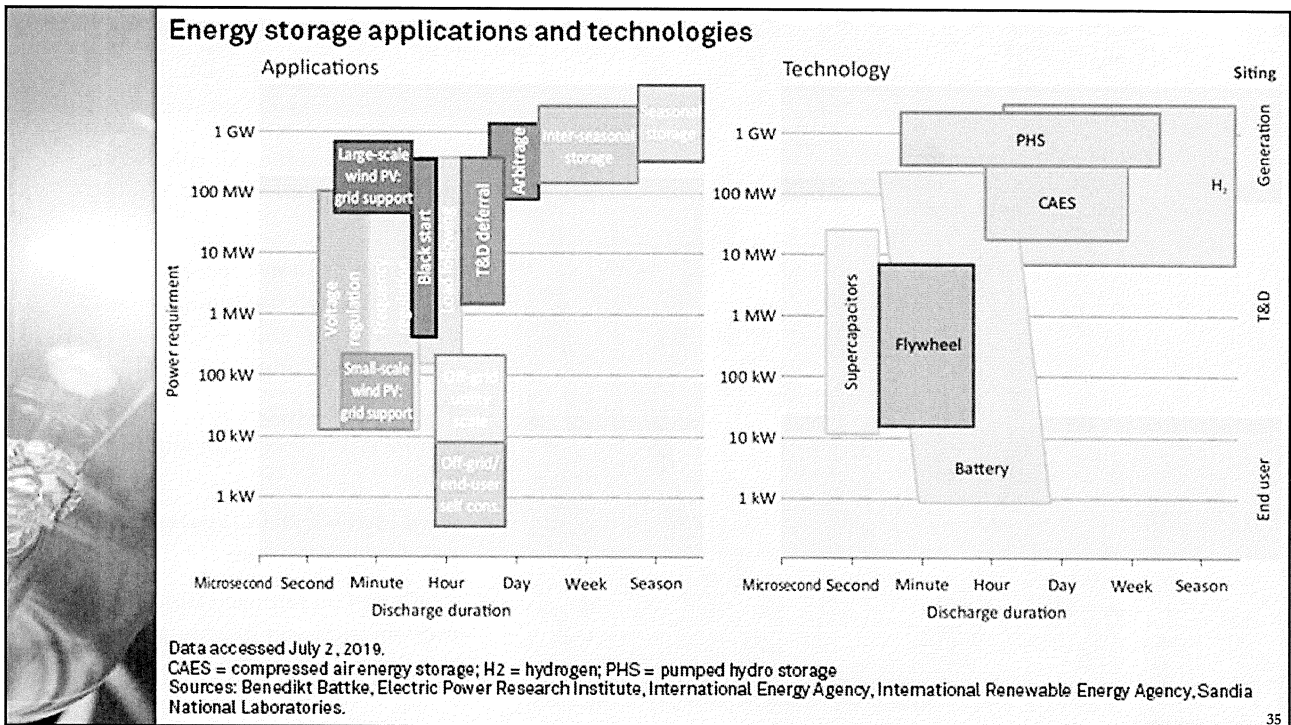
	Fossil fuel consumption - 2019 (Bbtu) ¹	Electricity generation (TWh) ²	Fossil fuel consumption used for electricity generation (generation X 10,500 Btu/KWh)	Fossil fuel consumption used for transportation ³	Estimated future energy to be served by electricity (Bbtu)	Bbtu/3.412 = Estimated future energy to be served by electricity (GWh)	Calculated electric load increase to replace fossil fuel use (excluding transportation)
Coal	11,316,000	965	10,132,500	0	1,183,500	346,864	9.10%
natural gas	32,197,000	1,586	16,653,000	1,033,600	14,510,400	4,252,755	111.59%
petroleum	36,866,000	39	409,500	27,401,600	9,054,900	2,653,839	69.63%

Electric load increase required to replace fossil fuel consumption (excluding transportation)



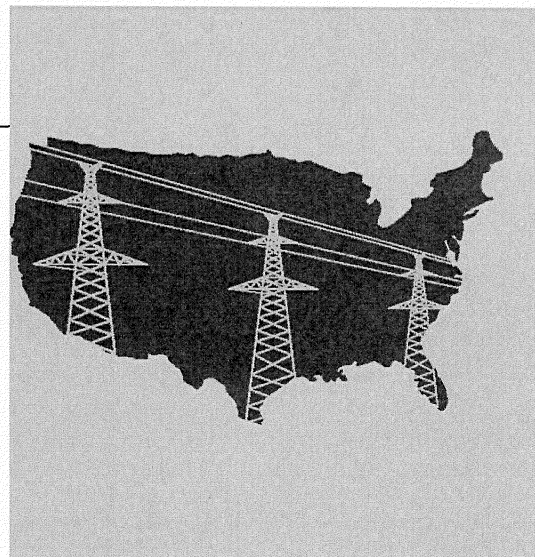
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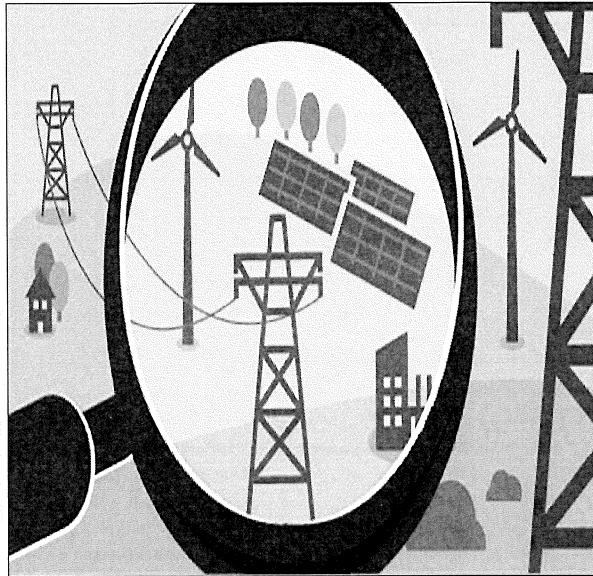


Long Term (20 – 50 Years)

- Carbon sources will be greatly reduced in the generation mix
- Storage will become common and reduce the need for both new generation and new transmission
- Hydrogen economy will be born
- Markets will develop to where all customers will have the ability to shape their load in response to market signals
- Many customers will rely on the grid only for backup
- The electric grid will become the “Nations Gas Station” (largely)
- Massive Investment Needed in T&D infrastructure



Very Long Term (Over 50 Years)



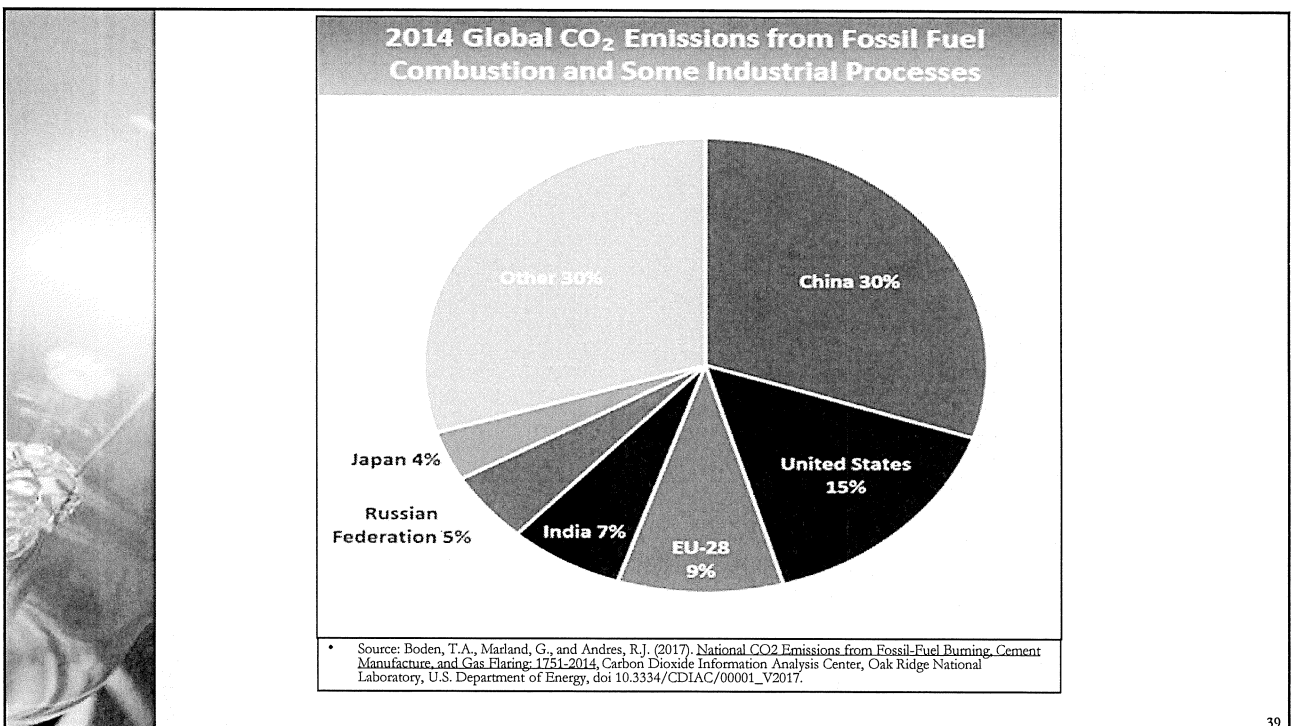
- Hydrogen production will be the single largest load on the electric system
- No carbon sources remain in the continental US (including ground transportation and residential air and water heating)
- The “Grid” will become a tightly connected web of mini and micro grids
- Rare earths will no longer be needed for electrical storage
- Profit will be removed from the transmission and distribution utilities

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Economic System from Customer POV

$$\Sigma(G+P) + \Sigma(T+P) + \Sigma(D+P) \leq SG$$

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References

- 1) EIA: Transportation Sector Energy Consumption Estimates in (Bbtu) for 2019
- 2) fueleconomy.gov
<https://insideevs.com/photo/4696061/do-you-know-how-inefficient-combustion-engines-are-compared-to-evs/>
- 3) Form EIA 861: Sales to Ultimate Customers for 2019
- 4) EIA: U.S. electricity generation by major energy source
- 5) EIA: U.S. primary energy consumption by major sources