TRANSITIONING FROM COAL TO RENEWABLE ENERGY

TYLER HUEBNER
RENEW Wisconsin

ELIZABETH KATT REINDERS
Sierra Club

TOM CONTENT
Citizens Utility Board
2017 Electricity Production in WI

- Coal, 33,709,077.8 (51.4%)
- Natural Gas, 15,573,120.3 (23.8%)
- Nuclear, 10,151,394 (15.5%)
- Fuel Oil, 35,774.5 (Less than 1%)
- Refuse Derived Fuel, 33,327.7 (Less than 1%)
- Solar, 2,942.4 (Less than 1%)
- Wind, 1,535,658.8 (2.3%)
- Biomass Gaseous, 738,073.2 (1.1%)
- Biomass Non-Gaseous, 884,559...
## Major Coal Plants in Wisconsin

<table>
<thead>
<tr>
<th>Power Plant</th>
<th>Capacity (Approximate)</th>
<th>Year Built</th>
<th>Environmental Retrofit</th>
<th>Estimated Retirement Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columbia 1 &amp; 2</td>
<td>1,100 MW</td>
<td>1975 &amp; 1978</td>
<td>2011-13</td>
<td>2035 / 2038</td>
</tr>
<tr>
<td>South Oak Creek Units 5-8</td>
<td>1,135 MW</td>
<td>1960</td>
<td>2007-11</td>
<td>2040?</td>
</tr>
<tr>
<td>Elm Road Generating Station</td>
<td>1,270 MW</td>
<td>2011</td>
<td>--</td>
<td>Mid-2040s</td>
</tr>
<tr>
<td>Edgewater 5</td>
<td>380 MW</td>
<td>1985</td>
<td>2017</td>
<td>Mid-2040s</td>
</tr>
</tbody>
</table>
Q: How do Coal Plants (and other utility assets) get paid for?
Q: How do Coal Plants (and other utility assets) get paid for?

A: At a high level, pretty much like your home mortgage: there is:
- A principal payment
- An equity/interest payment
- Amortized over 30-60 years typically
But innovation has struck:

WIND: ▼ 69%

SOLAR: ▼ 88%
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Transitioning From Coal to Clean Energy

Elizabeth Katt Reinders
Deputy Director - North Central Region
Sierra Club Beyond Coal Campaign

2020 Renewable Energy Summit
January 16, 2020
● Eliminate coal’s contribution to climate change no later than 2030
● Retire the existing coal fleet and replace that infrastructure with a clean energy economy fueled by wind, solar, energy efficiency and storage
● Stop construction of new coal and gas power plants
● Keep coal reserves underground and out of world markets
Climate Changed

Half of All U.S. Coal Plants Would Lose Money Without Regulation

By Joe Ryan
March 26, 2016, 10:51 AM CDT

Many coal plants kept open to ensure grid reliability: BNEF

‘Plants persist even when they cost more to run than replace’

Bloomberg.com

What’s to be done about uneconomic coal plants?
When done well, securitization can deliver win-win-win-win

- Clean energy replacing coal and gas
- Customer savings in short and long term
- Keeping the utility whole
- Ensure workers and communities are cared for

- Securitization is a de-risking mechanism
- It removes a barrier to early retirement and provides more options
RESOURCES:

Report: Harnessing Financial Tools to Transform the Electric Sector
- Uday Varadarajan, Rocky Mountain Institute
- David Posner, independent analyst
- Jeremy Fisher, Sierra Club

Blog post: Aligning Ratepayer and Investor Interests in Non-Economic Coal
- Jeremy Fisher, Sierra Club

National Utility Finance and Securitization Project
- Sierra Club’s Jeremy Fisher and Brendan Pierpont
- Harriet Moyer Aptekar
- Ron Binz
- Ron Lehr
- many more individuals with wealth and breadth of expertise
<table>
<thead>
<tr>
<th>Proposed gas plant</th>
<th>Proposed capacity / in-service year</th>
<th>Gas plant cost estimate</th>
<th>Clean energy portfolio cost estimate</th>
<th>NPV savings from building clean energy</th>
<th>Gas plant stranded year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nemadji Trail Energy Center</td>
<td>625 MW / 2024</td>
<td>$52/MWh</td>
<td>$38/MWh</td>
<td>$231 million</td>
<td>2032</td>
</tr>
</tbody>
</table>
Questions?

Get in touch:

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TOM CONTENT
Citizens Utility Board
Consumer Advocate Perspective on the Transition from Coal

RENEW WISCONSIN SUMMIT 2020
Tom Content, Citizens Utility Board of Wisconsin
A Bit About CUB ….

- Created by Legislature, November 1979
- Non-Profit, Non-Partisan, Independent
- Focused on the Pocketbook/Bottom Line
- Advocate for the Residential and Small Business Customers in Rate and Construction Cases at the PSC

*A State AG Typically Fulfills This Role in Most Other States*
2000-2018: Investing in Reliability Investing in Fossil Fuels
Fossil Fuel Investments: New Coal, Scrubbing Old Coal, New Gas

$2.5 Billion Oak Creek Power Plant

12.7% Profit

Air Pollution Scrubbers on Pleasant Prairie Power Plant

Former Site of EPRI Demo Project for GHG Capture Technology
Rates up 80% since 2001, much faster than inflation (44%)

2018 Residential Electric Rates for Investor Owned Utilities
1,000 kWh Consumption

<table>
<thead>
<tr>
<th>Line</th>
<th>Utility</th>
<th>State</th>
<th>2018 e/kWh^*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DTE Electric Company</td>
<td>Michigan</td>
<td>15.99</td>
</tr>
<tr>
<td>2</td>
<td>Southern Indiana Gas &amp; Electric Company</td>
<td>Indiana</td>
<td>15.70</td>
</tr>
<tr>
<td>3</td>
<td>Consumers Energy</td>
<td>Michigan</td>
<td>15.56</td>
</tr>
<tr>
<td>4</td>
<td>Upper Michigan Energy Resources-We Energies</td>
<td>Michigan</td>
<td>15.43</td>
</tr>
<tr>
<td>5</td>
<td>Madison Gas &amp; Electric Company</td>
<td>Wisconsin</td>
<td>15.22</td>
</tr>
<tr>
<td>6</td>
<td>Interstate Power &amp; Light</td>
<td>Iowa</td>
<td>14.92</td>
</tr>
<tr>
<td>7</td>
<td>We Energies (formerly Wisconsin Electric)</td>
<td>Wisconsin</td>
<td>14.40</td>
</tr>
<tr>
<td>8</td>
<td>Empire District Electric Company</td>
<td>Missouri</td>
<td>14.07</td>
</tr>
<tr>
<td>9</td>
<td>Northern States Power Company</td>
<td>Minnesota</td>
<td>13.99</td>
</tr>
<tr>
<td>10</td>
<td>Northern Indiana Public Service Company</td>
<td>Indiana</td>
<td>13.91</td>
</tr>
<tr>
<td>11</td>
<td>Kansas City Power &amp; Light Company</td>
<td>Missouri</td>
<td>13.90</td>
</tr>
<tr>
<td>12</td>
<td>Kansas City Power &amp; Light Company</td>
<td>Kansas</td>
<td>13.64</td>
</tr>
<tr>
<td>13</td>
<td>AEP (Ohio Power Rate Area)</td>
<td>Ohio</td>
<td>13.29</td>
</tr>
<tr>
<td>14</td>
<td>Northern States Power Company</td>
<td>Wisconsin</td>
<td>13.27</td>
</tr>
<tr>
<td>15</td>
<td>WP&amp;L</td>
<td>Wisconsin</td>
<td>13.22</td>
</tr>
<tr>
<td>16</td>
<td>Toledo Edison Company</td>
<td>Ohio</td>
<td>13.20</td>
</tr>
<tr>
<td>17</td>
<td>Westar Energy-KPL</td>
<td>Kansas</td>
<td>13.14</td>
</tr>
<tr>
<td>18</td>
<td>Westar Energy-KGE</td>
<td>Kansas</td>
<td>13.14</td>
</tr>
<tr>
<td>19</td>
<td>Northwestern Wisconsin Electric Company</td>
<td>Wisconsin</td>
<td>13.11</td>
</tr>
<tr>
<td>20</td>
<td>Commonwealth Edison Company</td>
<td>Illinois</td>
<td>13.08</td>
</tr>
</tbody>
</table>

We Energies rates: 2001-2019

Inflation

2018 Rankings

49 utilities

11 states
Wisconsin Rates: 2nd Highest in Midwest ; 13th in the nation

“We invested first. Other states will catch up and see rates rise as they invest.”

Didn’t happen.

Source: Strategic Energy Assessment 2018-2024
“No More Coal!” …
From the Streets to the Boardroom

2003: SC Johnson scion Sam Johnson Leads “No More Coal” Rally in downtown Racine, Wisconsin

UTILITY FINANCE/GENERATION COSTS CHANGING RAPIDLY

2018-19: CO2 Pledges: Reduce by 100% by 2050 (Xcel Energy, MGE)
Reduce 80% by 2050 (Alliant Energy, We Energies, WPS)
Settlements with activist shareholders concerned about climate change

Pleasant Prairie Securitization, RMI Wisconsin Collaborative
Billions to be paid for new generation to replace what's going to be shuttered?

Billions remain to be paid on Coal Plant Investments of past 10-15 years

(If I’m Selling a House, I Stop Paying the Mortgage… But That’s Not How It Works in the Utility World)
We Energies Rate Case: Pleasant Prairie Shutdown and Remaining $$$

Stranded costs' mount as coal vanishes from the grid

'Money for nothing': consumer groups, utilities at odds over who pays for closing plants

From the Page 5, Wisconsin State Journal story 'Final closure plans hit key milestones last week';

Citizens Utility Board
Your Independent Consumer Voice
cubwi.org
Pleasant Prairie: $100M in pollution control costs to be securitized through Wisconsin Environmental Trust Financing law.

- Only one-fourth of remaining plant balance, but law specifically targets pollution controls, and that is remaining investment on the books for WE after tax reform impacts taken into account.

- Securitization works like a refinancing. Interest rate drop to yield savings for customers.
  - Savings forecast to be tens of millions of dollars, potentially $60 million?
  - WE expected to file a securitization case at PSC in 2020.
Looking Ahead … Toward a Win-Win-Win?

Goal – An Orderly and Efficient Transition to Maximize Benefits for Customers
• Supply Side: Securitization as One Tool Toward That End, Plus Advanced Ratemaking
  • Securitization, Enables Capital Recycling / Filling Utility’s Earnings “Hole” / Not a Panacea for Customers Necessarily
• Demand Side: Deployment of Advanced Energy Efficiency and Demand Response

What’s On Tap This Year:
1) Securitization Docket (generic) at PSC
2) Pleasant Prairie Securitization Docket at PSC
3) RMI/Sierra/Stakeholder/Utility/PSC Coal-to-Clean Ad-Hoc Group
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Appendix – 25 year utility asset of $100 million.

Year 1: $100,000,000 x 7.5% weighted average cost of capital = $7.5 million
Year 2: $96,000,000 x 7.5% weighted average cost of capital = $7.2 million
Year 3: $92,000,000 x 7.5% weighted average cost of capital = $6.9 million

Total after 25 years: Ratepayers have paid $197,000,000 for a $100,000,000 asset.

BUT, in the first year, they pay $11.5 million instead of $100 million.

Just like a $200,000 home, paid for over 30 years at 4.5% interest, would cost you about $365,000.

But then you don’t have to have $200,000 to start living in your home....