



Fuels Budget Overview

Fuels Management

May 31, 2018

What We Will Cover

- Economic Dispatch
- Modeling Process
- Budget Methodology
- Budget Process
- Components of each source of power
- Natural Gas Example
- FY19 Budget
- Budget Comparison

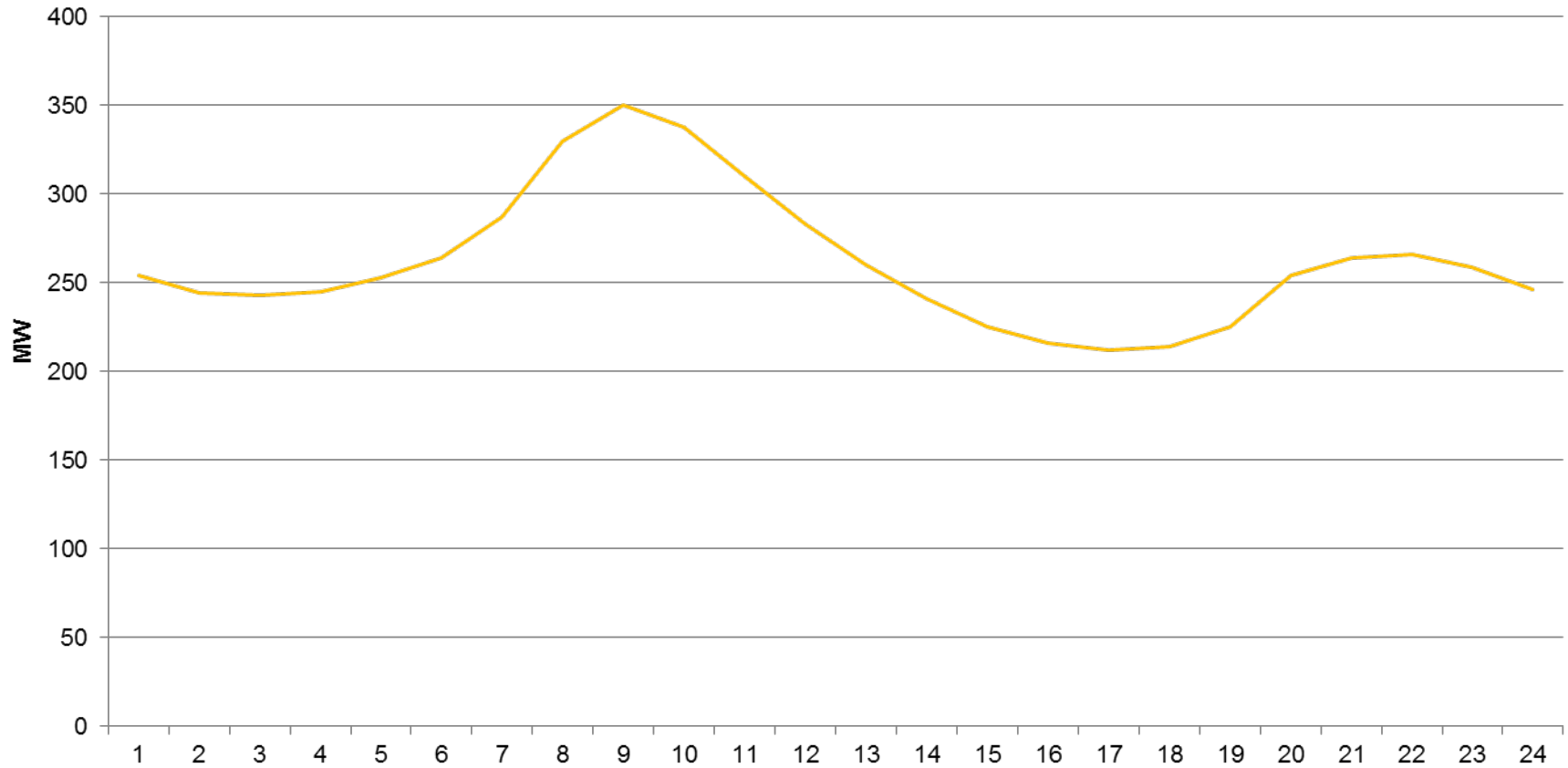
What is Economic Dispatch?

- Answer:
 - The operation of generation facilities to produce energy at the lowest cost to reliably serve consumers, recognizing any operational limits of generation and transmission facilities [and regulatory requirements]

-FERC

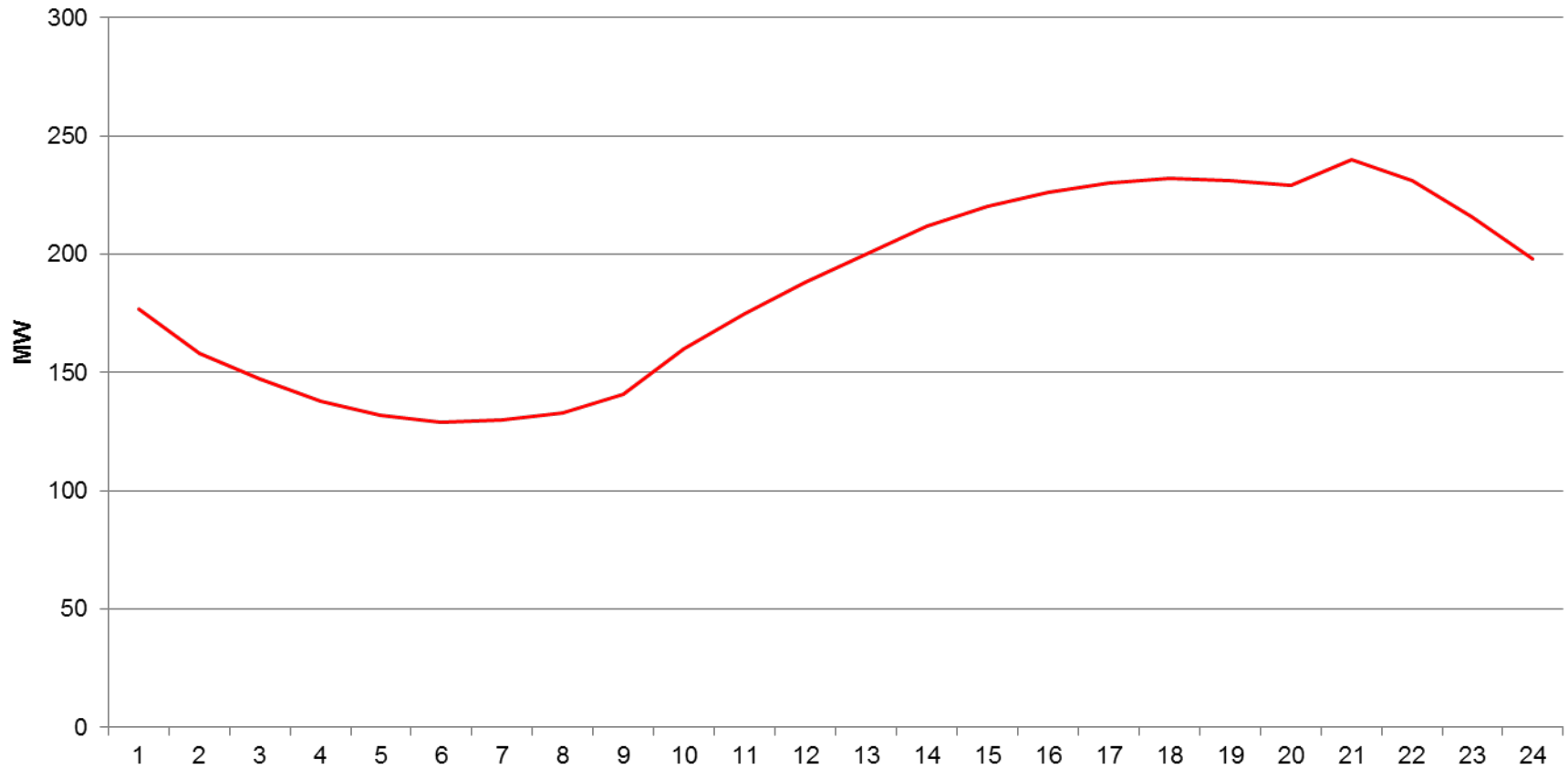
Seasonal Load Shapes

— Winter Day



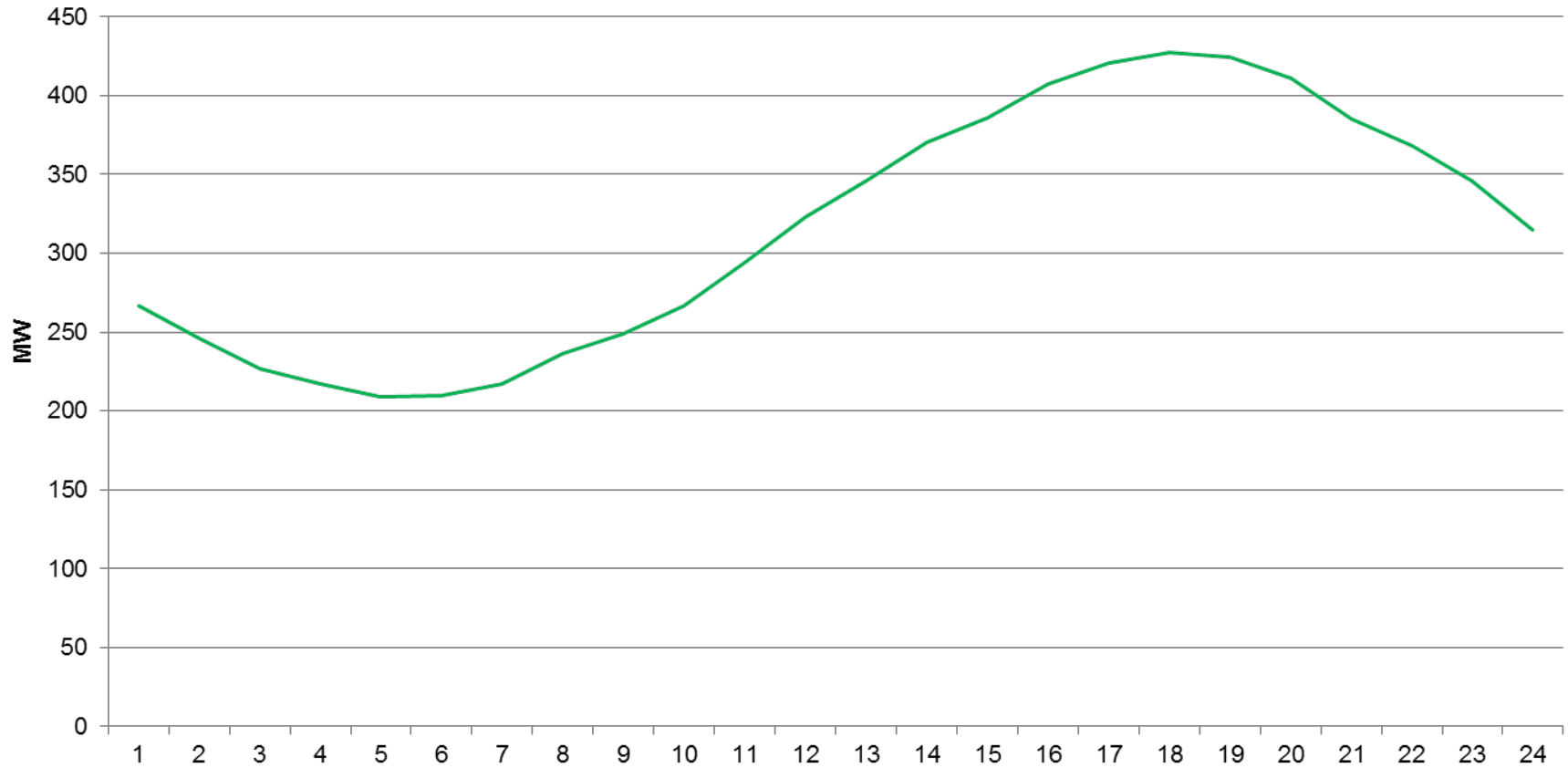
Seasonal Load Shapes

— Spring Day



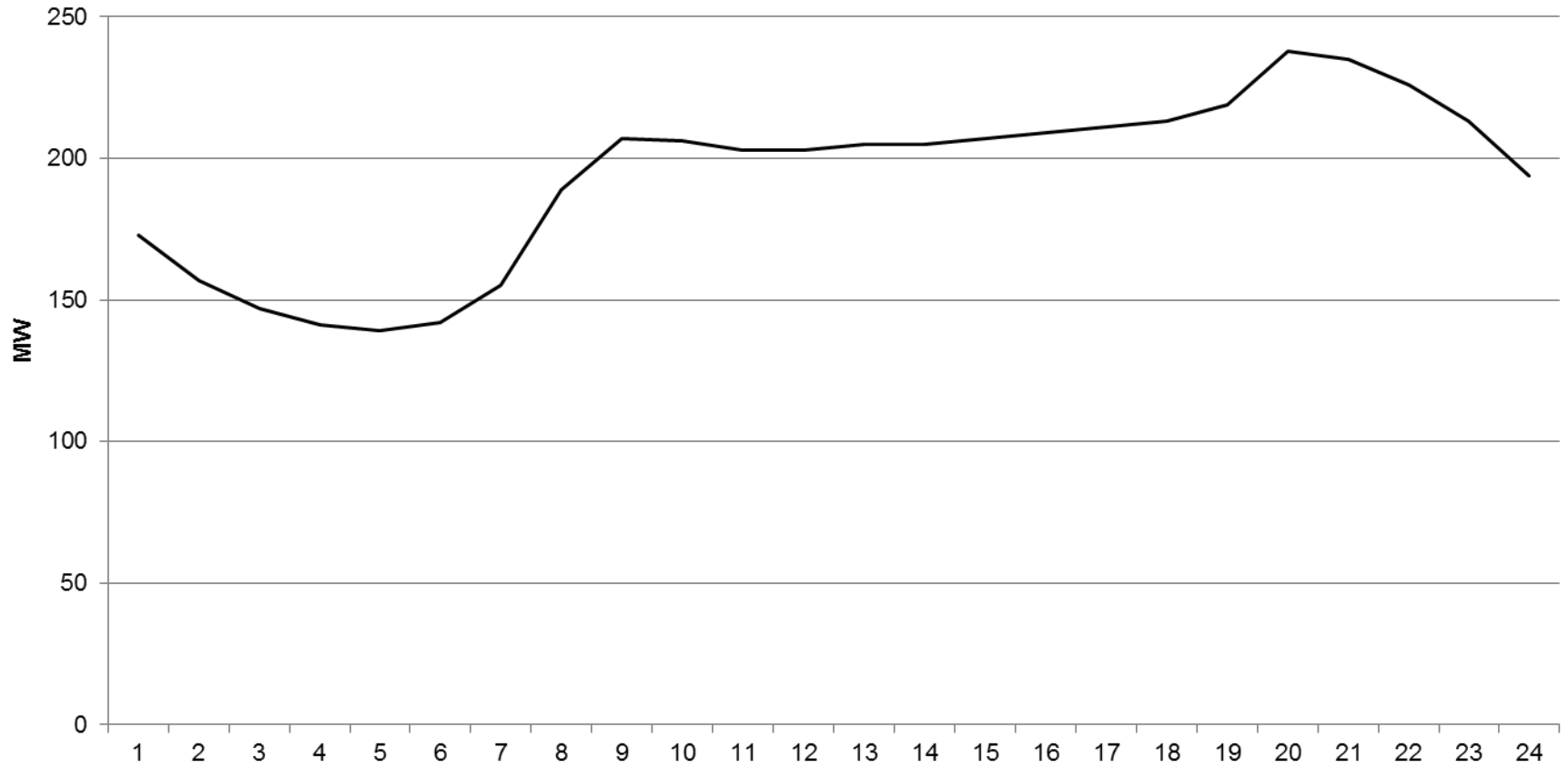
Seasonal Load Shapes

— Summer Day

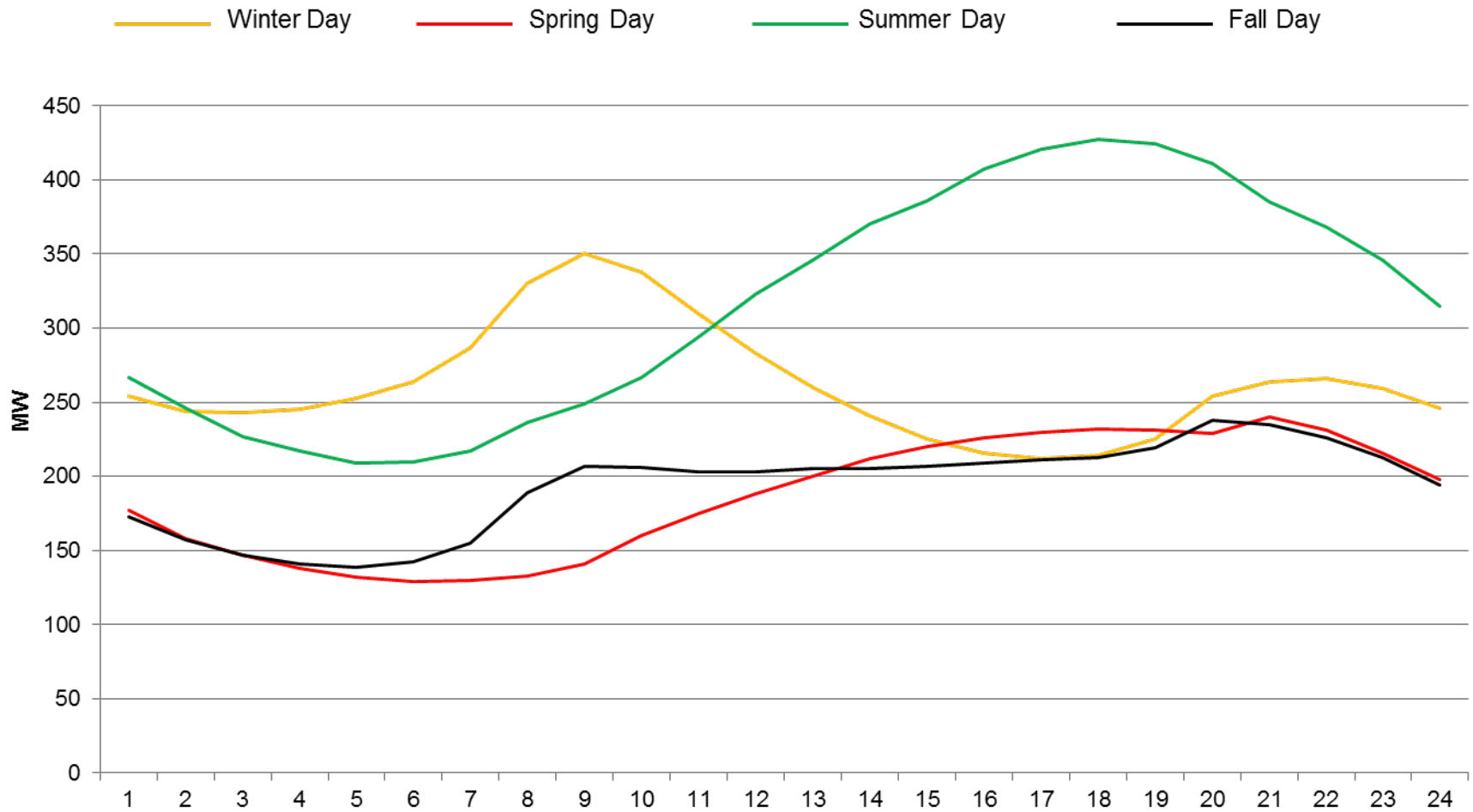


Seasonal Load Shapes

— Fall Day



Seasonal Load Shapes



Terminology

- Unit Commitment (UC)
 - Schedule of the most cost effective generation units to meet load forecasts and regulation and reserve requirements

Terminology

- Average Net Operating Heat Rate (ANOHR)
 - The common measure of system efficiency for a generating unit

$$\text{HeatRate}(\text{Btu} / \text{kWh}) = \frac{\text{Energy Input}(\text{Btu} / \text{hr})}{\text{Power Output}(\text{kW})}$$

- Increasing heat rate – Lower efficiency
- Decreasing heat rate – Higher efficiency

Terminology

- **Incremental Heat Rate (IHR)** – the change in fuel/heat input for a one unit change in output
 - Total fuel input needed for one MW of output
 - Determines the next, most-economical MW
- **Start-up or Shut-down Cost** – costs of fuel, life-cycle maintenance, and other items related directly to the start-up or shutting down of a generating unit

The Modeling Process

- Start with the load data for the defined period
 - Hours, days, weeks, or years
- Select available generating units for the study period
 - Input defined outage dates for each unit
- Recognize each generating unit's operating limit, including its:
 - Ramp rate (how quickly the generator's output can be changed)
 - Maximum and minimum generation levels
 - Minimum amount of time the generator must run
 - Minimum amount of time the generator must stay off once turned off

The Modeling Process

- Cost of generating, which depends on:
 - Its efficiency (heat rate)
 - its variable operating costs (fuel and non-fuel)
 - Variable cost of environmental compliance
 - Start-up costs
- *Fixed costs (fixed O&M, debt service, etc.)
are never used in economic dispatch

Road Trip

- Planning a road trip from Gainesville to the Grand Canyon:
 - What costs do you consider?
 - Fuel Costs (MPG, distance)
 - Necessary Maintenance (oil change, tire change/rotation, etc.)
 - Lodging
 - Food
 - Fixed Costs?
 - Car Note? -Insurance? -Mortgage?

The Modeling Process

- Load forecast and ANOHR are used to create the Unit Commitment:
 - What generation units have the MW range to meet needs every hour of the modeling period
 - Ramp rates and response time must be considered
 - Tesla (in Ludicrous mode) vs. Prius

The Modeling Process

- Once units are online, the Incremental Heat Rate determines what level the units are loaded

Incremental Cost Decision

- Incremental costs of units at minimum load:
 - CC1 - \$14.80/MWh
 - DH2 - \$23.70/MWh
 - DHR - \$19.25/MWh
- Where do we get the next, most economical megawatt?
 - CC1

What Crunches the Numbers?

- GenTrader®
 - Energy model that determines the most economical scenario
 - Used for Unit Commitment and long-term planning
 - Deterministic Model

Unit Data:

- Heat Rate Curves
- Dispatch Limits
- O&M Costs
- Start-up Profiles
- Ramp Rates
- Scheduled Outages
- Forced Outage Rates
- On or Off Restrictions
- Min/Max Up or Down Times
- Reserve Requirements

Fuel Data:

- Coal Prices
- Gas Prices
- Biomass Prices
- Oil Prices
- Other Fuel Prices
- Contract Limits

Power Purchases and Sales:

- G2 PPA
- Solar FIT
- Market Opportunities

Load Data:

- Native Load
- Alachua
- Seminole/Clay
- Winter Park

GenTrader

Output (hourly, daily, weekly, monthly, seasonal, annual):

- | | | |
|----------------------|---------------------|-------------------------|
| - Generation by Unit | - Avg. Heat Rate | - Number of Starts |
| - Fuel Use by Unit | - Avg. Oper. Cost | - Startup/Shutdown Cost |
| - Fuel Cost by Unit | - VOM by Unit | - Emissions by Unit |
| - Capacity Factor | - Hours Run by Unit | - Market Transactions |

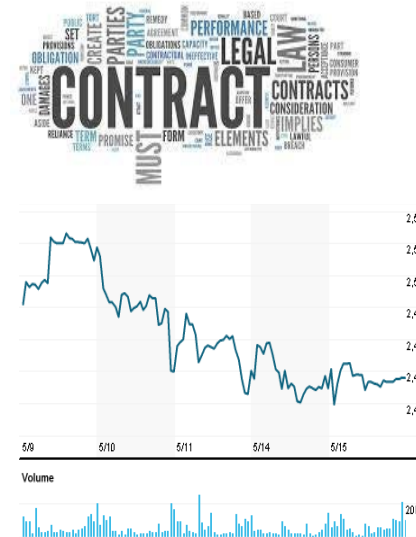
Post-modeling processing and analysis:

- GenTrader Reports & Graphics
- Export to Access
- Excel Analysis and Reports

Sum of ENERGY																			
		Biomass	Biomass Sum	Coal	Coal Sum	Natural Gas							Natural Gas Sum	Market		Market Sum	PPA	PPA Sum	Grand Total
		Deerhaven R		Deerhaven 2		Deerhaven 1	DH CT1	DH CT2	DH CT3	JRK CC	REG_1	SEC_CHP		Purchase	Sale		G2 Energy		
2018	2/1/2018	48,250	48,250	15,814	15,814	15,456	-	-	-	49,707	2,688	2,688	70,539	4,821	(571)	4,250	2,688	2,688	141,541
	3/1/2018	69,040	69,040	52,329	52,329	1,058	-	-	-	-	2,976	2,976	7,010	18,175	(96)	18,079	2,976	2,976	149,434
	4/1/2018	2,859	2,859	55,030	55,030	-	-	-	-	71,801	2,880	2,880	77,561	15,840	(437)	15,403	2,880	2,880	153,733
	5/1/2018	4,922	4,922	74,990	74,990	-	-	6	-	79,495	2,976	2,976	85,453	15,199	(143)	15,056	2,976	2,976	183,397
	6/1/2018	56,897	56,897	51,954	51,954	552	-	-	-	69,526	2,880	2,880	75,838	11,027	(1,120)	9,907	2,880	2,880	197,476
	7/1/2018	59,128	59,128	61,005	61,005	-	-	-	-	75,670	2,976	2,976	81,622	10,233	(1,040)	9,193	2,976	2,976	213,924
	8/1/2018	60,536	60,536	56,203	56,203	-	-	-	-	78,362	2,976	2,976	84,314	12,712	(122)	12,590	2,976	2,976	216,619
	9/1/2018	55,881	55,881	51,916	51,916	-	-	-	-	72,882	2,880	2,880	78,642	10,046	(1,989)	8,057	2,880	2,880	197,376
	10/1/2018	41,614	41,614	16,912	16,912	9,023	-	75	-	76,008	2,976	2,976	91,058	19,143	(1,155)	17,988	2,976	2,976	170,548
	11/1/2018	46,360	46,360	-	-	4,323	12	51	-	72,704	2,880	2,880	82,850	15,831	(1,040)	14,791	2,880	2,880	146,881
	12/1/2018	51,263	51,263	-	-	11,396	-	27	-	76,791	2,976	2,976	94,166	9,762	(567)	9,195	2,976	2,976	157,600
2018 Total		496,750	496,750	436,153	436,153	41,808	12	159	-	722,946	32,064	32,064	829,053	142,789	(8,280)	134,509	32,064	32,064	1,928,529
2019	1/1/2019	-	-	57,923	57,923	-	6	-	-	79,109	2,976	2,976	85,067	10,915	(23)	10,892	2,976	2,976	156,858
	2/1/2019	-	-	75,012	75,012	-	-	-	-	40,810	2,688	2,688	46,186	12,788	(10)	12,778	2,688	2,688	136,664
	3/1/2019	-	-	114,500	114,500	2,019	15	33	-	-	2,976	2,976	8,019	18,278	-	18,278	2,976	2,976	143,773
	4/1/2019	-	-	55,775	55,775	-	-	-	-	72,315	2,880	2,880	78,075	13,135	(1,520)	11,615	2,880	2,880	148,345
	5/1/2019	-	-	73,917	73,917	3,711	24	-	-	77,184	2,976	2,976	86,871	14,809	(332)	14,477	2,976	2,976	178,241
	6/1/2019	51,842	51,842	49,731	49,731	-	-	-	-	73,167	2,880	2,880	78,927	11,568	(1,904)	9,664	2,880	2,880	193,044
	7/1/2019	56,135	56,135	60,292	60,292	-	-	-	-	76,353	2,976	2,976	82,305	7,745	(288)	7,457	2,976	2,976	209,165
	8/1/2019	56,942	56,942	59,116	59,116	-	-	-	-	77,478	2,976	2,976	83,430	9,609	(253)	9,356	2,976	2,976	211,820
	9/1/2019	52,748	52,748	49,119	49,119	552	-	-	-	69,423	2,880	2,880	75,735	14,337	(1,865)	12,472	2,880	2,880	192,954
	10/1/2019	39,500	39,500	11,560	11,560	7,305	21	42	-	76,111	2,976	2,976	89,431	22,966	(893)	22,073	2,976	2,976	165,540
	11/1/2019	40,185	40,185	-	-	3,220	6	54	-	73,470	2,880	2,880	82,510	16,873	(969)	15,904	2,880	2,880	141,479
	12/1/2019	46,350	46,350	-	-	8,033	12	102	-	77,161	2,976	2,976	91,260	11,939	(412)	11,527	2,976	2,976	152,113
2019 Total		343,702	343,702	606,945	606,945	24,840	84	231	-	792,581	35,040	35,040	887,816	164,962	(8,469)	156,493	35,040	35,040	2,029,996

Methodology

- Prices
 - Contracts
 - Industry Publications
 - Federal agencies
 - Indices



Argus Coal Daily[®]



Coal Market Prices, News and Analysis



- Volume
 - Generation Model
 - Volume Drivers
 - History
 - Averages

S&P Global
Platts

GAS DAILY

Monday, July 11, 2016

NEWS HEADLINES

Minor leak shuts down California storage field

- Well tests ordered despite low methane release
- Shut down takes PG&E's largest field offline

[continued on page 41](#)

June flows offer insight into Vector's future

- Eastern Canada relying less on Vector imports
- Vector may see Ontario, Quebec market share decline

[continued on page 41](#)

Higher ethane demand lessens rejection: EIA

- Bump in ethane prices traced to uptick in demand
- Morgan's Point exports seem to further up demand

[continued on page 41](#)

Future in ethane: each month's answer

DAILY PRICE SURVEY (\$/MMBtu)

NATIONAL AVERAGE PRICE (\$/MMBtu)

Trans. date: 10/16

Flow (MMcfd): 1000-11

Highest 41: Absolute

Common 16: Date

Lowest 41: Absolute

Common 16: Date

Lowest 41: Absolute

Common 16: Date

Lowest 41: Absolute

Common 16: Date

Lowest 41: Absolute

Common 16: Date

Lowest 41: Absolute

Common 16: Date

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Lowest 41: Absolute

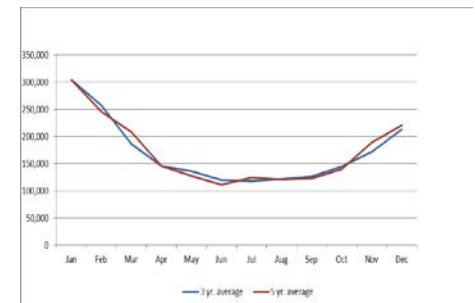
Common 16: Date

Lowest 41: Absolute

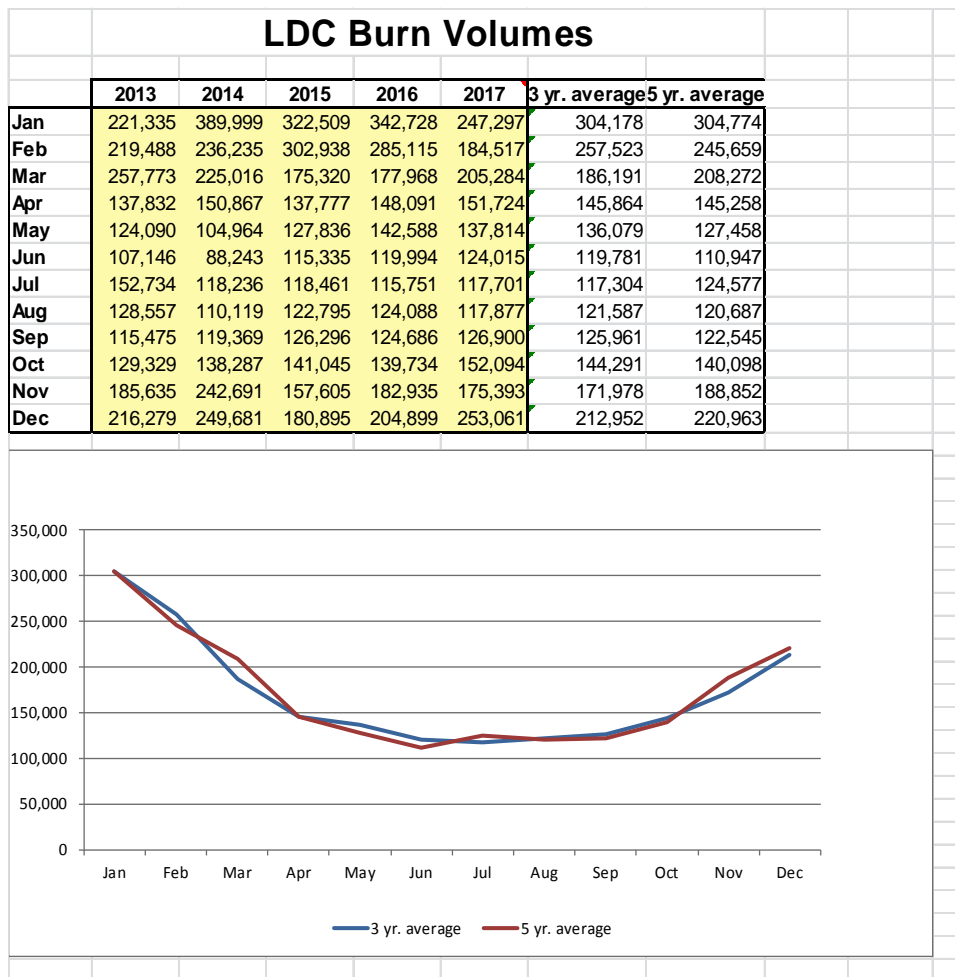
Common 16: Date

Lowest 41: Absolute

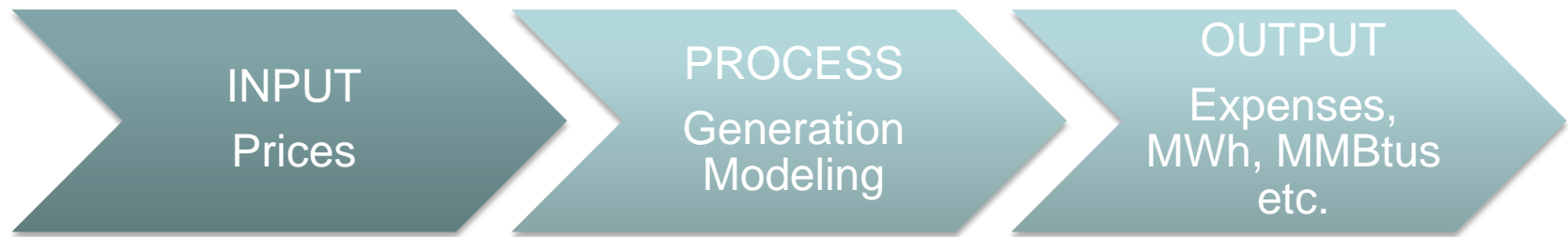
Common 16: Date



LDC Example



Process for Major Fuel Types



Biomass, Coal, Natural Gas &
Purchased Power

Biomass Budget Components

- Delivered commodity
- Fuel procurement service fee
- Environmental commodities
 - Sodium Bicarbonate
 - Ammonia
- Combustion By-Products
 - Bottom Ash
 - Fly Ash
- Miscellaneous Expenses e.g. lab equipment maintenance, surveys, audits
- Diesel for pile maintenance

Coal Budget Components

- Commodity
- Transportation
- Environmental commodities
 - Lime
 - Urea
- Combustion By-Products
 - Scrubber By-Product
 - Fly Ash
- Railcar maintenance
- Miscellaneous expenses e.g. taxes, prices analyses, quality analyses, audits
- Diesel for pile maintenance

Natural Gas Budget Components

- Gas Commodity
- Pipeline Transportation
 - Firm
 - Non-firm
 - Capacity charges
- Fuel
- Baseload contracts
- Hedging expenses
- Price analyses

Purchased Power (PP) Budget Components

- Market purchases
- Winter Park sales
- Solar – FIT
- G2 – Landfill gas
- Costs associated with Renewable Energy Credits

Solid Fuel Summary

Biomass component	Price	Volume
Biomass fuel	contracts, mkt price, indices	Gentrader
Fuel Service fee	history/average	N/A
Bicarb	history/average	driver: unit dispatch
Ammonia	history/average	driver: unit dispatch
Bottom Ash	history/average	driver: unit dispatch
Fly Ash	history/average	driver: unit dispatch
Misc Exp	history/average	N/A
Diesel fuel pile	history/average	history/average

Coal component	Price	Volume
Coal fuel	contracts, average mkt price (publications)	Gentrader
Transportation	contracts, index	contract
Lime	contract, indices	history/average
Urea	contract/index	history/average
Scrubber By-Product	contract	history/average /dispatch
Fly Ash	contract	driver: coal burn
Railcar Maintenance	contract/history	history/average
Misc Exp	history/average	history/average
Diesel fuel pile	contract/index	history/average

Natural Gas Example - All-in Prices

Projection of Delivered Natural Gas Costs					
Month	Assumed Commodity Cost, \$/MMBtu	FGT Fuel % - \$/MMBtu based on 3.50% Fuel	FGT Capacity, \$/MMBtu*	Total Delivered Cost for Market Value of Natural Gas - \$'s per MMBtu	
Mar-18	\$ 2.759	\$ 0.100	\$ 0.552	\$	3.411
Apr-18	\$ 2.723	\$ 0.099	\$ 0.552	\$	3.374
May-18	\$ 2.735	\$ 0.099	\$ 0.602	\$	3.436
Jun-18	\$ 2.769	\$ 0.100	\$ 0.602	\$	3.471
Jul-18	\$ 2.810	\$ 0.102	\$ 0.602	\$	3.514
Aug-18	\$ 2.814	\$ 0.102	\$ 0.602	\$	3.518
Sep-18	\$ 2.798	\$ 0.101	\$ 0.602	\$	3.501
Oct-18	\$ 2.819	\$ 0.102	\$ 0.552	\$	3.473
Nov-18	\$ 2.864	\$ 0.104	\$ 0.552	\$	3.520
Dec-18	\$ 2.998	\$ 0.109	\$ 0.552	\$	3.659
Jan-19	\$ 3.093	\$ 0.112	\$ 0.552	\$	3.757
Feb-19	\$ 3.064	\$ 0.111	\$ 0.552	\$	3.727
Mar-19	\$ 2.963	\$ 0.107	\$ 0.552	\$	3.622
Apr-19	\$ 2.691	\$ 0.098	\$ 0.552	\$	3.341
May-19	\$ 2.665	\$ 0.097	\$ 0.602	\$	3.364
Jun-19	\$ 2.694	\$ 0.098	\$ 0.602	\$	3.394
Jul-19	\$ 2.726	\$ 0.099	\$ 0.602	\$	3.427
Aug-19	\$ 2.731	\$ 0.099	\$ 0.602	\$	3.432
Sep-19	\$ 2.718	\$ 0.099	\$ 0.602	\$	3.419
Oct-19	\$ 2.743	\$ 0.099	\$ 0.552	\$	3.394
Nov-19	\$ 2.794	\$ 0.101	\$ 0.552	\$	3.447
Dec-19	\$ 2.927	\$ 0.106	\$ 0.552	\$	3.585

Model Output

STUDY_NAME (All)		Fuel Cost + Revenue Expense			0																						
Sum of COST																											
		Biomass		Biomass Sum		Coal		Coal Sum		Natural Gas				Natural Gas Sum		Market											
		Deerhaven R				Deerhaven 2				Deerhaven 1	DH CT1	DH CT2	DH CT3	JRK CC	REG_1	SEC_CHP		Purchase									
2018	2/1/2018	\$	2,022,590.36	\$	2,022,590.36	\$	761,057.70	\$	761,057.70	\$	908,227.23	\$	-	\$	-	\$	-	\$	1,655,647.77	\$	111,672.08	\$	111,672.08	\$	2,787,219.16	\$	131,811.00
	3/1/2018	\$	2,705,756.17	\$	2,705,756.17	\$	2,476,722.20	\$	2,476,722.20	\$	55,909.61	\$	-	\$	-	\$	-	\$	-	\$	110,133.37	\$	110,133.37	\$	276,176.35	\$	438,166.00
	4/1/2018	\$	113,920.24	\$	113,920.24	\$	2,548,324.25	\$	2,548,324.25	\$	-	\$	-	\$	-	\$	-	\$	2,113,114.52	\$	105,424.47	\$	105,424.47	\$	2,323,963.46	\$	416,199.00
	5/1/2018	\$	199,077.40	\$	199,077.40	\$	3,267,798.50	\$	3,267,798.50	\$	-	\$	-	\$	989.38	\$	-	\$	2,371,261.75	\$	110,940.59	\$	110,940.59	\$	2,594,132.31	\$	404,340.00
	6/1/2018	\$	2,323,299.42	\$	2,323,299.42	\$	2,446,012.70	\$	2,446,012.70	\$	31,019.35	\$	-	\$	-	\$	-	\$	2,109,292.14	\$	108,455.61	\$	108,455.61	\$	2,357,222.71	\$	283,596.00
	7/1/2018	\$	2,410,866.78	\$	2,410,866.78	\$	2,782,440.25	\$	2,782,440.25	\$	-	\$	-	\$	-	\$	-	\$	2,319,683.28	\$	113,459.26	\$	113,459.26	\$	2,546,601.80	\$	267,903.00
	8/1/2018	\$	2,452,597.92	\$	2,452,597.92	\$	2,613,674.40	\$	2,613,674.40	\$	-	\$	-	\$	-	\$	-	\$	2,394,160.69	\$	113,588.37	\$	113,588.37	\$	2,621,337.43	\$	323,363.00
	9/1/2018	\$	2,293,028.83	\$	2,293,028.83	\$	2,442,881.55	\$	2,442,881.55	\$	-	\$	-	\$	-	\$	-	\$	2,227,796.26	\$	109,393.06	\$	109,393.06	\$	2,446,582.38	\$	266,937.00
	10/1/2018	\$	1,763,667.69	\$	1,763,667.69	\$	735,390.91	\$	735,390.91	\$	481,079.93	\$	-	\$	11,927.04	\$	-	\$	2,303,129.05	\$	112,135.29	\$	112,135.29	\$	3,020,406.60	\$	535,276.00
	11/1/2018	\$	2,007,836.91	\$	2,007,836.91	\$	-	\$	-	\$	238,500.72	\$	2,027.06	\$	8,561.97	\$	-	\$	2,234,416.38	\$	109,986.73	\$	109,986.73	\$	2,703,479.59	\$	428,741.00
	12/1/2018	\$	2,174,854.27	\$	2,174,854.27	\$	-	\$	-	\$	645,345.07	\$	-	\$	4,685.50	\$	-	\$	2,440,917.36	\$	118,141.23	\$	118,141.23	\$	3,327,230.39	\$	262,872.00
	2018 Total			\$ 20,467,495.99	\$	20,467,495.99	\$	20,074,302.46	\$	20,074,302.46	\$	2,360,081.91	\$	2,027.06	\$	26,163.89	\$	-	\$	22,169,419.20	\$	1,223,330.06	\$	1,223,330.06	\$	27,004,352.18	\$
2019	1/1/2019	\$	-	\$	-	\$	2,643,715.37	\$	2,643,715.37	\$	-	\$	1,194.36	\$	-	\$	-	\$	2,572,913.98	\$	121,305.62	\$	121,305.62	\$	2,816,719.58	\$	316,675.00
	2/1/2019	\$	-	\$	-	\$	3,172,102.34	\$	3,172,102.34	\$	-	\$	-	\$	-	\$	-	\$	1,316,090.14	\$	108,691.40	\$	108,691.40	\$	1,533,472.94	\$	368,339.00
	3/1/2019	\$	-	\$	-	\$	4,599,574.00	\$	4,599,574.00	\$	115,332.78	\$	2,661.55	\$	5,790.06	\$	-	\$	-	\$	116,946.48	\$	116,946.48	\$	357,677.35	\$	474,136.00
	4/1/2019	\$	-	\$	-	\$	2,548,996.50	\$	2,548,996.50	\$	-	\$	-	\$	-	\$	-	\$	2,119,566.17	\$	104,393.36	\$	104,393.36	\$	2,328,352.89	\$	339,980.00
	5/1/2019	\$	-	\$	-	\$	3,201,898.44	\$	3,201,898.44	\$	200,590.23	\$	3,774.26	\$	-	\$	-	\$	2,268,729.06	\$	108,615.77	\$	108,615.77	\$	2,690,325.09	\$	387,401.00
	6/1/2019	\$	2,220,833.68	\$	2,220,833.68	\$	2,343,293.41	\$	2,343,293.41	\$	-	\$	-	\$	-	\$	-	\$	2,174,337.89	\$	106,049.52	\$	106,049.52	\$	2,386,436.93	\$	296,079.00
	7/1/2019	\$	2,372,067.06	\$	2,372,067.06	\$	2,729,688.93	\$	2,729,688.93	\$	-	\$	-	\$	-	\$	-	\$	2,286,844.16	\$	110,649.97	\$	110,649.97	\$	2,508,144.10	\$	198,187.00
	8/1/2019	\$	2,396,429.64	\$	2,396,429.64	\$	2,688,030.62	\$	2,688,030.62	\$	-	\$	-	\$	-	\$	-	\$	2,319,426.00	\$	110,811.45	\$	110,811.45	\$	2,541,048.90	\$	247,915.00
	9/1/2019	\$	2,247,301.88	\$	2,247,301.88	\$	2,321,937.58	\$	2,321,937.58	\$	30,673.56	\$	-	\$	-	\$	-	\$	2,079,979.08	\$	106,830.70	\$	106,830.70	\$	2,324,314.04	\$	349,969.00
	Model Summary																Energy	Fuel Consumption	Fuel Cost + Revenue	Cost of Cycle	Ave. Cost - MW	Heat Rate	Starts	Sheet1			

Prices for Model Input

WINTER PARK - FY19															
FY 19 Fuel Cost	Coal			Gas			Biomass			Power			Total		WP
	With WP	W/O WP		With WP	W/O WP		With WP	W/O WP		With WP	W/O WP		With WP	W/O WP	
Oct-18	\$735,390.91	\$153,624.28	\$581,766.63	\$3,020,406.60	\$2,900,930.05	\$119,476.55	\$1,763,667.69	\$2,001,139.25	(\$237,471.56)	\$535,276.00	\$395,452.00	\$139,824.00	\$6,054,741.20	\$5,451,145.58	\$603,596
Nov-18	\$0.00	\$0.00	\$0.00	\$2,703,479.59	\$2,453,594.08	\$249,885.51	\$2,007,836.91	\$1,803,083.13	\$204,753.78	\$428,741.00	\$322,524.00	\$106,217.00	\$5,140,057.50	\$4,579,201.21	\$560,856
Dec-18	\$0.00	\$0.00	\$0.00	\$3,327,230.39	\$2,951,504.84	\$375,725.55	\$2,174,854.27	\$1,938,537.25	\$236,317.02	\$262,872.00	\$217,183.00	\$45,689.00	\$5,764,956.66	\$5,107,225.09	\$657,732
Jan-19	\$2,643,715.37	\$0.00	\$0.00	\$2,816,719.58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$316,675.00	\$0.00	\$0.00	\$5,777,109.95	\$0.00	\$0
Feb-19	\$3,172,102.34	\$0.00	\$0.00	\$1,533,472.94	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$368,339.00	\$0.00	\$0.00	\$5,073,914.28	\$0.00	\$0
Mar-19	\$4,599,574.00	\$0.00	\$0.00	\$357,677.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$474,136.00	\$0.00	\$0.00	\$5,431,387.35	\$0.00	\$0
Apr-19	\$2,548,996.50	\$0.00	\$0.00	\$2,328,352.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$339,980.00	\$0.00	\$0.00	\$5,217,329.39	\$0.00	\$0
May-19	\$3,201,898.44	\$0.00	\$0.00	\$2,690,325.09	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$387,401.00	\$0.00	\$0.00	\$6,279,624.53	\$0.00	\$0
Jun-19	\$2,343,293.41	\$0.00	\$0.00	\$2,386,436.93	\$0.00	\$0.00	\$2,220,833.68	\$0.00	\$0.00	\$296,079.00	\$0.00	\$0.00	\$7,246,643.02	\$0.00	\$0
Jul-19	\$2,729,688.93	\$0.00	\$0.00	\$2,508,144.40	\$0.00	\$0.00	\$2,372,067.06	\$0.00	\$0.00	\$198,187.00	\$0.00	\$0.00	\$7,808,087.39	\$0.00	\$0
Aug-19	\$2,688,030.62	\$0.00	\$0.00	\$2,541,048.90	\$0.00	\$0.00	\$2,396,429.64	\$0.00	\$0.00	\$247,915.00	\$0.00	\$0.00	\$7,873,424.16	\$0.00	\$0
Sep-19	\$2,321,937.58	\$0.00	\$0.00	\$2,324,314.04	\$0.00	\$0.00	\$2,247,301.88	\$0.00	\$0.00	\$349,969.00	\$0.00	\$0.00	\$7,243,522.50	\$0.00	\$0
	\$26,984,628	\$153,624	\$581,767	\$28,537,609	\$8,306,029	\$745,088	\$15,182,991	\$5,742,760	\$203,599	\$4,205,570	\$935,159	\$291,730	\$74,910,798	\$15,137,572	\$1,822,183

Natural Gas Budget

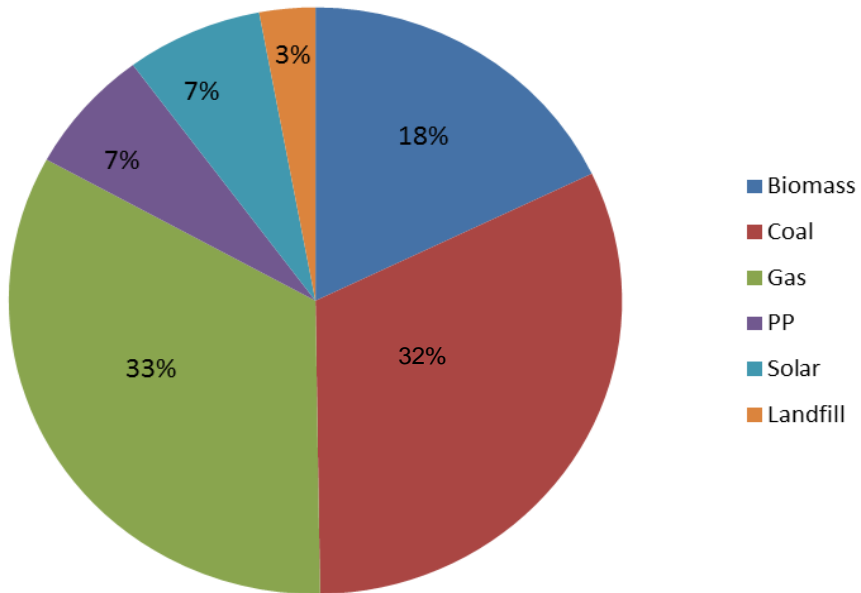
CO Object Description	GL Account	Line Item	Category	Fuel Type	Gen / PP	Total		GenTrader	WP Volume/Unit	WP Volume Total
DH1 Fuel	510300 - Natural Gas ⁹	\$ 1,666,836						\$ 1,711,522	44,686.11	745,088.00
DH2 Fuel	510300 - Natural Gas ⁹	\$ -							-	
DH CT1 Fuel	510300 - Natural Gas ⁹	\$ 9,405						\$ 9,657	252.14	
DH CT2 Fuel	510300 - Natural Gas ⁹	\$ 30,156						\$ 30,965	808.45	
DH CT3 Fuel	510300 - Natural Gas ⁹	\$ -						\$ -	-	
Kelly CC1 Fuel	510300 - Natural Gas ⁹	\$ 23,486,696						\$ 24,116,349	629,653.41	
SEC1 FUELS	510300 - Natural Gas ⁹	\$ 1,299,714						\$ 1,334,558	34,843.94	
SEC2 FUELS	510300 - Natural Gas ⁹	\$ 1,299,714						\$ 1,334,558	34,843.94	
DHR Natural Gas O&M	510300 - Natural Gas	\$ 21,066						28,537,608.40	745,088.00	
Gas Consulting (501)	530105 - Fuel Price Analysis ¹⁰	\$ 32,000	\$ 27,845,586	\$ 27,845,586	\$ 69,550,967					

FY19 Fuels Budget

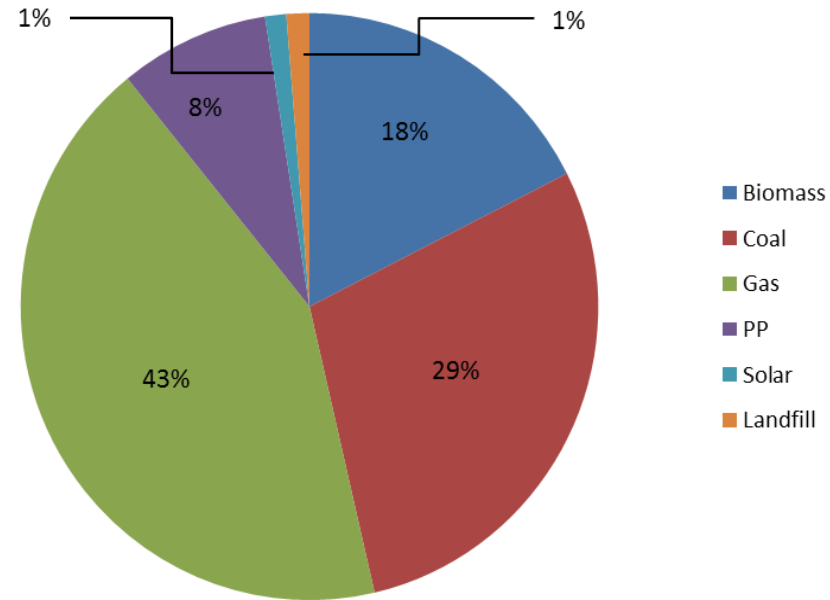
CO Object Description	GL Account	Line Item	Category	Fuel Type	Gen / PP	Total
DHR Fuel Biomass O&M ¹	510130 - Biomass Fuel ¹	\$ 13,118,780				
DHR Fuel Biomass O&M ²	510130 - Biomass Fuel ²	\$ 720,000	\$ 13,838,780			
DHR Fuel Ammonia O&M ³	510140 - Ammonium Hydroxide	\$ 59,952				
DHR Fuel Sodium BiCarb O&M ⁴	510135 - Sodium BiCarbonate	\$ 101,439	\$ 161,391			
DHR Fuel Misc O&M	510515 - Combustion By-Product	\$ 905,816	\$ 905,816			
DHR Fuel Misc O&M	510130 - Biomass Fuel (fuel yard diesel) ³	\$ 54,450				
DHR Fuel Misc O&M	530100 - Aerial & Density Survey	\$ 16,955				
DHR Fuel Misc O&M	530105 - Fuel Price Analysis ⁴	\$ 1,000				
DHR Fuel Misc O&M	510105 - Fuel Analysis ⁵	\$ 1,000	\$ 73,405	\$ 14,979,392		
DH2 Fuel	510100 - Coal ⁶	\$ 24,521,823	\$ 24,521,823			
DH2 Fuel Urea	510125 - Urea-Fuel Related ⁷	\$ -				
DH2 Fuel Lime	510120 - Lime-Fuel Related	\$ 1,881,039	\$ 1,881,039			
DH2 Fuel Misc	410515 - Fly Ash Sales	\$ (135,813)				
DH2 Fuel Misc	510500 - Scrubber Byproduct Disposal	\$ 25,000	\$ (110,813)			
DH2 Fuel Misc	510110 - Coal Railcar Maintenance - Parts	\$ 165,000				
DH2 Fuel Misc	510115 - Coal Railcar Maintenance - Labor	\$ 148,680				
DH2 Fuel Misc	530100 - Aerial & Density Survey	\$ 16,000				
DH2 Fuel Misc	530105 - Fuel Price Analysis ⁸	\$ 34,260				
DH2 Fuel Misc	510105 - Fuel Analysis	\$ 20,000				
DH2 Fuel Misc	510100 - Coal (rail car taxes)	\$ 10,000				
DH2 Fuel	510100 - Coal (fuel yard diesel)	\$ 40,000	\$ 433,940	\$ 26,725,988		
DH1 Fuel	510300 - Natural Gas ⁹	\$ 1,666,836				
DH2 Fuel	510300 - Natural Gas ⁹	\$ -				
DH CT1 Fuel	510300 - Natural Gas ⁹	\$ 9,405				
DH CT2 Fuel	510300 - Natural Gas ⁹	\$ 30,156				
DH CT3 Fuel	510300 - Natural Gas ⁹	\$ -				
Kelly CC1 Fuel	510300 - Natural Gas ⁹	\$ 23,486,696				
SEC1 FUELS	510300 - Natural Gas ⁹	\$ 1,299,714				
SEC2 FUELS	510300 - Natural Gas ⁹	\$ 1,299,714				
DHR Natural Gas O&M	510300 - Natural Gas	\$ 21,066				
Gas Consulting (501)	530105 - Fuel Price Analysis ¹⁰	\$ 32,000	\$ 27,845,586	\$ 27,845,586	\$ 69,550,967	
Purchased Power (555)	500105 - Purchased Power-TEA ¹¹	\$ 3,913,840				
Purchased Power (555)	500100 - Purchased Power ¹²	\$ 1,822,183				
Purchased Power (555)	500110 - Purchased Power-Feed in Tariff	\$ 6,035,670				
Purchased Power (555)	510325 - Purchased Power-G2	\$ 2,468,662				
Purchased Power (555)	530205 - Renewable Energy Credit Expense (REC)	\$ 20,000	\$ 14,260,355	\$ 14,260,355	\$ 14,260,355	\$ 83,811,322
Nat Gas City Gate Purchases (804)	510300 - Natural Gas	\$ 8,449,129	\$ 8,449,129	\$ 8,449,129	\$ 8,449,129	\$ 8,449,129
						\$ 92,260,451

FY19 Fuels Budget

Expenses (\$)



Load (MWh)



Most Recent Fuel Budgets

Original FY18:

Gen	- \$66,946,788
PP	- \$96,440,593
LDC	- \$9,591,330

Total = **\$172,978,711**

Revised FY18:

Gen	- \$66,693,866
PP	- \$29,681,595
LDC	- \$9,591,330

Total = **\$105,966,791**

FY19:

Gen	- \$69,550,967
PP	- \$14,260,355
LDC	- \$8,449,129

Total = **\$92,260,451**

Questions?

