

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-22_____

EXH. TCD-3

THOMAS C. DEMPSEY

REPRESENTING AVISTA CORPORATION



Thermal Generation 2021 Equivalent Availability Factor Report

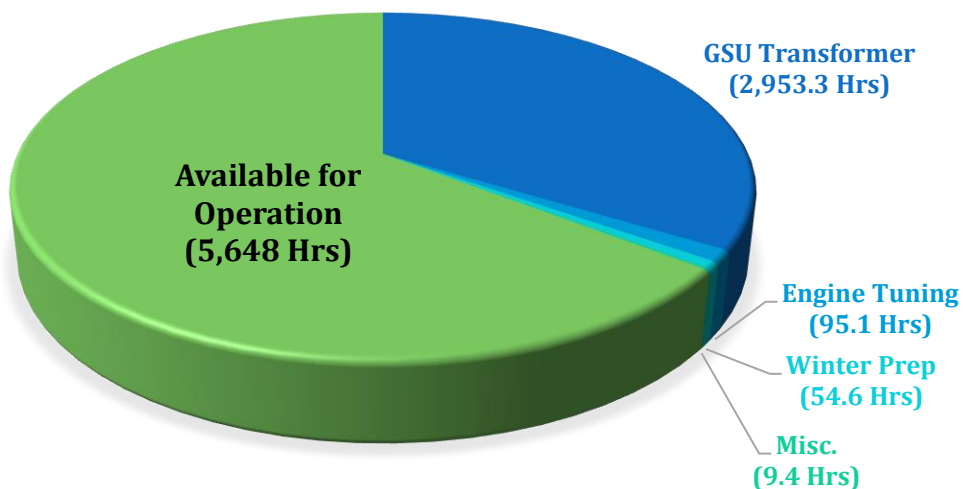
Coyote Springs 2	64.5%
Colstrip Unit 3	74.1%
Colstrip Unit 4	88.5%
Colstrip Combined	81.3%
Kettle Falls GS	88.3%
Kettle Falls CT	92.8%
Rathdrum CT Unit 1	88.6%
Rathdrum CT Unit 2	95.0%
Rathdrum CT Combined	91.8%
Boulder Park GS	89.0%
Northeast CT	49.7%
Combined Thermal Generation EAF (Weighted based on plant vs total thermal MW)	74.9%

Subsequent pages provide an overview of what contributed to the Equivalent Availability Factor (EAF) for each plant.



Coyote Springs 2

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 64.5%



*8760 Hours in a year

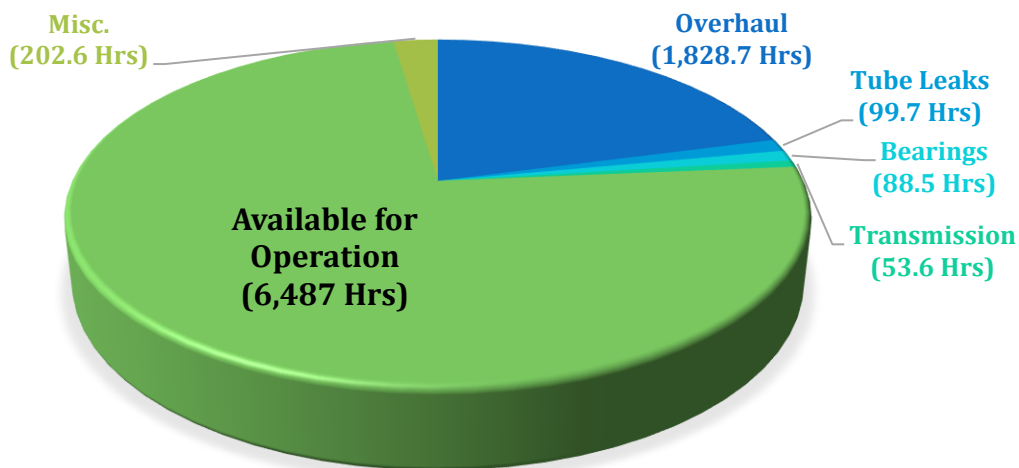
Event	Approx. Timeframe	Equiv. Hrs
GSU Transformer Installation	March-June	2,953.3
Leaking Crossfire Tube and Engine Tuning	July	95.1
Compressor wash and Winter Operational Preparation	October	54.6
Misc: Derate prior to GSU transformer install, Steam Turbine trip, Transcanada Fuel Supply derate	Various	9.4
Available for Operation		5,648

2021 was a successful year of operation for Coyote Springs 2 with few forced outages. The Equivalent Availability Factor (EAF) fell below 70% almost exclusively because of the planned outage to install the single phase generator step-up transformers. This outage accounted for 2,953.3 out of 3,112.4 equivalent unavailable hours. Avista took advantage of this longer than typical outage and accomplished several important maintenance items concurrently. A major overhaul of the gas turbine and the gas turbine generator, both of which are required by GE (the OEM), were completed. Avista performed a major inspection on the steam turbine generator. Avista was also able to complete time intensive inspections of the Heat Recover Steam Generator (HRSG). This HRSG inspection led to modifications that will improve its operation and reduce future maintenance costs.



Colstrip Unit 3

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 74.1%



*8760 Hours in a year

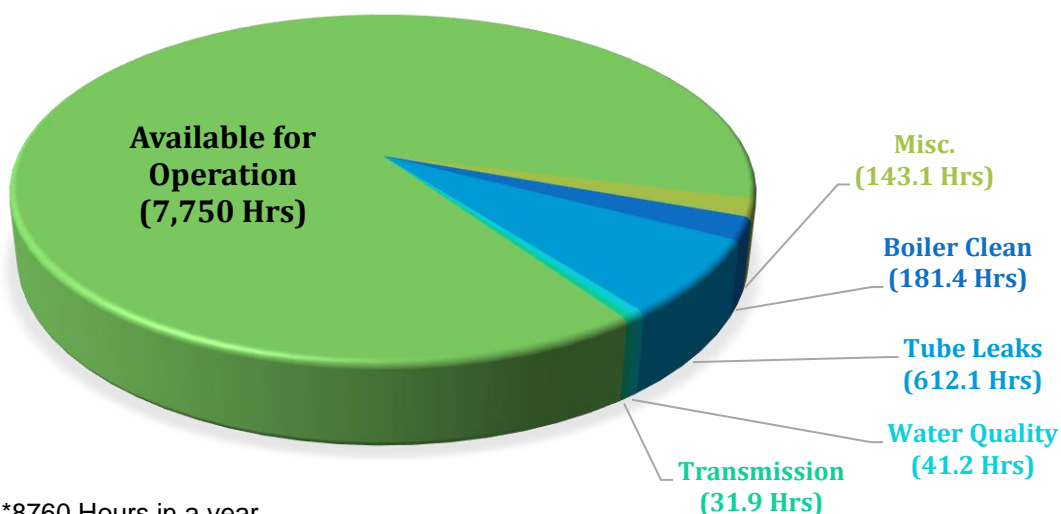
Event	Approx. Timeframe	Equiv. Hrs
Unit 3 Overhaul	April - June	1,828.7
Economizer and Waterwall tube leak	July	99.7
3B Aux Turbine Bad Bearings	Sept / Oct	88.5
Transmission system problems	August	53.6
Misc Items (59 separate events)	Various	202.6
Available for Operation		6,487

2021 was a successful year of operation for Colstrip Unit 3 with the boiler and turbine overhaul being the impactful event on availability. This is a typical overhaul that occurs every 4 years. We only had one outage for tube leaks during 2021 where we addressed one in the economizer as well as the waterwall. A bad bearing on the 3B auxiliary turbine caused us to have a derate while that was being replaced. We did experience some transmission issues that caused the operator to shut the plant down until that was remedied. Aside from these, there were 59 additional relatively insignificant events that were all routine plant maintenance and derates.



Colstrip Unit 4

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 88.5%



*8760 Hours in a year

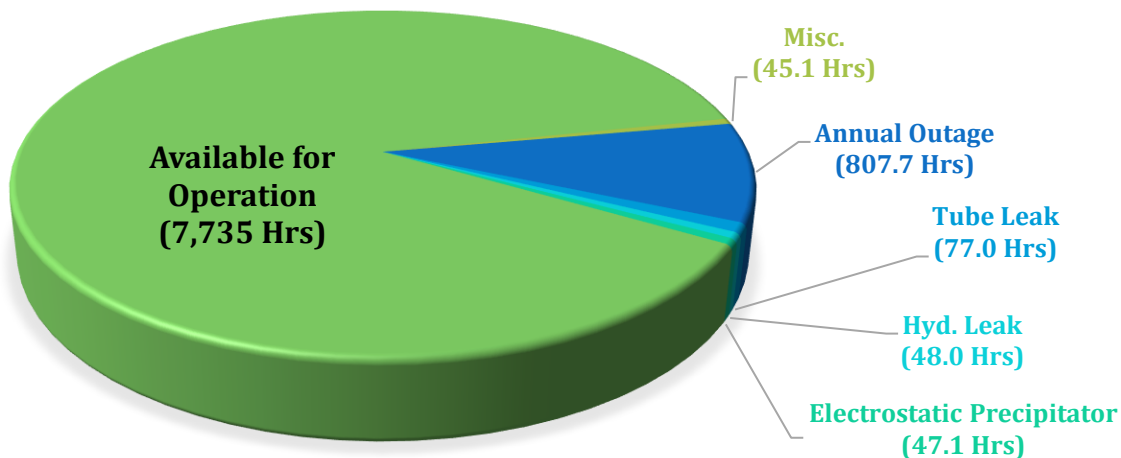
Event	Approx. Timeframe	Equiv. Hrs
Boiler clean due to fuel	December	181.4
Various tube leaks (6 separate events)	Various	612.1
Trip due to boiler water quality	September	41.2
Transmission system problems	August	31.9
Misc Items (64 separate events)	Various	143.1
Available for Operation		7,750

2021 was a successful year of operation for Colstrip Unit 4 with no major events or outages affecting availability. We experienced some buildup in the boiler that caused us to bring the unit down so that we could remove it and improve the airflow within the boiler. There was some undesirable water quality that forced the operator to trip the unit. We also experience some transmission issues that caused the operator to shut the plant down until that was remedied. Aside from these, there were 64 additional relatively insignificant events that were all routine plant maintenance and derates.



Kettle Falls GS

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 88.3%



*8760 Hours in a year

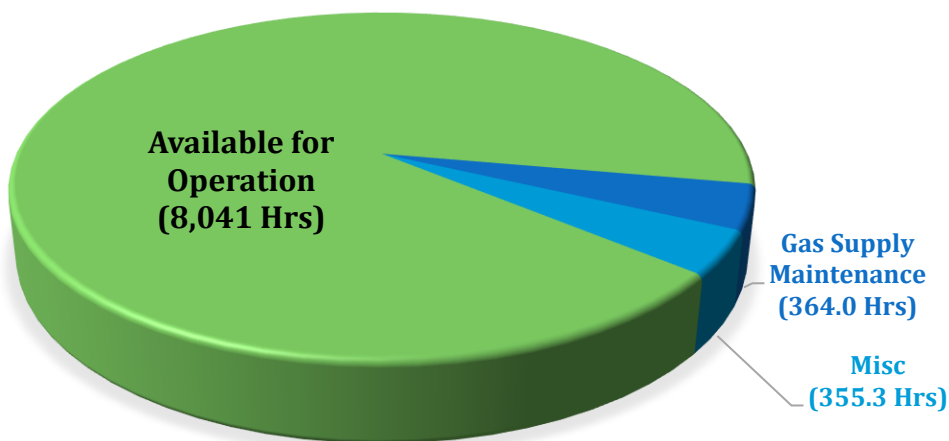
Event	Approx. Timeframe	Equiv. Hrs
Planned annual outage	April – May	807.7
Tube leak	August / Sept	77.0
Hydraulic leak on steam throttle actuator	July	48.0
Electrostatic precipitator repair	June	47.1
Misc Items (15 separate events)	Various	45.1
Available for Operation		7,735

2021 was a successful year of operation for our Kettle Falls Generating Station with the planned annual outage in the spring being the only significant component affecting availability. We had a number of relatively insignificant events that are routine plant maintenance and derates throughout the year.



Kettle Falls CT

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 92.8%



*8760 Hours in a year

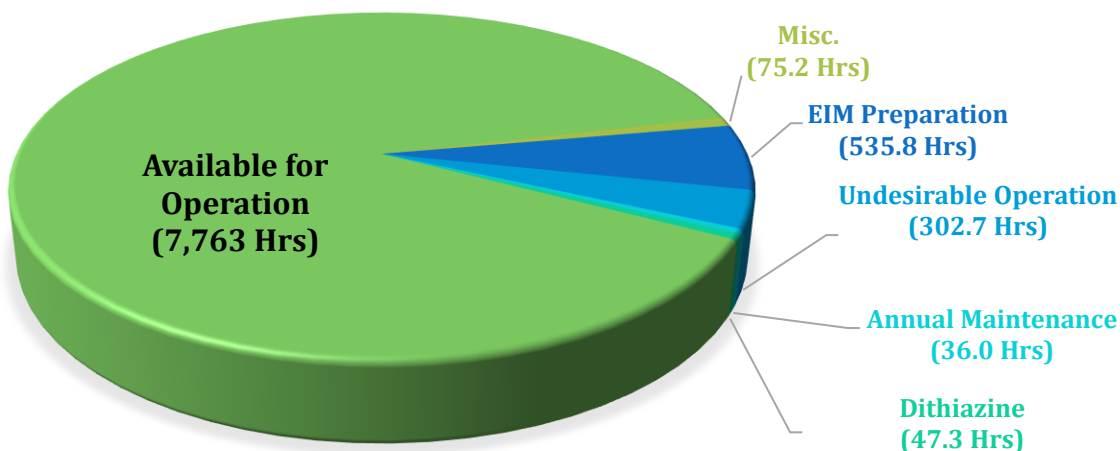
Event	Approx. Timeframe	Equiv. Hrs
Gas Supply Maintenance	September	364.0
Misc	Various	355.3
Available for Operation		8,041

2021 showed an EAF of 92.8% for Kettle Falls CT. The only notable outage was due to maintenance occurring on the gas supply line feeding the plant. This accounted for 364.0 equivalent hours. The remainder of the outages totaled only 355.3 equivalent hours which left the unit available for operation for 8,041 hours of the year.



Rathdrum CT Unit 1

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 88.6%



*8760 Hours in a year

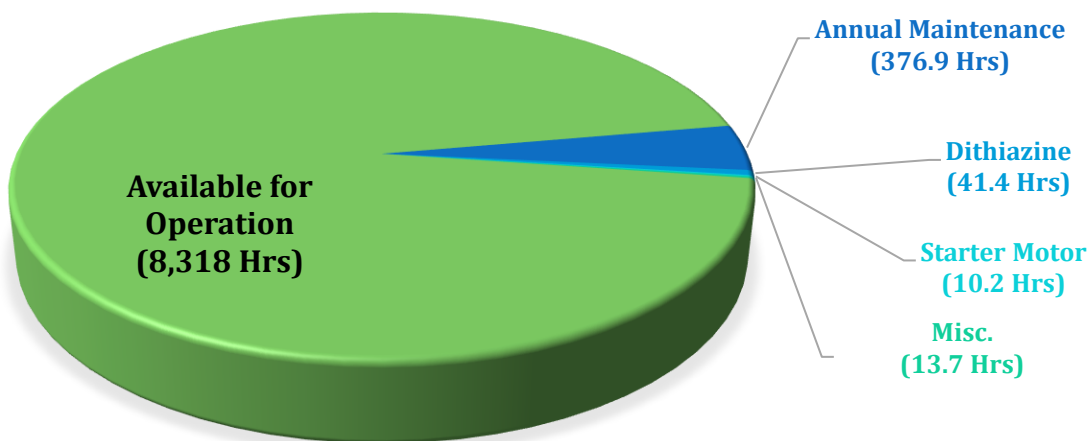
Event	Approx. Timeframe	Equiv. Hrs
Outage for EIM Preparation	November	535.8
Undesirable operation	January	302.7
Planned annual maintenance	May	36.0
Cleaning due to dithiazine	Various	47.3
Misc Items (13 separate events)	Various	75.2
Available for Operation		7,763

2021 was an acceptable year of operation for Unit 1 at Rathdrum CT with few forced outages. The planned outage was only 36 hours so EAF was impacted primarily by a project required for Energy Imbalance Market (EIM) preparation and some operation of the gas turbine that caused us to make the unit unavailable while we spent time troubleshooting with the manufacturer. A small but notable impact on EAF is due to us having to clean our gas valves due to a chemical called dithiazine that has been coming from the gas suppliers in recent years.



Rathdrum CT Unit 2

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 95.0%



*8760 Hours in a year

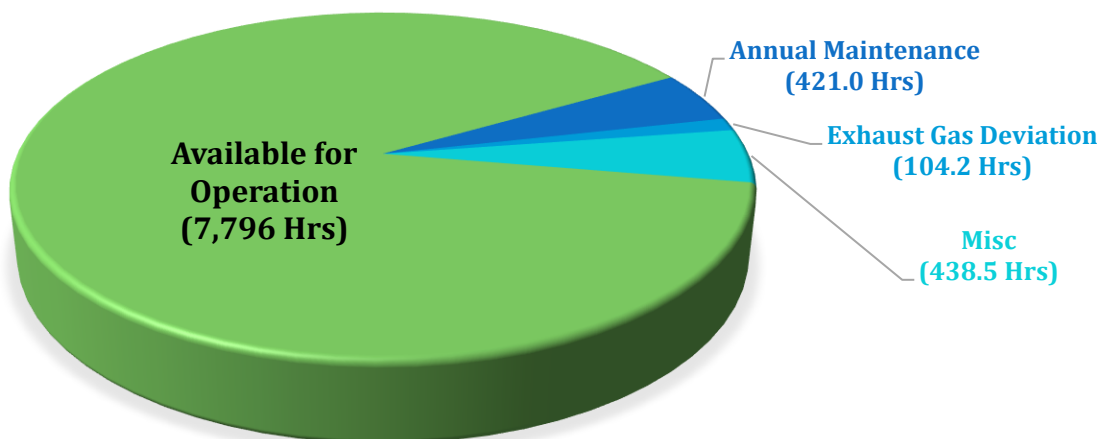
Event	Approx. Timeframe	Equiv. Hrs
Planned annual maintenance	May	376.9
Cleaning due to dithiazine	Various	41.4
Starter motor breaker trip	August	10.2
Misc Items (5 separate events)	Various	13.7
Available for Operation		8,318

2021 was an exceptional year of operation for Unit 2 at Rathdrum CT with minimal forced outages. The planned outage was the majority of the hours that contribute to EAF. A small but notable impact on EAF is due to us having to clean our gas valves due to a chemical called dithiazine that has been coming from the gas suppliers in recent years. There was a starter motor breaker trip that took us offline while investigating and repairing for 10 hours in August, but all other outages were relatively insignificant and typical for power plant operation.



Boulder Park GS

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 89.0%



*8760 Hours in a year

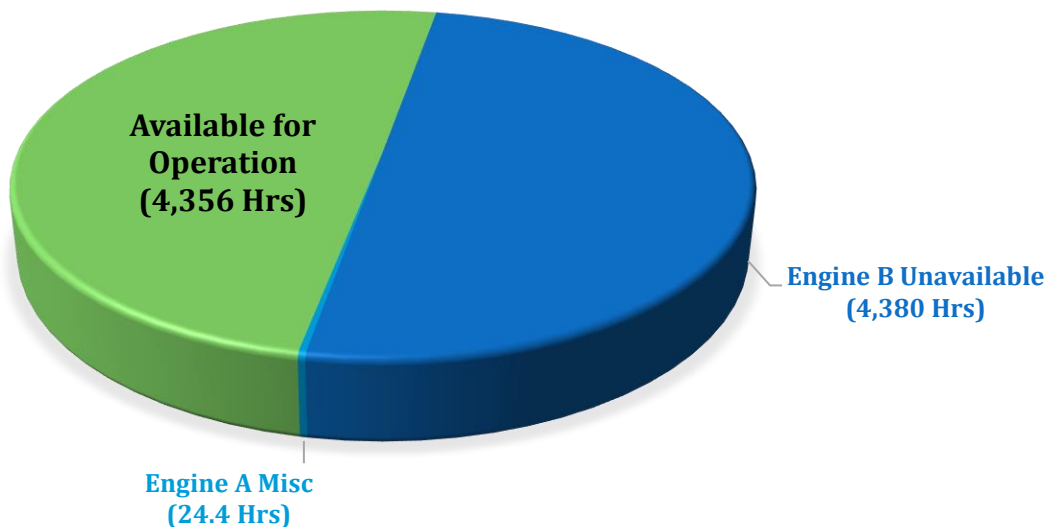
Event	Approx. Timeframe	Equiv. Hrs
Annual Maintenance	April / May	421.0
Exhaust Gas Deviation	Various	104.2
Miscellaneous	Various	438.5
Available for Operation		7,796

2021 was a typical successful year for our Boulder Park Units. There are 6 reciprocating engines at this location that are dispatched together so availability is calculated in aggregate form. Annual maintenance on the units accounted for 421.0 equivalent hours. A recurring event with these reciprocating engines is temperatures between the various cylinders frequently get too far apart and the control system forces a shutdown. These events totaled to 104.2 equivalent hours. Various miscellaneous items accounted for the remaining 438.5 equivalent hours.



Northeast CT

2021 EQUIVALENT AVAILABILITY FACTOR (EAF) = 49.7%



*8760 Hours in a year

Event	Approx. Timeframe	Equiv. Hrs
Engine B Unavailable	Full Year	4,380
Engine A Misc Items	Various	24.4
Available for Operation		4,356

2021 has been a challenging year for Northeast CT. One of the turbines has been unavailable for the full year while we have been troubleshooting an emission that is outside of what is allowable per our operating permit. Due to the unique configuration of the generator at Northeast CT being driven by two turbines, the Equivalent Availability Factor calculations are not representative of engine A (one of the turbines) being available the majority of the year. Because of this, the above numbers may not match what has been reported to NERC / GADS.