American Energy Market Regulator

Reliable America's energy network

Presented by
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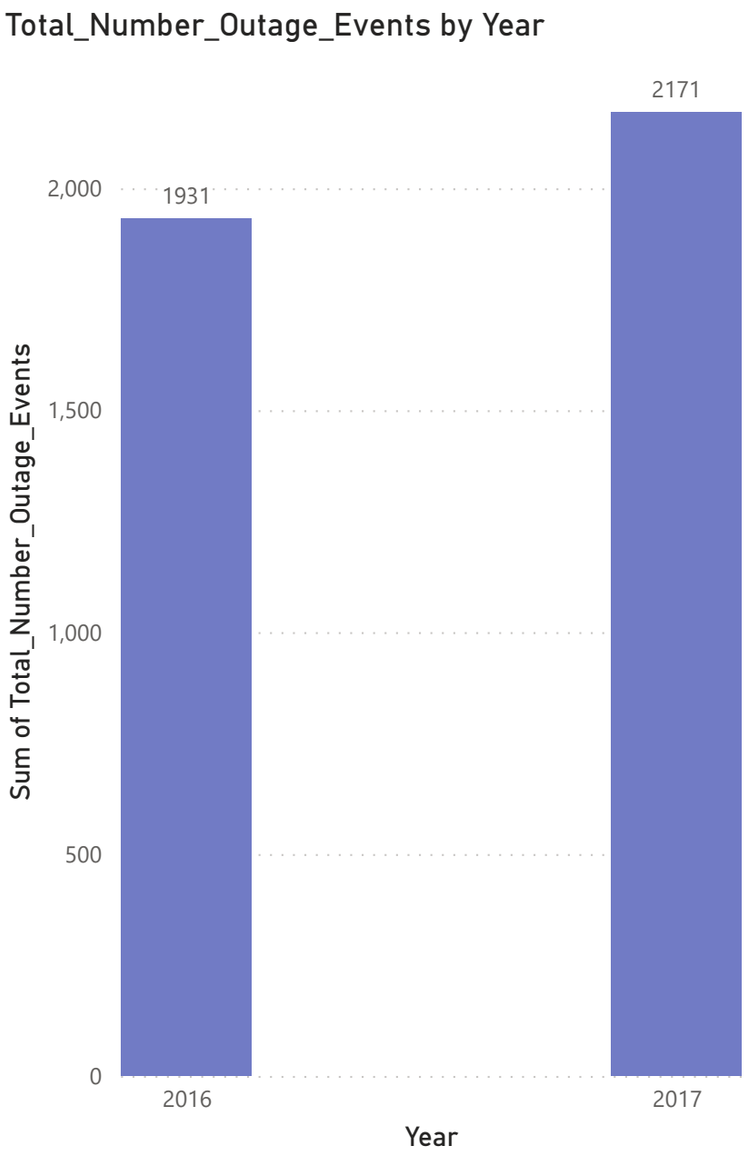
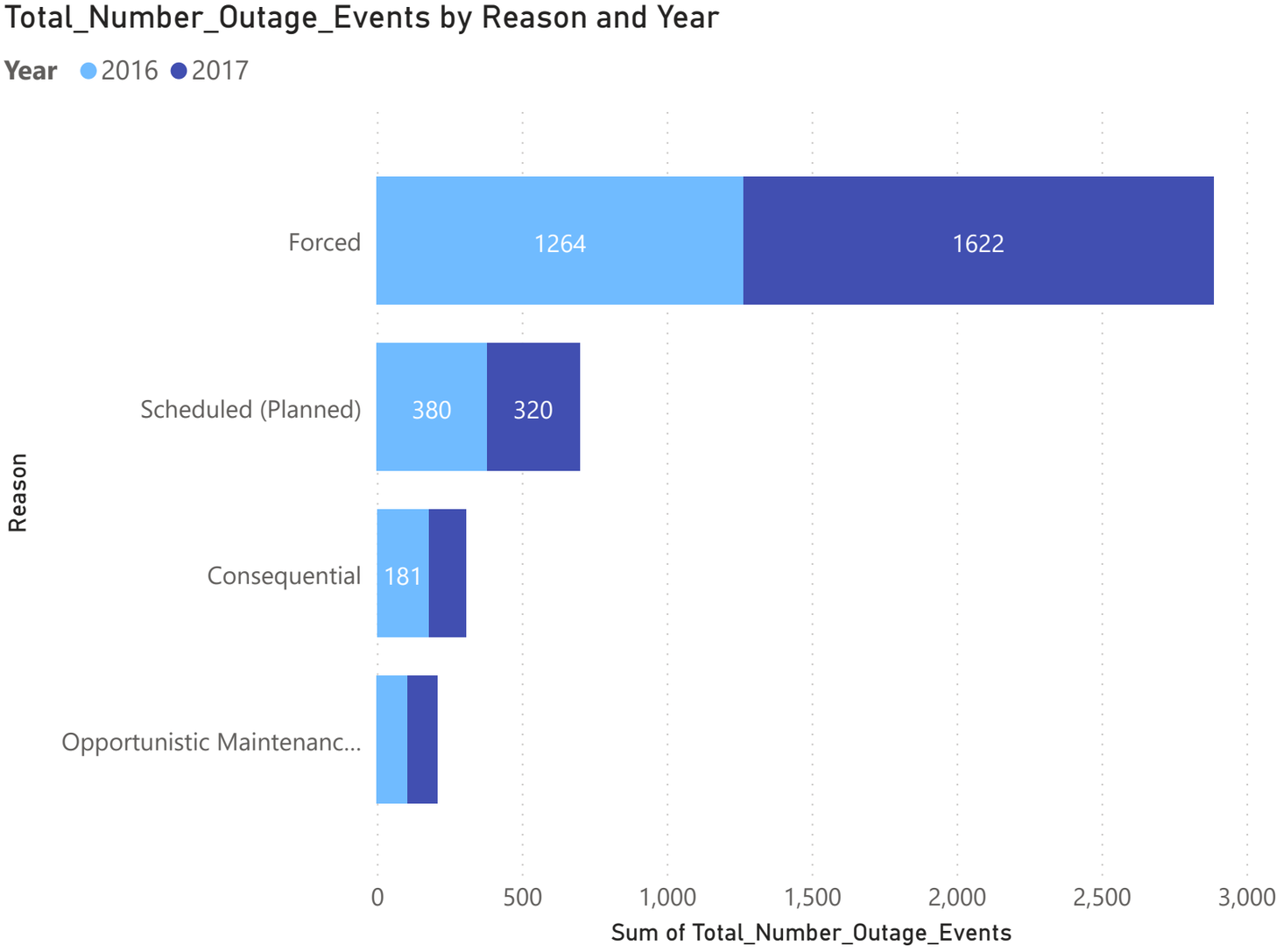
Recently, the AEMR management team has been **increasingly** aware of **a large number of energy providers** that submitted **outages over the 2016 and 2017**.

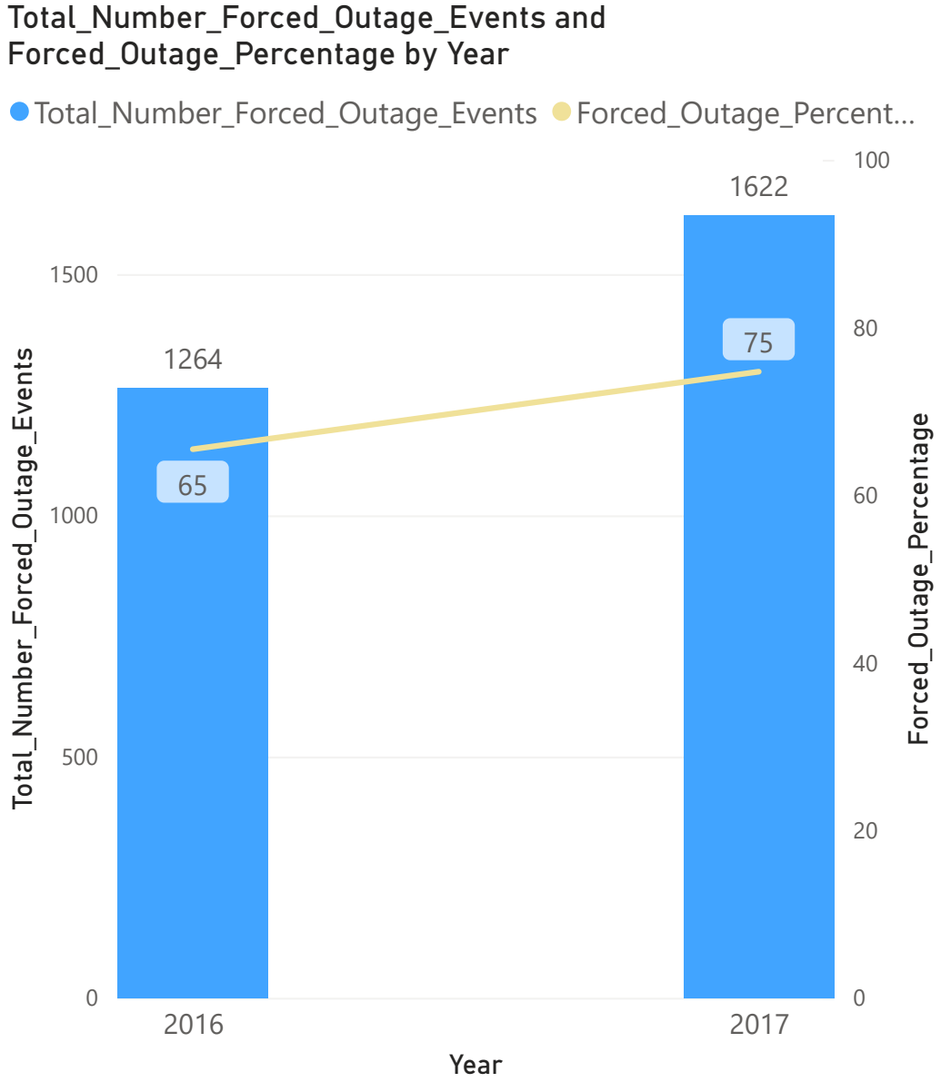
1. What are the most common outage types?
2. What is the sum duration in days per outage type?
3. How frequently do forced outages occur?
4. What is total number outage events and outage duration time by participant?
5. What is outage MW loss by participant?



1. What are the most common outage types?

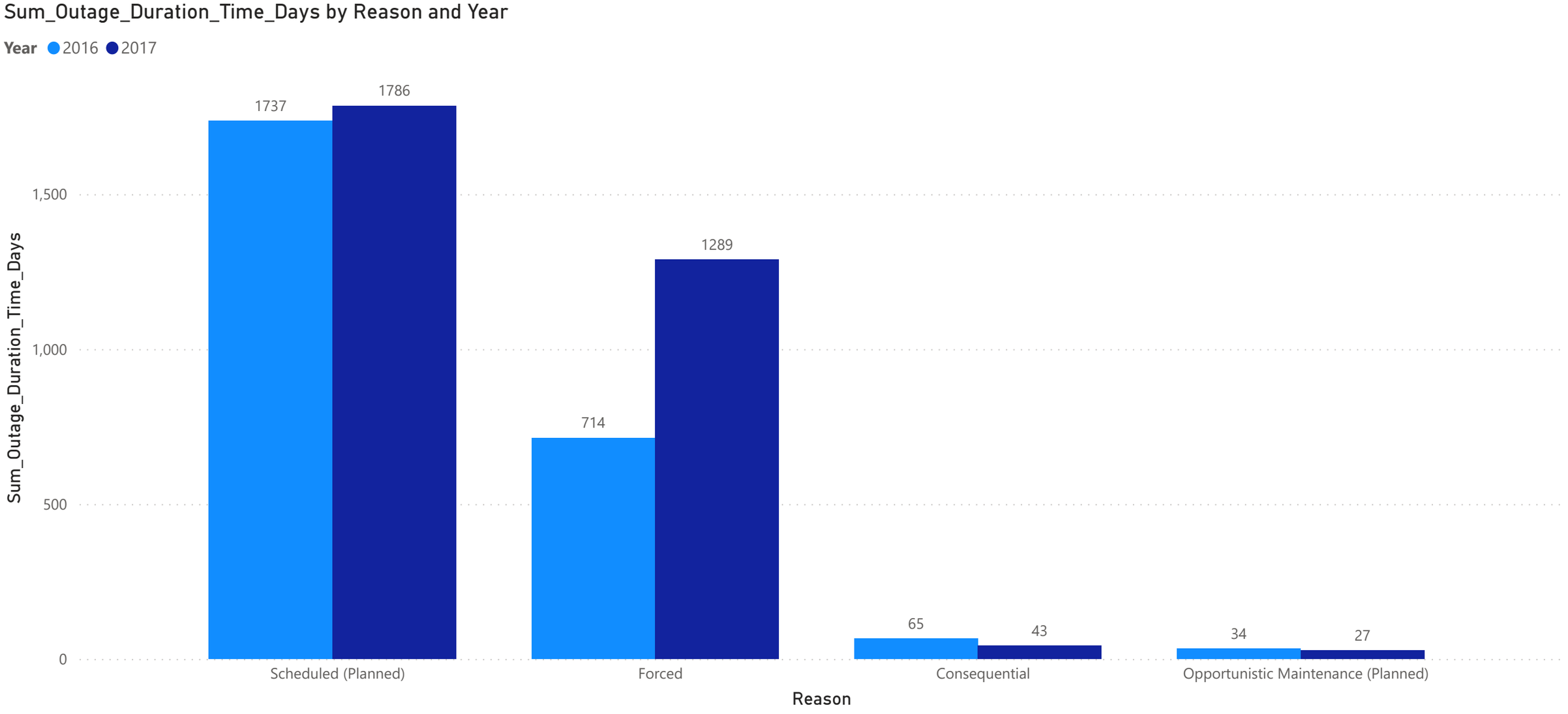
- Forced outage is the most common outage type. (2016 65% , 2017 75%)
- Only forced outage has been increased in comparison with 2016. (10% increased)
- Opportunistic Maintenance outage happened the least.





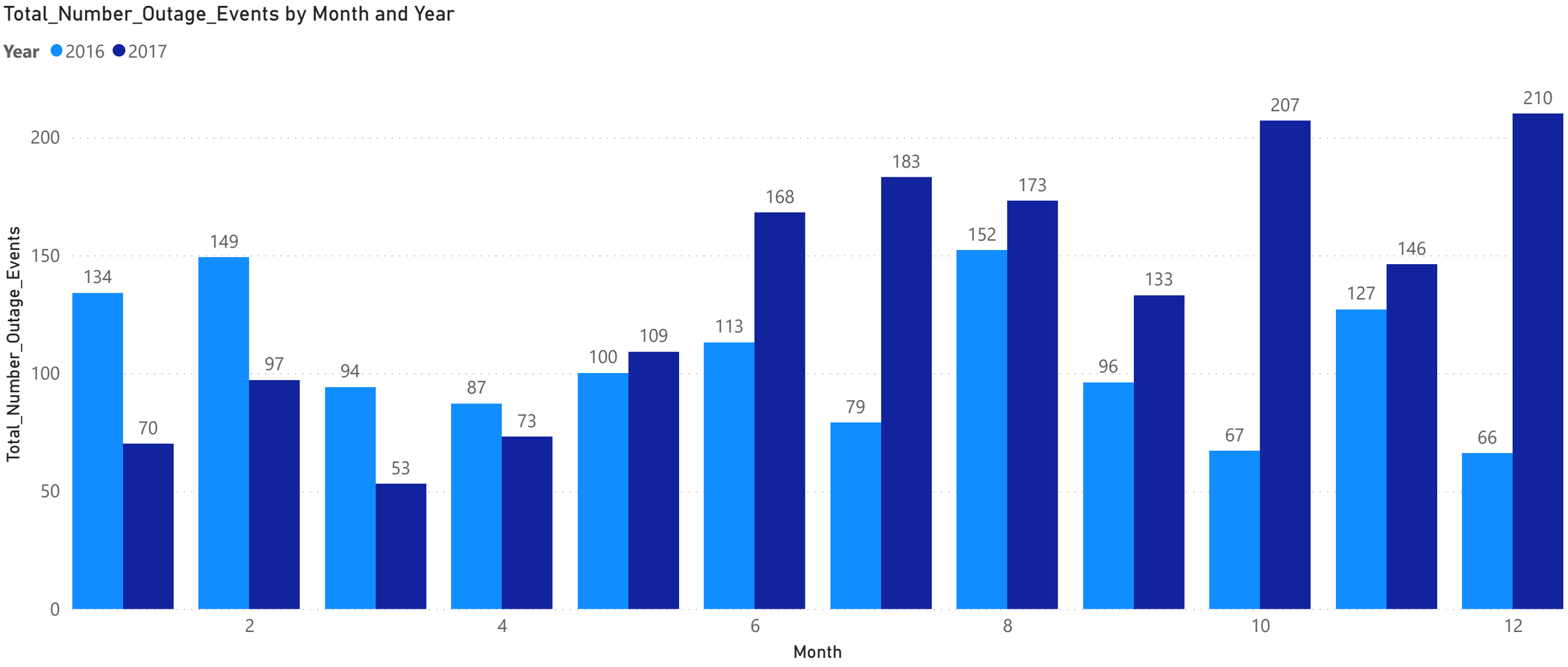
2. What is the sum duration in days per outage type?

- Forced outage is the most common outage type, but scheduled outage duration is longer.
- Duration of scheduled and forced outage had been increased in 2017.
- Especially, forced outage has increased 80%.



3. What is monthly count of forced outage that occurred for 2016 and 2017?

- In 2016, August showed the highest outage number and December showed the lowest.
- In 2017, December showed the highest outage number and March showed the lowest.
- Outage number has been increased largely on late 2017.

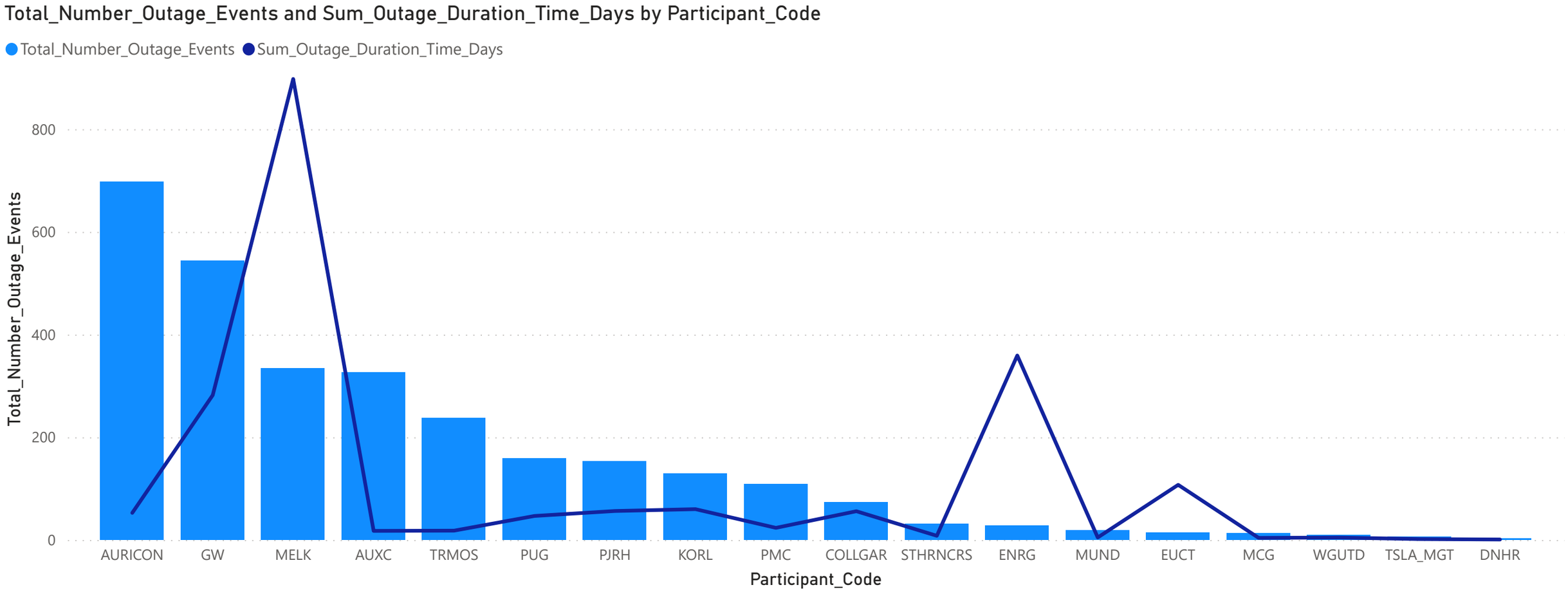


4. What is total number outage events and outage duration time by participant?

- Total outage number of Auricon is the highest, however outage duration days of MELK is the highest.
- Auricon, GW, MELK, AUXC, ENRG, and EUCT shows relatively high total number outage events.
- Total outage number of Auricon has been increased 135 % and total outage number of GW has been decreased 28% in 2017.

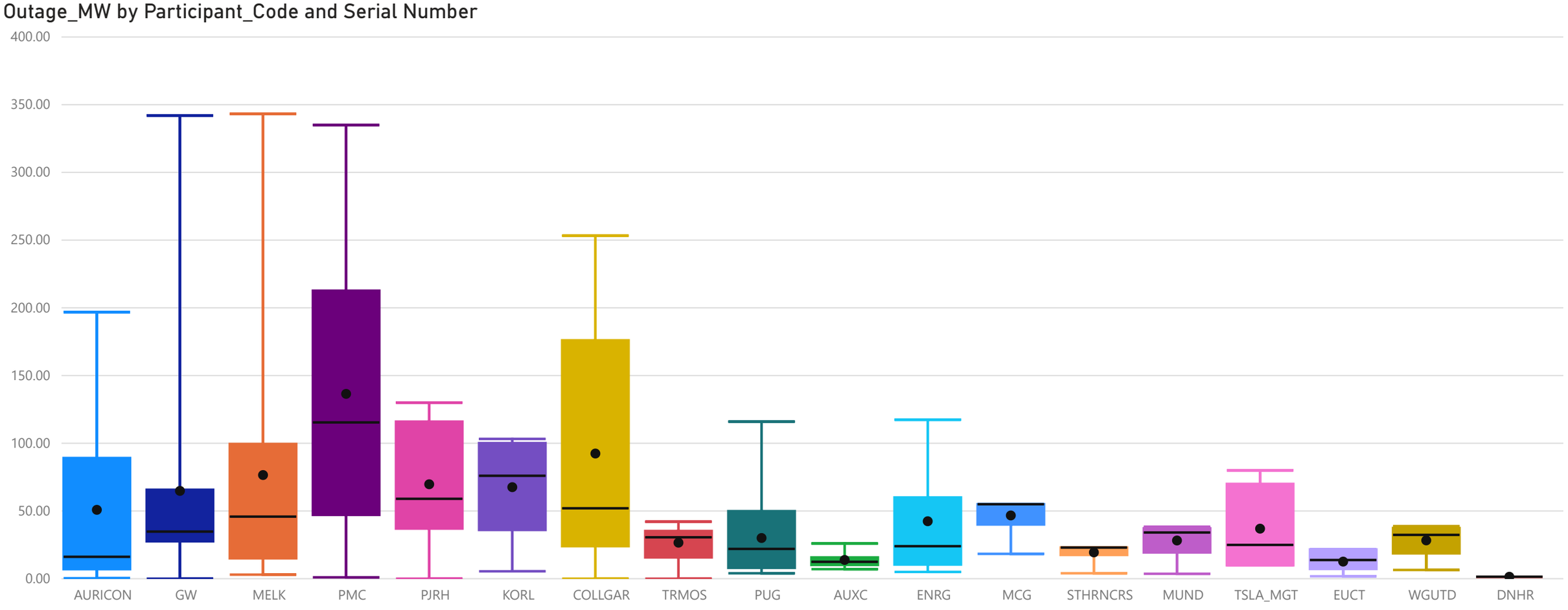
Year

2016 2017



5. What is outage MW loss by participant?

- Box plot shows the outage MW loss by participant for forced outage types.
- PMC and COLLGAR show relatively large variance of outage MW loss which is unreliable than others.
- Outage MW variance of GW and MELK is relatively small, however have outliers.
-AUXW, DNHR, EUCT, STRNCRS and EUCT show low outage MW loss with small variance which is reliable than others.



Summary

Outages over the 2016 and 2017 has been increased due to **forced outage increase (10%)** which is the most common outage type**.**

Reliable Providers

- DNHR show relatively lower number of outage events, duration time and outage MW loss, so that this provider is reliable provider than others.
- GW total outage number events is high, however MW loss is relatively low and variance is small as well. However, GW has high outliers in outage MW loss, so need to keep track to avoid high loss.

Unreliable Providers

- Total outage number events of PMC and COLLGAR is not that high, however variance of outage MW loss is large. The management needs to consider the contract with these providers or come up with a solution for improvement.