Access Main Tables

SELECT * FROM wind_turbine_20220114; **-Access wind turbine data set.**

SELECT * FROM eia923_operators;**-Access eia923 data set.**

Custom Made Queries

Table: wind_turbine_20220114

```
SELECT
   t_state,
   COUNT(t_state) AS count_state
FROM wind_turbine_20220114
GROUP BY t_state
ORDER BY count_state DESC LIMIT 5;
```
-show top 5 states with highest count of wind turbines.

Table:eia923_operators

```
SELECT
   reported_prime_mover,
   COUNT(reported_prime_mover) as count
FROM eia923_operators
GROUP BY reported_prime_mover
ORDER BY count DESC;
```
-In descending order, show count of prime movers grouped.

```
SELECT * FROM
eia923_operators
WHERE reported_prime_mover LIKE 'WS';
```
- **show all of the off-shore windmills**

SELECT * FROM
eia923_operators
WHERE reported_prime_mover LIKE 'WT'; - **Show all the on shore windmills**

SELECT plant_state, count(*) FROM
eia923_operators
WHERE reported_prime_mover LIKE 'WT'
GROUP BY plant_state
ORDER BY count(*) DESC;**- In descending order, provide the count of onshore in windmills by state**

SELECT operator_name, count(*) FROM
eia923_operators
WHERE reported_prime_mover LIKE 'WT'
GROUP BY operator_name
ORDER BY count(*) DESC; - **In descending order show all the on shore windmills grouped by operator name**

SELECT operator_name,
-- AVG(total_fuel_consumption_quantity) AS avg_fuel_consumption,
-- AVG(electric_fuel_consumption_quantity) AS avg_electric_fuel_consumption,
-- AVG(total_fuel_consumption_mm_btu) AS avg_total_fuel_consumption,
-- AVG(elec_fuel_consumption_mm_btu) AS avg_elec_fuel_consumption_mm_btu,
-- AVG(net_generation_megawatthours) AS avg_net_generation_megawatthours,
-- count(*) FROM
-- eia923_operators
-- WHERE reported_prime_mover LIKE 'WT'
-- GROUP BY operator_name
-- ORDER BY AVG(net_generation_megawatthours)DESC;- in descending order show the operator name and cost and output for energy in megawatt hours(wind)

SELECT operator_name,
AVG(total_fuel_consumption_quantity) AS avg_fuel_consumption,
AVG(electric_fuel_consumption_quantity) AS avg_electric_fuel_consumption,
AVG(total_fuel_consumption_mm_btu) AS avg_total_fuel_consumption,
AVG(elec_fuel_consumption_mm_btu) AS avg_elec_fuel_consumption_mm_btu,
AVG(net_generation_megawatthours) AS avg_net_generation_megawatthours,
count(*) FROM
eia923_operators
WHERE reported_fuel_type_code LIKE 'RC'
GROUP BY operator_name
ORDER BY AVG(net_generation_megawatthours)DESC;- in descending order show the operator name and cost and output for energy in megawatt-hours(refined-coal)

```
 WITH mega AS
(SELECT operator_name,
AVG(total_fuel_consumption_quantity) AS avg_fuel_consumption,
AVG(electric_fuel_consumption_quantity) AS avg_electric_fuel_consumption,
AVG(total_fuel_consumption_mm_btu) AS avg_total_fuel_consumption,
AVG(elec_fuel_consumption_mm_btu) AS avg_elec_fuel_consumption_mm_btu,
AVG(net_generation_megawatthours) AS avg_net_generation_megawatthours,
count(*) FROM
eia923_operators
WHERE reported_prime_mover LIKE 'WT'
GROUP BY operator_name
ORDER BY AVG(net_generation_megawatthours)DESC)
SELECT
   ROUND(AVG(avg_net_generation_megawatthours), 2)
FROM mega; -Find the average megawatt/h output of all turbines in 2020.

SELECT plant_state,nerc_region,
AVG(total_fuel_consumption_quantity) AS avg_fuel_consumption,
AVG(electric_fuel_consumption_quantity) AS avg_electric_fuel_consumption,
AVG(total_fuel_consumption_mm_btu) AS avg_total_fuel_consumption,
AVG(elec_fuel_consumption_mm_btu) AS avg_elec_fuel_consumption_mm_btu,
AVG(net_generation_megawatthours) AS avg_net_generation_megawatthours,
count(*) FROM
eia923_operators
WHERE reported_fuel_type_code LIKE 'WND'
GROUP BY plant_state,nerc_region
ORDER BY AVG(net_generation_megawatthours)DESC;- in descending order on energy
output looks at highest production by state and NERC-region

-- WITH wnd
-- AS(
-- SELECT operator_name,
--        operator_id,
--        plant_state,
--        nerc_region,
-- count(*) FROM
-- eia923_operators
-- WHERE reported_fuel_type_code LIKE 'WND'
-- GROUP BY operator_name, operator_id, plant_state, nerc_region
-- ORDER BY count(*)DESC
```

```
-- )
-- ,
-- rc
-- AS(
-- SELECT operator_name,
--        operator_id,
--        plant_state,
--        nerc_region,
-- count(*) FROM
-- eia923_operators
-- WHERE reported_fuel_type_code NOT LIKE 'WND'
-- GROUP BY operator_name, operator_id,plant_state,nerc_region
-- ORDER BY count(*)DESC
-- )
-- SELECT
-- rc.operator_name,
-- rc.plant_state,
-- rc.nerc_region
-- FROM rc
-- JOIN
-- wnd
-- ON
-- rc.operator_id = wnd.operator_id- ()


--WITH wnd
-- AS(
-- SELECT operator_name,
--        operator_id,
-- count(*) FROM
-- eia923_operators
-- WHERE reported_fuel_type_code LIKE 'WND'
-- GROUP BY operator_name, operator_id,
-- ORDER BY count(*)DESC
-- )
-- ,
-- rc
-- AS(
-- SELECT operator_name,
--        operator_id,
-- count(*) FROM
-- eia923_operators
-- WHERE reported_fuel_type_code NOT LIKE 'WND'
-- GROUP BY operator_name, operator_id,
```

```
-- ORDER BY count(*)DESC
-- )
-- SELECT
-- rc.operator_name,
-- FROM rc
-- JOIN
-- wnd
-- ON
-- rc.operator_id = wnd.operator_id

-- WITH wnd
-- AS(
-- SELECT operator_name,
--        operator_id,
--        reported_fuel_type_code,
-- count(*) FROM
-- eia923_operators
-- WHERE reported_fuel_type_code LIKE 'WND'
-- GROUP BY operator_name, operator_id,reported_fuel_type_code
-- ORDER BY count(*)DESC
-- )
-- ,
-- rc
-- AS(
-- SELECT operator_name,
--        operator_id,
--        reported_fuel_type_code,
-- count(*) FROM
-- eia923_operators
-- WHERE reported_fuel_type_code NOT LIKE 'WND'
-- AND
-- reported_fuel_type_code NOT LIKE 'SUN'
-- AND
-- reported_fuel_type_code NOT LIKE 'WAT'
-- GROUP BY operator_name, operator_id, reported_fuel_type_code
-- ORDER BY count(*)DESC
-- )
-- SELECT
-- rc.operator_name,
-- rc.reported_fuel_type_code
-- FROM rc
-- JOIN
-- wnd
-- ON
```

```
-- rc.operator_id = wnd.operator_id



WITH wnd
AS(
SELECT operator_name,
        operator_id,
count(*) FROM
eia923_operators
WHERE reported_fuel_type_code LIKE 'WND'
GROUP BY operator_name, operator_id
ORDER BY count(*)DESC
)
,
rc
AS(
SELECT operator_name,
        operator_id,
count(*) FROM
eia923_operators
WHERE reported_fuel_type_code NOT LIKE 'WND'
AND
reported_fuel_type_code NOT LIKE 'SUN'
AND
reported_fuel_type_code NOT LIKE 'WAT'
GROUP BY operator_name, operator_id
ORDER BY count(*)DESC
)
SELECT
rc.operator_name
FROM rc
JOIN
wnd
ON
rc.operator_id = wnd.operator_id

WITH wnd
AS(
SELECT operator_name,
        operator_id,
        reported_fuel_type_code,
        plant_state,
```

```
        nerc_region,
count(*) FROM
eia923_operators
WHERE reported_fuel_type_code LIKE 'WND'
GROUP BY operator_name,
operator_id,reported_fuel_type_code,plant_state,nerc_region
ORDER BY count(*)DESC
)
,
rc
AS(
SELECT operator_name,
        operator_id,
        reported_fuel_type_code,
        plant_state,
        nerc_region,
count(*) FROM
eia923_operators
WHERE reported_fuel_type_code NOT LIKE 'WND'
AND
reported_fuel_type_code NOT LIKE 'SUN'
AND
reported_fuel_type_code NOT LIKE 'WAT'
AND
reported_fuel_type_code NOT LIKE 'MWH'
GROUP BY operator_name, operator_id,
reported_fuel_type_code,plant_state,nerc_region
ORDER BY count(*)DESC
)
SELECT
rc.operator_name,
rc.reported_fuel_type_code,
rc.plant_state,
        rc.nerc_region
FROM rc
JOIN
wnd
ON
rc.operator_id = wnd.operator_id-(shows what companies own/operate nonrenewable
powerplants and windfarms with what fuel type the powerplants use, state, and nerc
region)
```

```
SELECT
   AVG(p_cap)
FROM public.wind_turbine_20220114;
```
-Avg cumulative capacity of all turbines in the wind power project in megawatts (MW).

```
SELECT
   t_manu,
   COUNT(t_manu) AS count
FROM wind_turbine_20220114
GROUP BY t_manu
ORDER BY count DESC;
```
-In descending order, count the number of turbines each manufacturer has produced.

```
SELECT
   t_state,
   t_county,
   COUNT(case_id) as num_turbines
FROM public.wind_turbine_20220114
WHERE t_state = 'TX'
GROUP BY t_state, t_county
ORDER BY num_turbines DESC;
```
-In descending order, count the number of turbines in Texas(TX) by county.