

Intel Energy Project - Cleaned SQL Code by Gayathri Kota

Analyze Net Energy Production by Region

```
SELECT region, SUM(net_generation - demand) AS energy_produced
FROM intel.energy_data
GROUP BY region
ORDER BY energy_produced DESC;
```

Compare Total Renewable Energy Generation by Region

```
SELECT region, SUM(hydropower_and_pumped_storage + solar + wind) AS total_renewable_energy
FROM intel.energy_data
GROUP BY region
ORDER BY total_renewable_energy DESC;
```

Calculate Percentage of Renewable Energy

```
SELECT region, (SUM(hydropower_and_pumped_storage + solar + wind) / SUM(net_generation))*100 AS
percentage_renewable_energy
FROM intel.energy_data
GROUP BY region
ORDER BY percentage_renewable_energy DESC;
```

Trend of Renewable Energy Generation by Date and Region

```
SELECT date, region, SUM(hydropower_and_pumped_storage + wind + solar) AS energy_generated_mw
FROM intel.energy_data
GROUP BY date, region;
```

Tagging Renewable Energy Type

```
SELECT date, region, SUM(hydropower_and_pumped_storage + wind + solar) AS energy_generated_mw,
'renewable energy' AS energy_type
FROM intel.energy_data
GROUP BY date, region;
```

Trend of Fossil Fuel Energy Generation by Date and Region

```
SELECT date, region, SUM(all_petroleum_products + coal + natural_gas + nuclear +
other_fuel_sources) AS energy_generated_mw
FROM intel.energy_data
GROUP BY date, region;
```

Tagging Fossil Fuel Energy Type

```
SELECT date, region, SUM(all_petroleum_products + coal + natural_gas + nuclear +
other_fuel_sources) AS energy_generated_mw, 'fossil fuel' AS energy_type
FROM intel.energy_data
GROUP BY date, region;
```

Union of Renewable and Fossil Fuel Data by Region and Date

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```
SELECT date, region, SUM(hydropower_and_pumped_storage + wind + solar) AS energy_generated_mw,
'renewable_energy' AS energy_type
FROM intel.energy_data
GROUP BY date, region
UNION ALL
SELECT date, region, SUM(all_petroleum_products + coal + natural_gas + nuclear +
other_fuel_sources) AS energy_generated_mw, 'fossil fuel' AS energy_type
FROM intel.energy_data
GROUP BY date, region;
```

Joining Power Plant Info with Energy Generation Data

```
SELECT *
FROM intel.power_plants AS a
INNER JOIN intel.energy_by_plant AS b ON a.plant_code = b.plant_code;
```

Count Renewable Energy Plants by Region

```
WITH total_plants AS (
    SELECT *
    FROM intel.power_plants AS a
    JOIN intel.energy_by_plant AS b ON a.plant_code = b.plant_code
)
SELECT region, COUNT(energy_type) AS renewable_energy
FROM total_plants
WHERE energy_type = 'renewable_energy'
GROUP BY region
ORDER BY renewable_energy DESC;
```

Solar Photovoltaic Plants Count and Energy by Region

```
WITH total_plants AS (
    SELECT *
    FROM intel.power_plants AS a
    JOIN intel.energy_by_plant AS b ON a.plant_code = b.plant_code
)
SELECT region, COUNT(*) AS n_solar_plants, SUM(energy_generated_mw) AS n_solar_energy
FROM total_plants
WHERE primary_technology = 'Solar Photovoltaic'
GROUP BY region;
```

Regions with at Least 50 Solar Plants

```
WITH total_plants AS (
    SELECT *
    FROM intel.power_plants AS a
    JOIN intel.energy_by_plant AS b ON a.plant_code = b.plant_code
)
SELECT region, COUNT(*) AS n_solar_plants, SUM(energy_generated_mw) AS n_solar_energy
FROM total_plants
WHERE primary_technology = 'Solar Photovoltaic'
```

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```
GROUP BY region
HAVING COUNT(*) >= 50;
```

Hourly Renewable Energy Trend by Region

```
SELECT region, SUM(hydropower_and_pumped_storage + solar + wind) AS total_renewable_energy,
date_part('hour', time_at_end_of_hour) AS reporting_hour
FROM intel.energy_data
GROUP BY region, reporting_hour
ORDER BY reporting_hour ASC;
```

Hourly Renewable Energy Comparison: California vs Northwest

```
SELECT region, SUM(hydropower_and_pumped_storage + solar + wind) AS total_renewable_energy,
date_part('hour', time_at_end_of_hour) AS reporting_hour
FROM intel.energy_data
WHERE region IN ('California', 'Northwest')
GROUP BY region, reporting_hour
ORDER BY reporting_hour ASC;
```