

1.CREATE TABLES

CREATE TABLE EnergySources (SourceID INT PRIMARY KEY AUTO_INCREMENT, SourceName VARCHAR(50) NOT NULL, Type VARCHAR(20) NOT NULL);

Create the Regions table CREATE TABLE Regions (RegionID INT PRIMARY KEY AUTO_INCREMENT, RegionName VARCHAR(50) NOT NULL);

CREATE TABLE CostData (CostID INT PRIMARY KEY AUTO_INCREMENT, SourceID INT, RegionID INT, Year YEAR, CostPerMW DECIMAL(10, 2), FOREIGN KEY (SourceID) REFERENCES EnergySources(SourceID), FOREIGN KEY (RegionID) REFERENCES Regions(RegionID));

Create the Projects table CREATE TABLE Projects (ProjectID INT PRIMARY KEY AUTO_INCREMENT, SourceID INT, RegionID INT, ProjectName VARCHAR(100), StartDate DATE, EndDate DATE, TotalCost DECIMAL(15, 2), FOREIGN KEY (SourceID) REFERENCES EnergySources(SourceID), FOREIGN KEY (RegionID) REFERENCES Regions(RegionID));

2.INSERT SAMPLE DATA

INSERT INTO EnergySources (SourceName, Type) VALUES ('Solar', 'Renewable'), ('Wind', 'Renewable'), ('Hydro', 'Renewable');

INSERT INTO Regions (RegionName) VALUES ('North America'), ('Europe'), ('Asia');

INSERT INTO CostData (SourceID, RegionID, Year, CostPerMW) VALUES (1, 1, 2020, 1200.50), (1, 2, 2020, 1100.75), (2, 1, 2020, 1300.00), (2, 3, 2020, 1250.50), (3, 1, 2020, 1400.25), (3, 2, 2020, 1380.00);

INSERT INTO Projects (SourceID, RegionID, ProjectName, StartDate, EndDate, TotalCost) VALUES (1, 1, 'Solar Project A', '2019-01-01', '2020-12-31', 1500000.00), (2, 2, 'Wind Project B', '2020-03-01', '2021-06-30', 1750000.00), (3, 3, 'Hydro Project C', '2018-05-01', '2020-11-30', 2000000.00);

3.EXAMPLE QUERIES

a. Compare the Average Cost of Different Renewable Energy Sources in a Specific Region:

SELECT es.SourceName, AVG(cd.CostPerMW) AS AverageCost

FROM CostData cd

JOIN EnergySources es ON cd.SourceID = es.SourceID

WHERE cd.RegionID = 1

GROUP BY es.SourceName;

b. Track the Cost Trend of a Specific Energy Source Over Time:

```
SELECT cd.Year, cd.CostPerMW
FROM CostData cd
WHERE cd.SourceID = 1
AND cd.RegionID = 1
ORDER BY cd.Year;
```

c. Identify Regions with the Highest Average Cost for Renewable Energy:

```
SELECT r.RegionName, AVG(cd.CostPerMW) AS AverageCost
FROM CostData cd
JOIN Regions r ON cd.RegionID = r.RegionID
GROUP BY r.RegionName
ORDER BY AverageCost DESC;
```