**Schema design for SDG 7: Affordable and Clean Energy**

CREATE DATABASE EnergyMonitoring;

USE EnergyMonitoring;

-- Energy sources table

CREATE TABLE EnergySources (

EnergySourceID INT PRIMARY KEY AUTO\_INCREMENT,

EnergyType VARCHAR(100),

Description TEXT,

Efficiency DECIMAL(5, 2)

);

-- Regions table

CREATE TABLE Regions (

RegionID INT PRIMARY KEY AUTO\_INCREMENT,

RegionName VARCHAR(100),

Country VARCHAR(100),

Population INT

);

-- Energy usage table

CREATE TABLE EnergyUsage (

UsageID INT PRIMARY KEY AUTO\_INCREMENT,

RegionID INT,

EnergySourceID INT,

ConsumptionAmount DECIMAL(10, 2),

Date DATE,

FOREIGN KEY (RegionID) REFERENCES Regions(RegionID),

FOREIGN KEY (EnergySourceID) REFERENCES EnergySources(EnergySourceID)

);

-- Energy production table

CREATE TABLE EnergyProduction (

ProductionID INT PRIMARY KEY AUTO\_INCREMENT,

RegionID INT,

EnergySourceID INT,

ProductionAmount DECIMAL(10, 2),

Date DATE,

FOREIGN KEY (RegionID) REFERENCES Regions(RegionID),

FOREIGN KEY (EnergySourceID) REFERENCES EnergySources(EnergySourceID)

);

-- Insert Data into EnergySources

INSERT INTO EnergySources (EnergyType, Description, Efficiency) VALUES

('Solar', 'Energy from the sun captured using solar panels.', 15.00),

('Wind', 'Energy from wind captured using wind turbines.', 40.00),

('Hydropower', 'Energy from flowing water captured using hydro turbines.', 35.00),

('Geothermal', 'Energy from the Earth’s heat captured using geothermal systems.', 25.00),

('Biomass', 'Energy from organic materials such as wood and agricultural waste.', 20.00);

-- Insert Data into Regions

INSERT INTO Regions (RegionName, Country, Population) VALUES

('Nairobi', 'Kenya', 5545000),

('Addis Ababa', 'Ethiopia', 5078000),

('Dar es Salaam', 'Tanzania', 7078000),

('Lagos', 'Nigeria', 15300000),

('Cape Town', 'South Africa', 4336880);

-- Insert data into EnergyUsage

INSERT INTO EnergyUsage (RegionID, EnergySourceID, consumptionAmount, Date) VALUES

(1, 1, 5000, '2024-08-01'), -- Nairobi using Solar

(2, 2, 3000, '2024-08-01'), -- Addis Ababa using Wind

(3, 3, 2000, '2024-08-01'), -- Dar es Salaam using Hydropower

(4, 4, 15000, '2024-08-01'), -- Lagos using Geothermal

(5, 5, 10000, '2024-08-01'); -- Cape Town using Biomass

-- Insert Data into EnergyProduction

INSERT INTO EnergyProduction (RegionID, EnergySourceID, ProductionAmount, Date) VALUES

(1, 1, 4000, '2024-08-01'), -- Nairobi producing Solar energy

(2, 2, 2500, '2024-08-01'), -- Addis Ababa producing Wind energy

(3, 3, 1800, '2024-08-01'), -- Dar es Salaam producing Hydropower

(4, 4, 12000, '2024-08-01'), -- Lagos producing Geothermal energy

(5, 5, 8000, '2024-08-01'); -- Cape Town producing Biomass energy