

INFORM. INSPIRE. DEVELOP CIVIC LEADERS.

THE POLICY CIRCLE

ENERGY & ENVIRONMENT



➤ WHY ENERGY MATTERS ◀

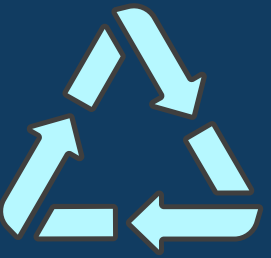
TO MEET THE DEMANDS OF A GROWING SOCIETY ALWAYS IN MOTION, WE NEED ENERGY SOURCES THAT ARE RELIABLE, RESILIENT, AFFORDABLE, AND NOT TAXING ON THE ENVIRONMENT.

WE WANT POWER WHEN WE NEED IT, WITHOUT PRICES BEING A DETERRENT. BUT WE ALSO WANT TO BE GOOD STEWARDS OF OUR ENVIRONMENT.

IN THE FACE OF EXTREME WEATHER EVENTS, A CRUCIAL QUESTION IS HOW TO STRUCTURE POWER MARKETS FOR THE 21ST CENTURY TO FIND A BALANCE OF THESE NEEDS.



➤ FACTS TO KNOW ◀



IN 2019, U.S. ENERGY PRODUCTION EXCEEDED CONSUMPTION FOR THE FIRST TIME SINCE 1957. FOSSIL FUELS ACCOUNTED FOR 79% OF U.S. ENERGY PRODUCTION IN 2020 (36% NATURAL GAS, 32% PETROLEUM, 11% COAL). RENEWABLE ENERGY ACCOUNTED FOR 12% AND NUCLEAR POWER ACCOUNTED FOR 9%.

THE U.S. ELECTRIC GRID CONNECTS 9,000 ELECTRICITY PRODUCERS TO MILLIONS OF CONSUMERS THROUGH SIX MILLION MILES OF TRANSMISSION LINES MANAGED BY MORE THAN 3,000 DIFFERENT PRIVATE AND PUBLIC ORGANIZATIONS. SOME PARTS OF THE GRID WERE BUILT IN - AND HAVE NOT BEEN UPDATED SINCE - THE 1950S.

THE AVERAGE U.S. CITIZEN GENERATES 100KG OF PLASTIC WASTE PER YEAR, MOST OF WHICH GOES STRAIGHT TO A LANDFILL. LESS THAN 10% OF PLASTIC IS MECHANICALLY RECYCLED MORE THAN ONCE. AS OF 2021, MORE THAN 8.3 BILLION METRIC TONS OF PLASTIC MATERIAL HAVE BEEN PRODUCED.

CHINA IS THE BIGGEST EMITTER, ACCOUNTING FOR 28% OF GLOBAL EMISSIONS ANNUALLY. THE U.S. IS SECOND, ACCOUNTING FOR 15% OF GLOBAL EMISSIONS. WHEN MEASURED IN TERMS OF PER CAPITA EMISSIONS, SAUDI ARABIA IS THE HIGHEST (18.48 METRIC TONS PER PERSON). THE U.S. RANKS FOURTH WITH 16.56 METRIC TONS PER PERSON.



➤ GOVERNMENT SPENDING ◀



MOST FEDERAL AGENCIES' ENERGY AND ENVIRONMENT SPENDING IS IN THE FORM OF RESEARCH AND GRANTS. THE ENVIRONMENTAL PROTECTION AGENCY'S BUDGET IS APPROXIMATELY \$4 BILLION, AND THE DEPARTMENT OF ENERGY'S LOAN PROGRAMS OFFICE HAS A PROJECTED BUDGET OF \$40 BILLION.

TO MEET GLOBAL ENERGY DEMAND, INVESTMENTS IN CLEAN ENERGY AND RENEWABLE SOURCES "WOULD NEED TO GROW FROM AROUND \$1.1 TRILLION IN 2021 TO \$3.4 TRILLION A YEAR UNTIL 2030."

TOTAL U.S. FOSSIL FUELS SUBSIDIES IN 2018 AMOUNTED TO \$529 BILLION: \$198 BILLION FOR GASOLINE, \$149 BILLION FOR COAL, \$126 BILLION FOR NATURAL GAS, AND \$119 BILLION FOR DIESEL. THIS INCLUDES EXTERNAL COSTS SUCH AS ADVERSE HEALTH EFFECTS AND FOREGONE GOVERNMENT REVENUE FROM INEFFICIENT PRICING AND WEAR AND TEAR ON ROADS.

BETWEEN 2005 AND 2015, THE FEDERAL GOVERNMENT IS ESTIMATED TO HAVE SPENT \$51.2 BILLION ON INCENTIVES FOR SOLAR AND WIND, 90% OF WHICH (\$45.8B) CAME FROM TAX INCENTIVES. IN 2016, THE FEDERAL GOVERNMENT SPENT \$11 BILLION ON RENEWABLE ENERGY SUBSIDIES AND \$3 BILLION ON ENERGY EFFICIENCY SUBSIDIES



➤ FRAMING THE ISSUE ◀



OIL AND GAS CONSUMPTION ACCOUNTS FOR ROUGHLY HALF OF HUMAN-GENERATED EMISSIONS AND CAN CAUSE OTHER ENVIRONMENTAL AND ECONOMIC DAMAGES, SUCH AS OIL SPILLS. ON THE OTHER HAND, ENERGY PRICE SHOCKS SHOW RENEWABLE ENERGY CANNOT YET FULLY MEET GLOBAL ENERGY DEMANDS, AND DERIVATIVE PRODUCTS OF OIL SUCH AS PLASTICS ARE "PERVASIVE AND INTEGRAL TO OUR MODERN LIFESTYLES.

THE U.S. ELECTRIC GRID NEEDS NECESSARY UPGRADES TO MEET MODERN DEMAND. ONE IDEA IS A MORE CONNECTED SYSTEM TO INCREASE ENERGY SECURITY, SO WIND IN WYOMING AND SUN IN CALIFORNIA CAN SEND POWER ACROSS THE COUNTRY. THOSE IN FAVOR OF A DECENTRALIZED SYSTEM ARGUE LOCAL ENERGY SOURCES LIKE SOLAR PANELS AND BATTERIES WOULD BE MORE RESILIENT AND EASIER TO BUILD.

COUNTRIES LEADING ACTION AGAINST CLIMATE CHANGE ARE CONCERNED BY ENVIRONMENTAL REGULATIONS BECAUSE THEY MAY PUT DOMESTIC PRODUCERS AT A COMPETITIVE DISADVANTAGE IN THE GLOBAL ECONOMY BY INCREASING COMPLIANCE COSTS. OTHERS ARGUE THAT SUCH POLICIES WILL FOSTER INNOVATION, WHICH COULD BOOST COMPETITIVENESS.

MANY BELIEVE GOVERNMENT TAX INCENTIVES AND SUBSIDIES ARE NEEDED TO BRING DOWN THE COST OF RENEWABLE ENERGY SOURCES SO THEY CAN COMPETE WITH FOSSIL FUELS. OTHERS ARGUE THESE ENERGY SOURCES ARE COMPETITIVE ENOUGH, AND SUBSIDIES SHOULD BE FOR NEW TECHNOLOGY, BUT WHAT TECHNOLOGIES GET SUBSIDIES TENDS TO BE DRIVEN BY POLITICS RATHER THAN SCIENCE, WHICH CAN LEAD TO MISALLOCATION OF RESOURCES.

➤ SOLUTIONS ◀

MORE THAN 25% OF GLOBAL EMISSIONS COME FROM FORESTRY, AGRICULTURE, AND LAND-USE CHANGES. CONSERVATION, RESTORATION, AND LAND MANAGEMENT SUCH AS PLANTING TREES TO ABSORB CARBON, CHANGING LIVESTOCK FEED TO REDUCE EMISSIONS, AND ADVANCED AGRICULTURAL TECHNIQUES TO SAVE WATER AND PRESERVE SOIL CAN ALL MAKE A DIFFERENCE.

INNOVATION IS KEY. WHEN ABANDONED OFFSHORE OIL RIGS ARE CONVERTED INTO REEFS, THEY AID MARINE ECOSYSTEMS. NEW TECHNOLOGIES SUCH AS PLASTIC THAT CAN BE INDEFINITELY RECYCLED AND BATTERIES MADE OF MATERIAL OTHER THAN LITHIUM-ION ALSO HAVE THE POTENTIAL TO TRANSFORM MODERN LIFESTYLES.

MANY COMPANIES ARE RESPONDING TO SOCIAL, ECONOMIC, AND POLITICAL REALITIES; THEY PUBLISH SUSTAINABILITY AND CORPORATE RESPONSIBILITY REPORTS, ALTHOUGH QUALITY AND BREADTH OF DATA VARIES. GUIDELINES ON SUSTAINABILITY REPORTING TO STANDARDIZE CAN HELP COMPANIES STAY IN GOOD STANDING AND MAKE TRANSFORMATIVE INNOVATIONS.

➤ WHAT YOU CAN DO ◀

MEASURE -

HOW MUCH ENERGY IS CONSUMED AND PRODUCED IN YOUR STATE? DOES YOUR STATE HAVE ENVIRONMENTAL REGULATIONS? ARE THERE PROGRAMS FOR CITIZENS TO BE ENVIRONMENTALLY CONSCIOUS?



IDENTIFY -

WHO IS IN CHARGE OF THE ENVIRONMENTAL COUNCIL IN YOUR STATE OR CITY? WHAT STEPS HAVE YOUR STATE'S OR COMMUNITY'S ELECTED AND APPOINTED OFFICIALS TAKEN?



PLAN -

SET MILESTONES BASED ON YOUR STATE'S LEGISLATIVE CALENDAR OR LOCAL COMMUNITY CALENDAR.

REACH OUT -

FOSTER COLLABORATIVE RELATIONSHIPS WITH COMMUNITY ORGANIZATIONS, SCHOOL BOARDS, LOCAL BUSINESSES, AND OTHER COMMUNITY MEMBERS.



EXECUTE -

LOOK AT YOUR ENERGY OR POWER BILL - DO YOU UNDERSTAND THE COMPONENTS AND FINAL COST? PICK AN ENERGY OR ENVIRONMENT TOPIC AND FOLLOW IT - INVESTIGATE THE TOPIC IN YOUR COMMUNITY, WHO THE MAJOR PLAYERS ARE, IF THERE HAS BEEN RECENT LEGISLATION, AND WHAT COMMUNITY ENGAGEMENT EXISTS.

