

Current Issue 2024:

**Renewable Energy for a
Sustainable Future**





There will be 5 Key Topics Covered

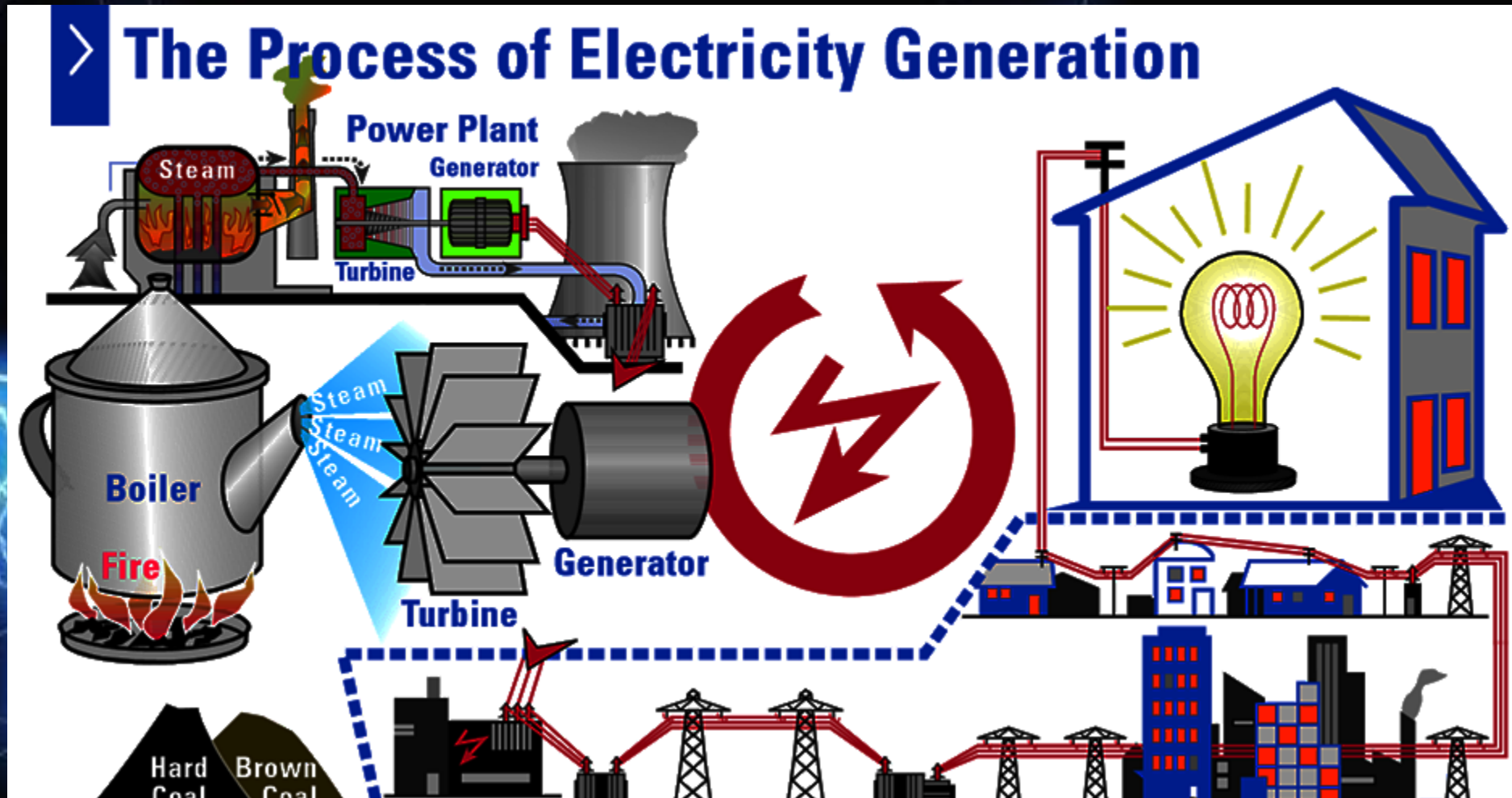
- Traditional Non- renewable Energy Sources
- Renewable and Alternative Energy sources
- Technological Advancements and Transition Challenges
- Changing roles and responsibilities in the making energy decisions
- Vulnerabilities and Opportunities



Key Topic 1:

Traditional Non-renewable Energy Sources

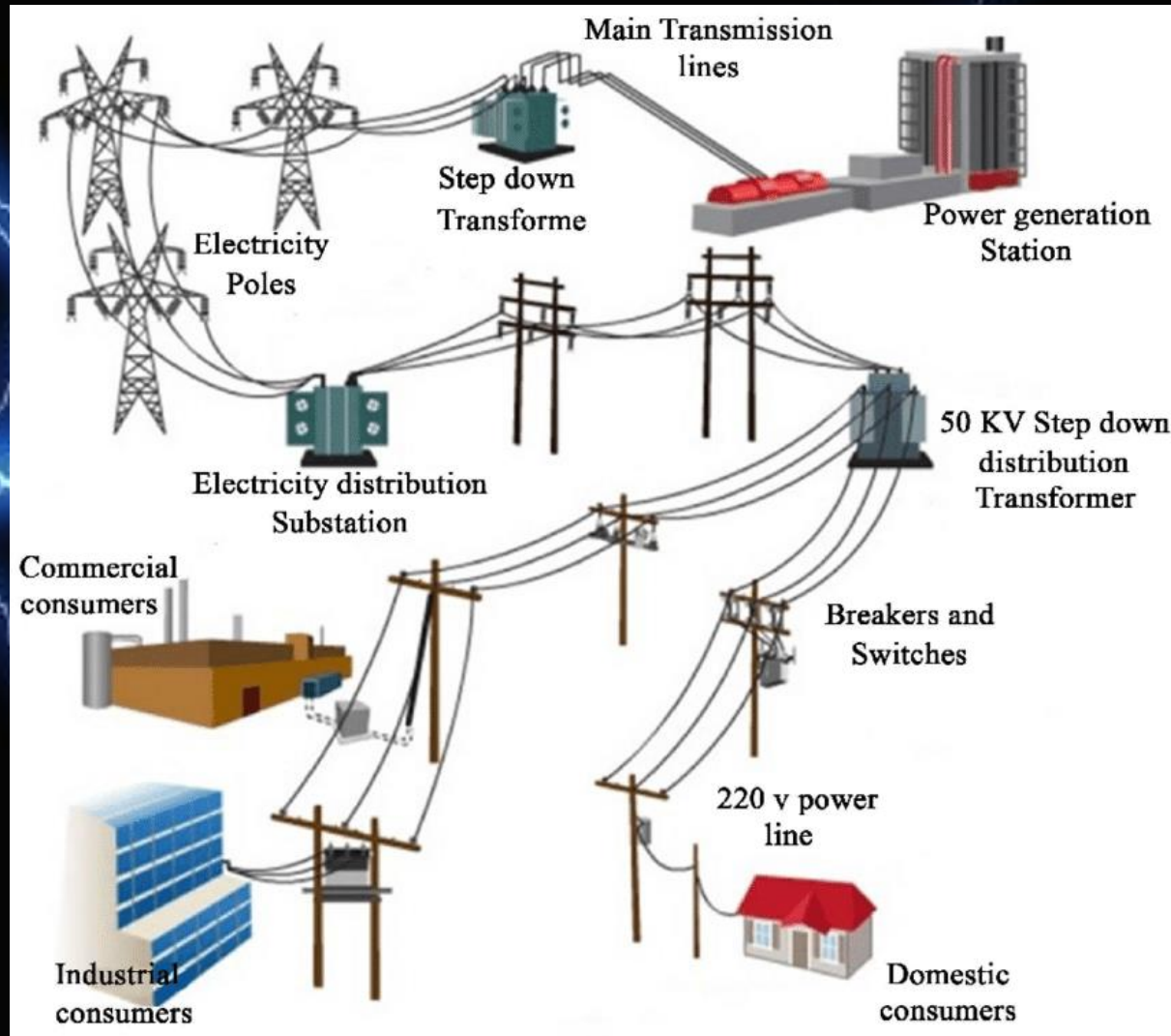
1. Explain how Oil, Natural Gas and Coal Systems Generate Electricity and Potential Issues with Expanding production to meet future needs.



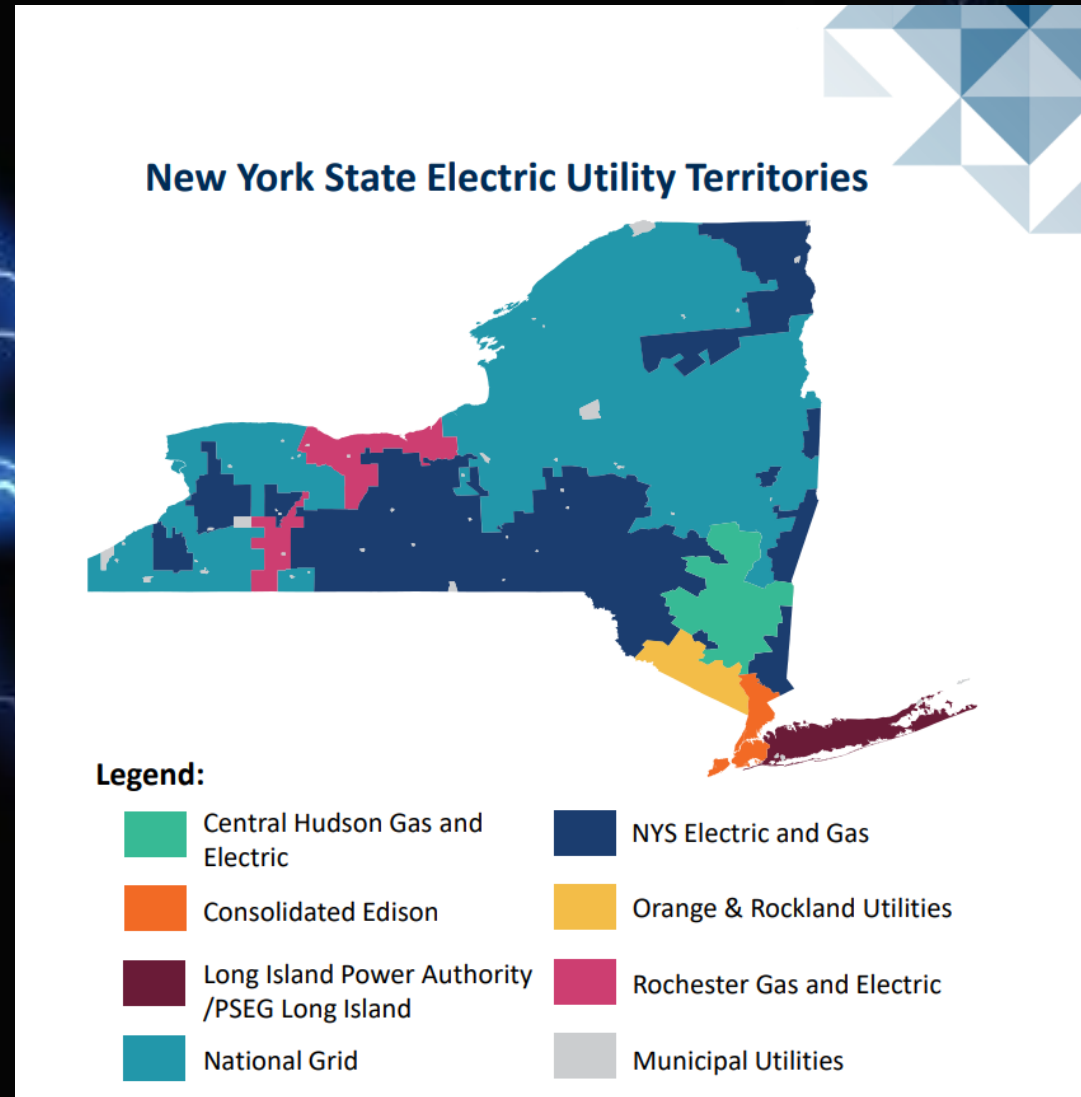
2. Identify the environmental, social, and economic, advantages and disadvantages of each source, including short-term impacts.



3. Explain the setup and design of traditional energy infrastructure and distribution systems.



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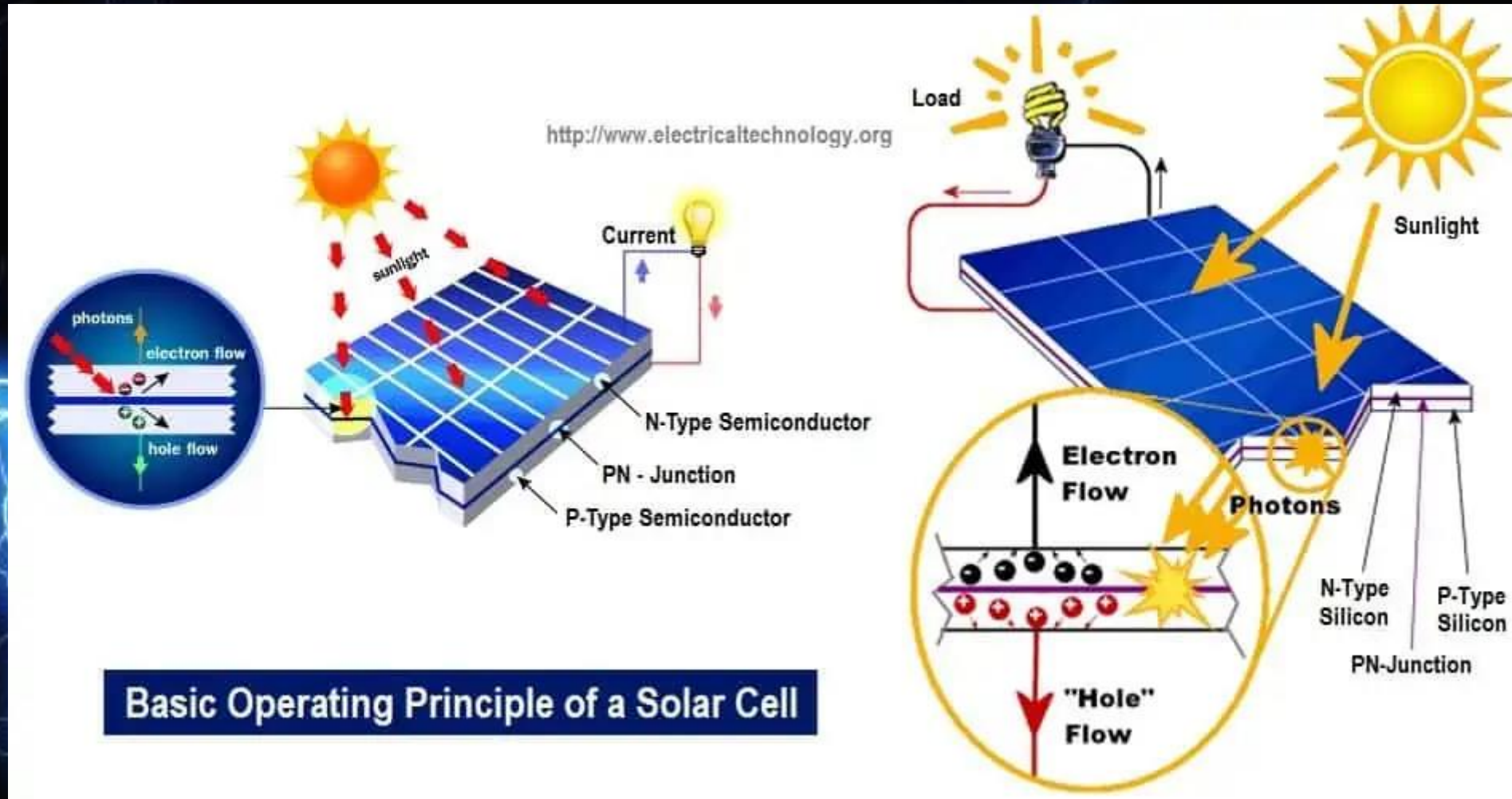


The background of the slide features a dynamic and energetic pattern of blue lightning bolts. The bolts are bright and jagged, with a central, thicker bolt running horizontally across the middle of the frame. Numerous smaller, thinner bolts branch off from this central bolt, creating a complex, web-like structure that fills the entire dark background. The overall effect is one of raw power and energy.

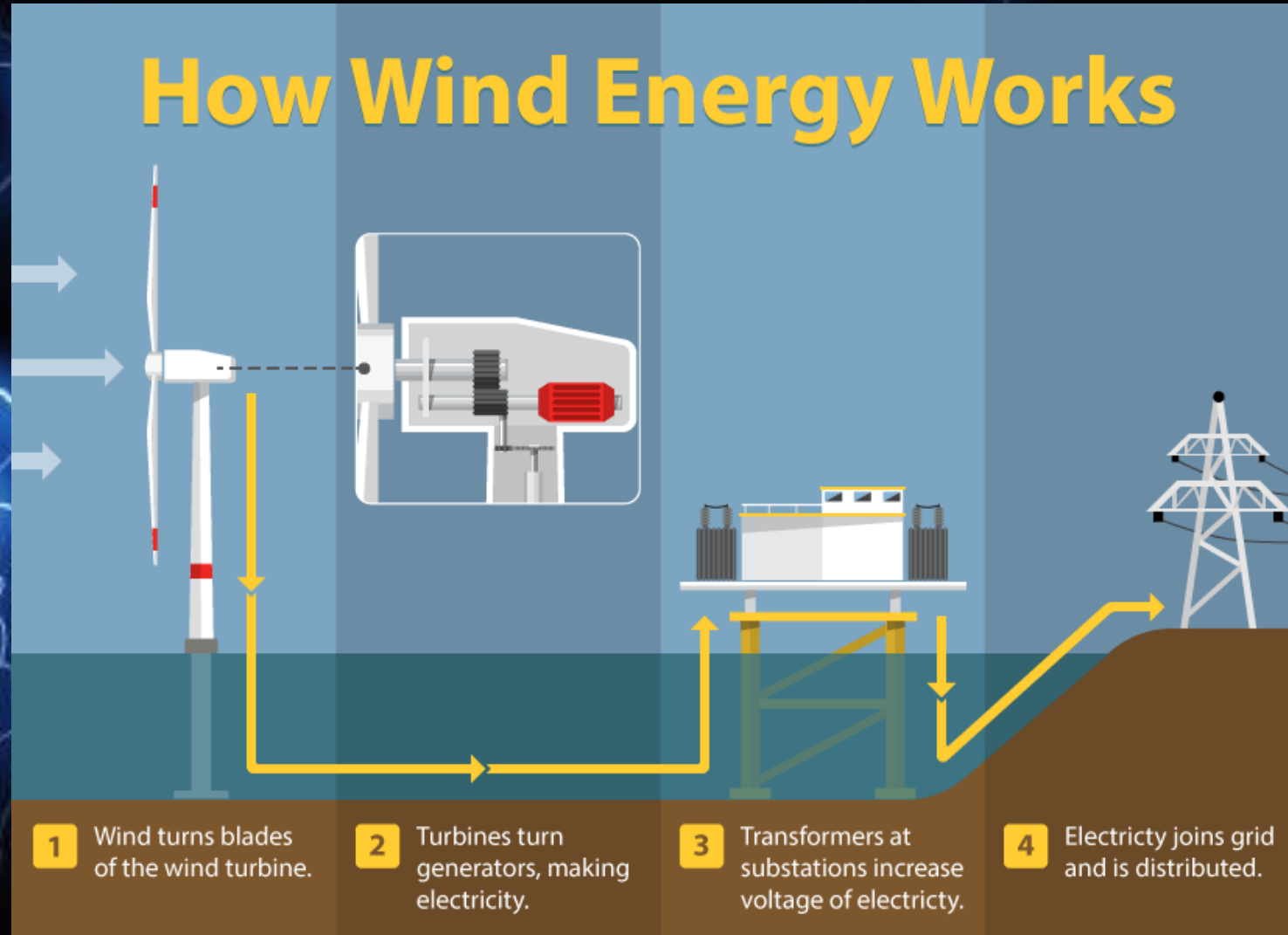
Key Topic 2:

Renewable and Alternative Energy Sources

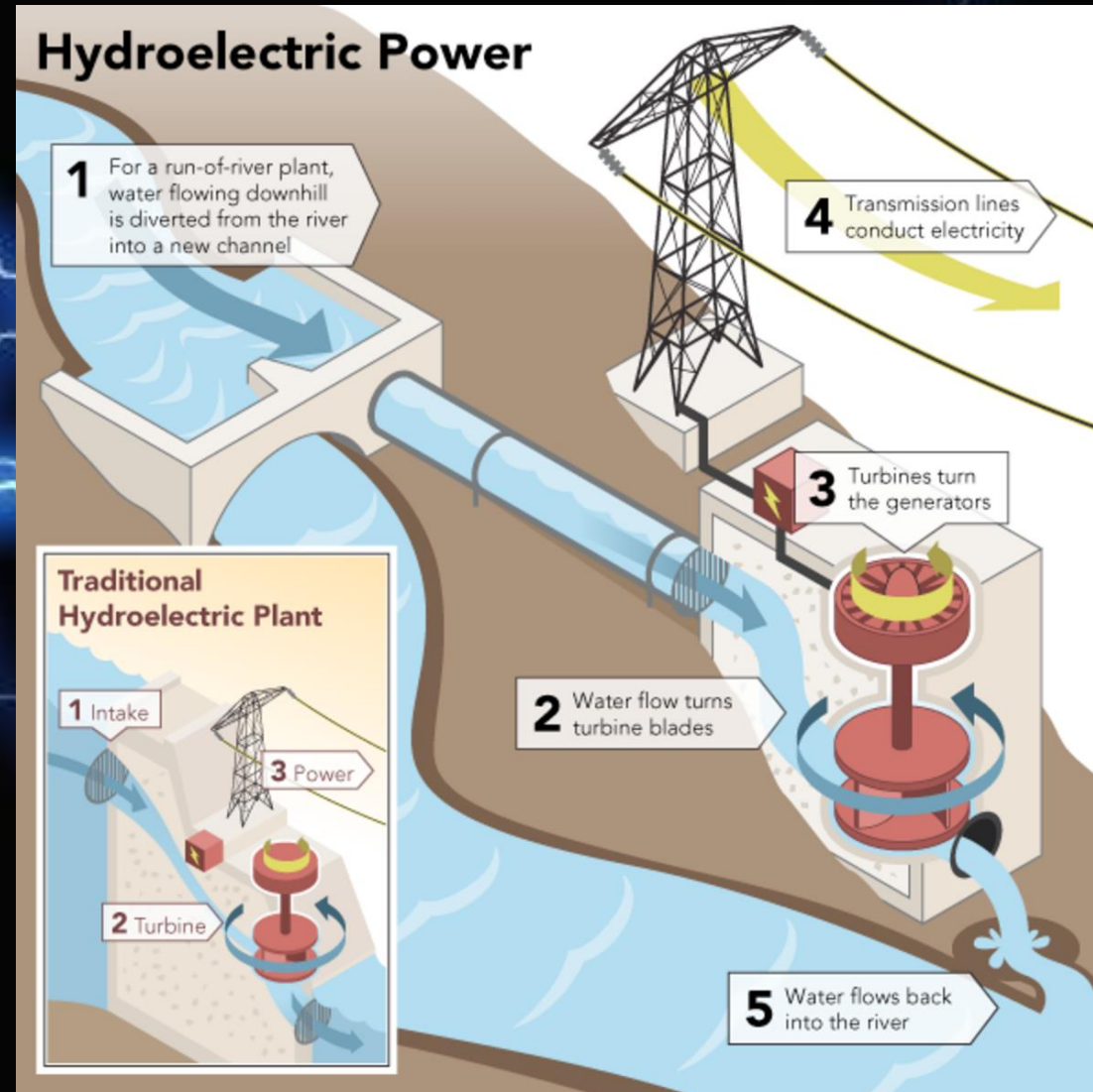
4. Explain how Solar, Wind and Hydroelectric systems generate electricity and potential issues with expanding production to meet future needs.



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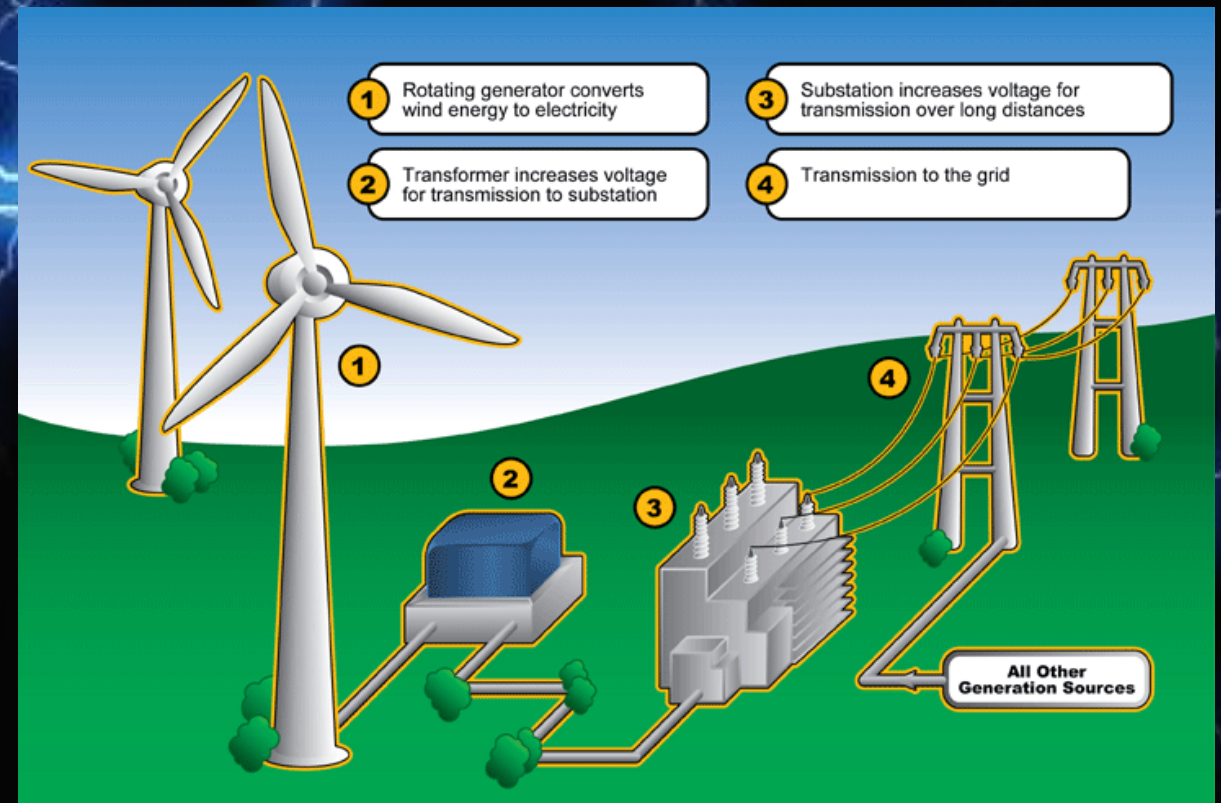
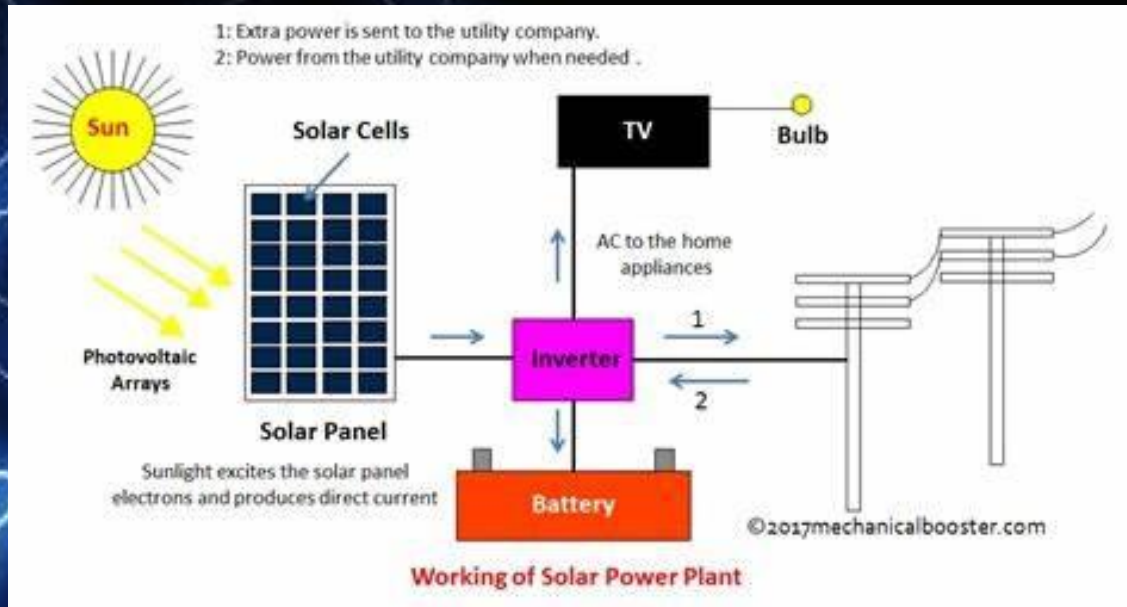


5. Identify the environmental, social, and economic advantages and disadvantages of each source, including short-term and long-term impacts.



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6. Explain the setup and design of renewable/alternative energy infrastructure and distribution systems.

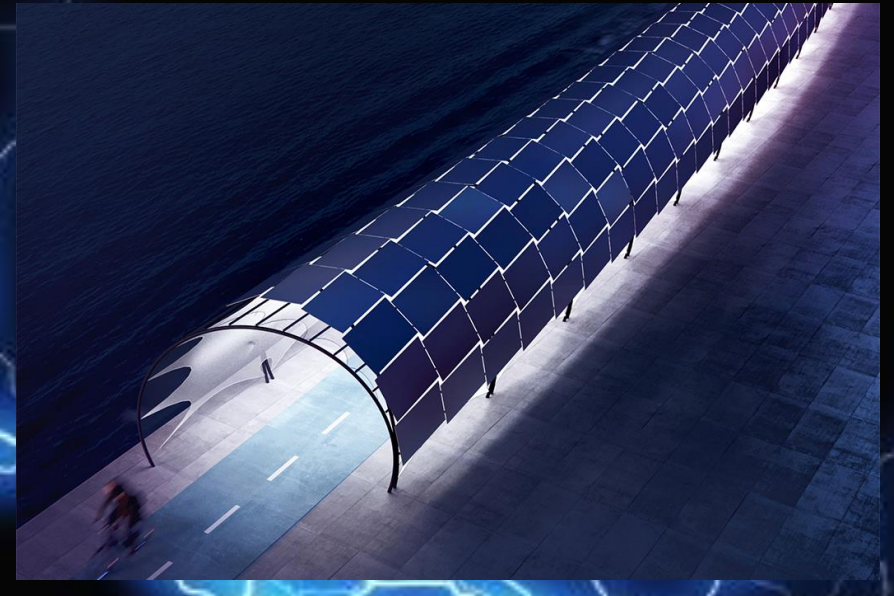


Key Topic 3:

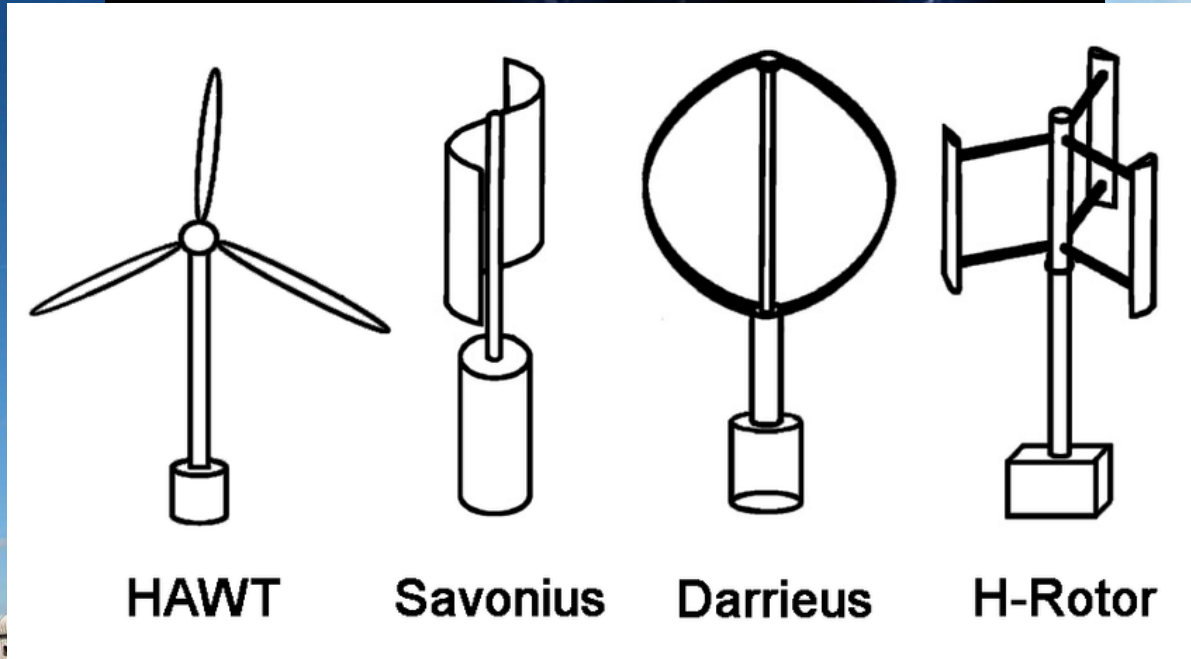
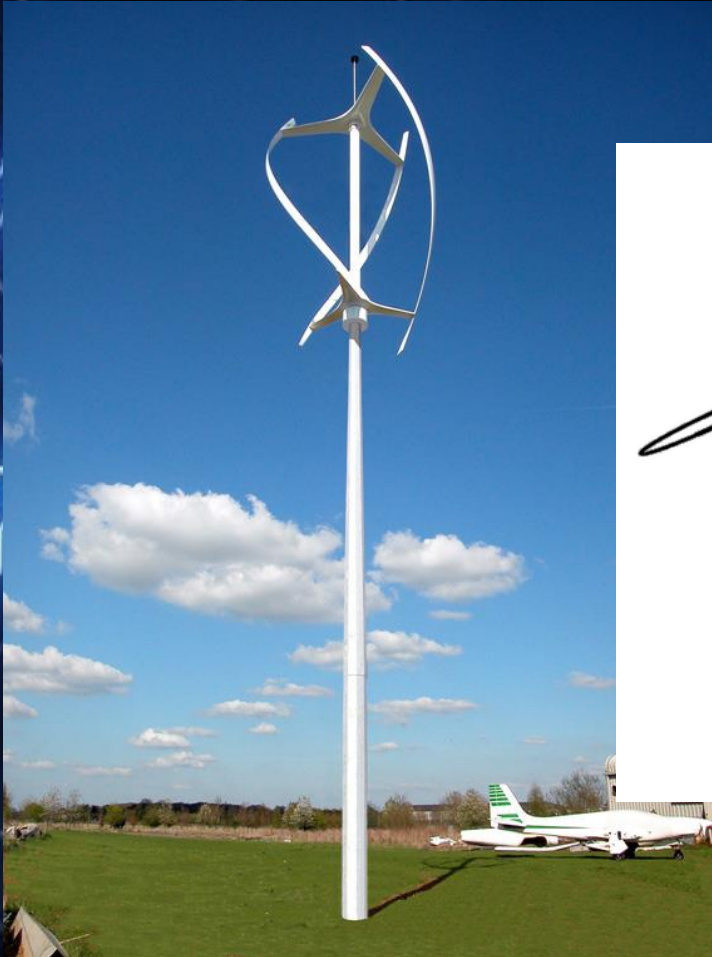
Technological Advancement and Transition Challenges



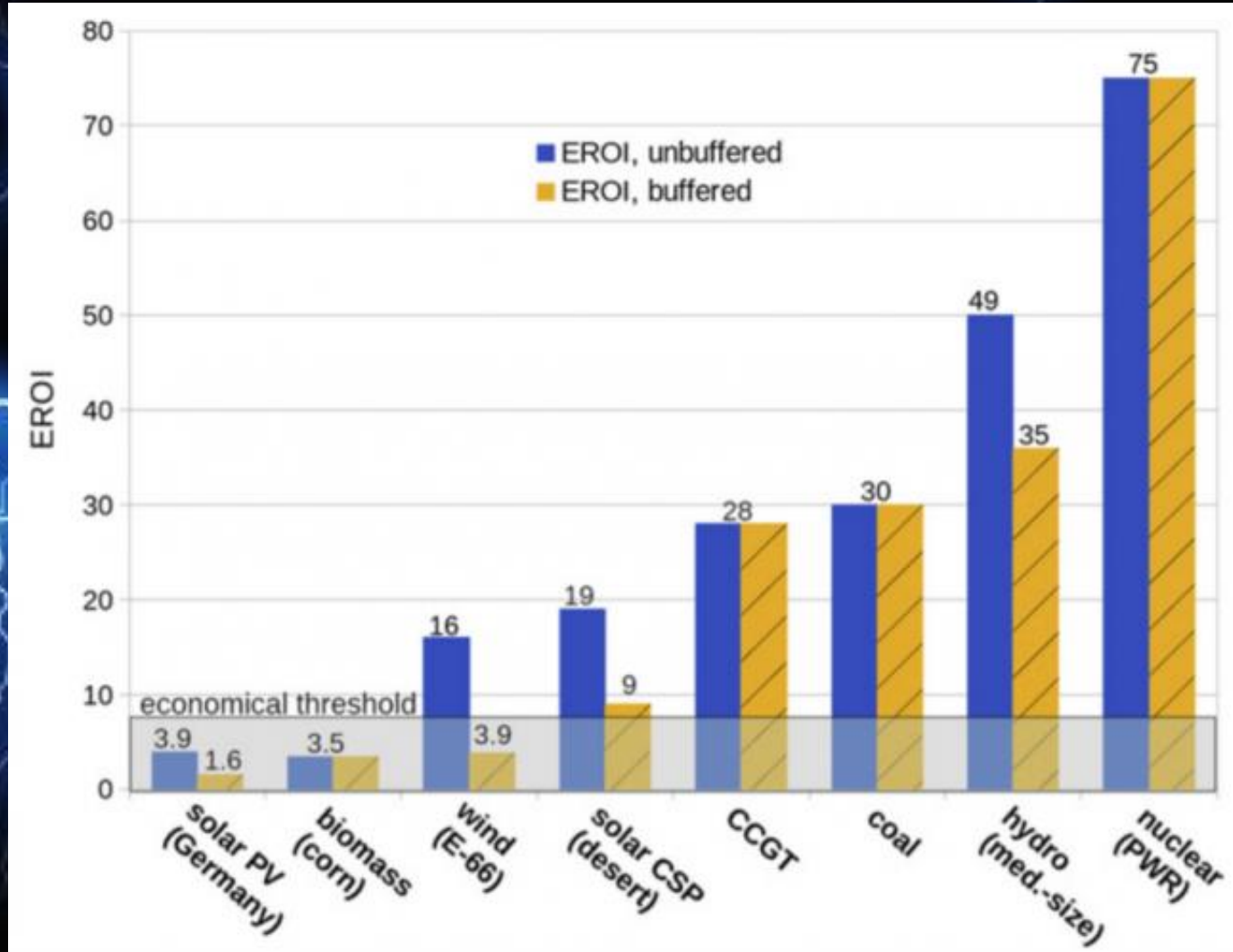
7. Describe recent technological advancements within the solar, wind and hydroelectric energy fields including infrastructure and distribution systems.



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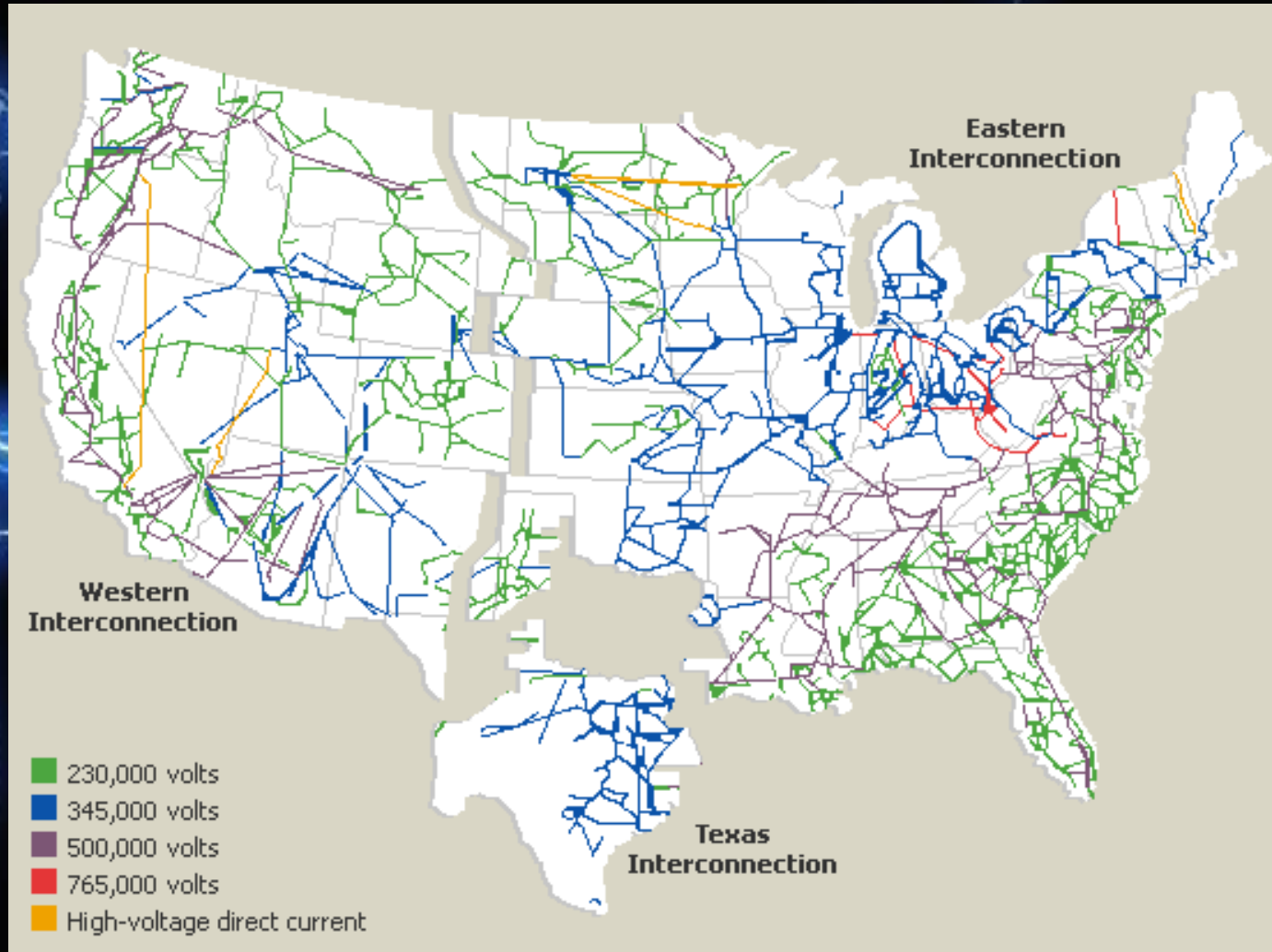


8. Describe the challenges associated with transitioning to renewable/alternative energy sources.

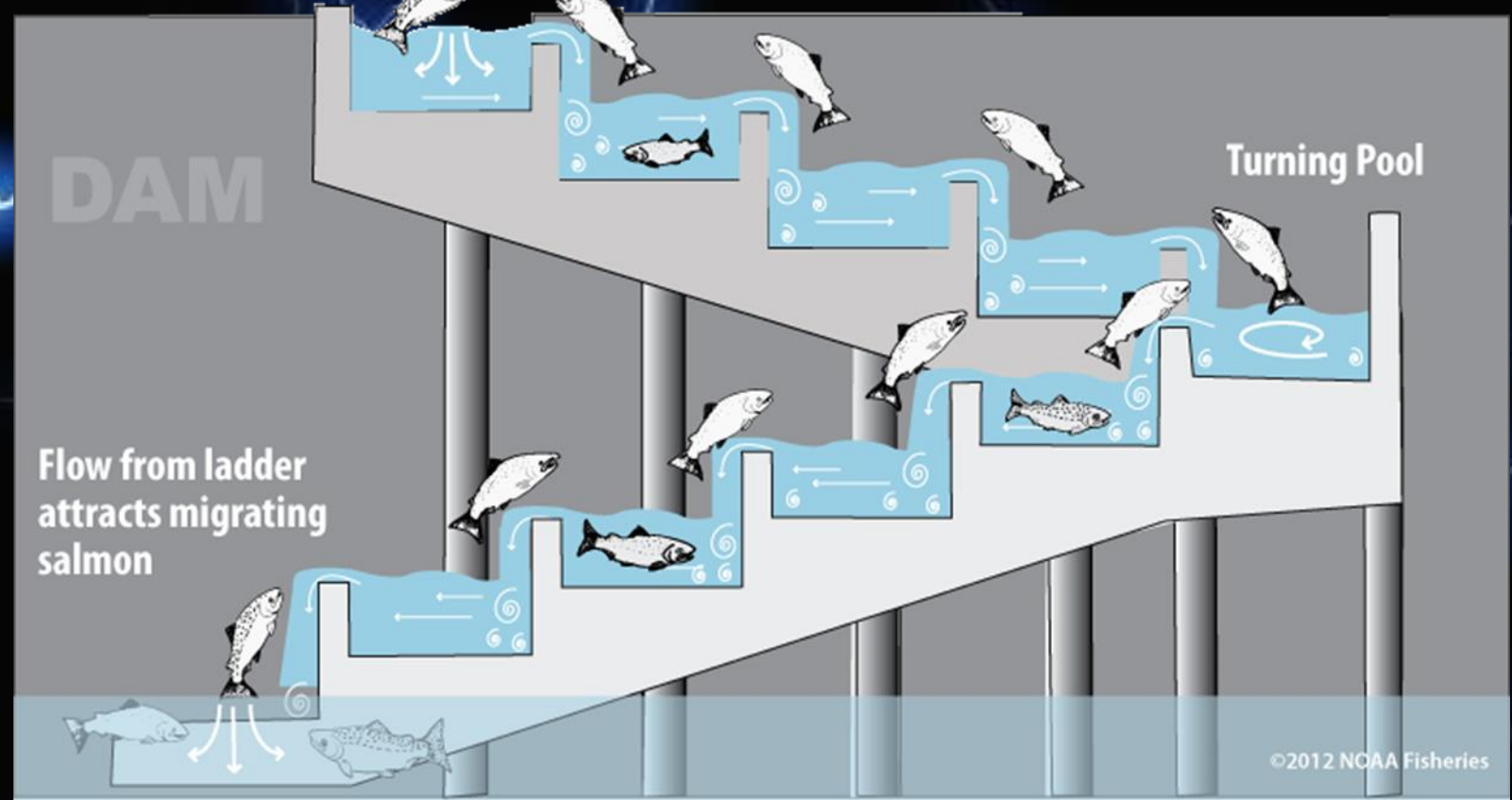


Buffer – With Storage
Unbuffered – Without Storage

8. Describe the challenges associated with transitioning to renewable/alternative energy sources.



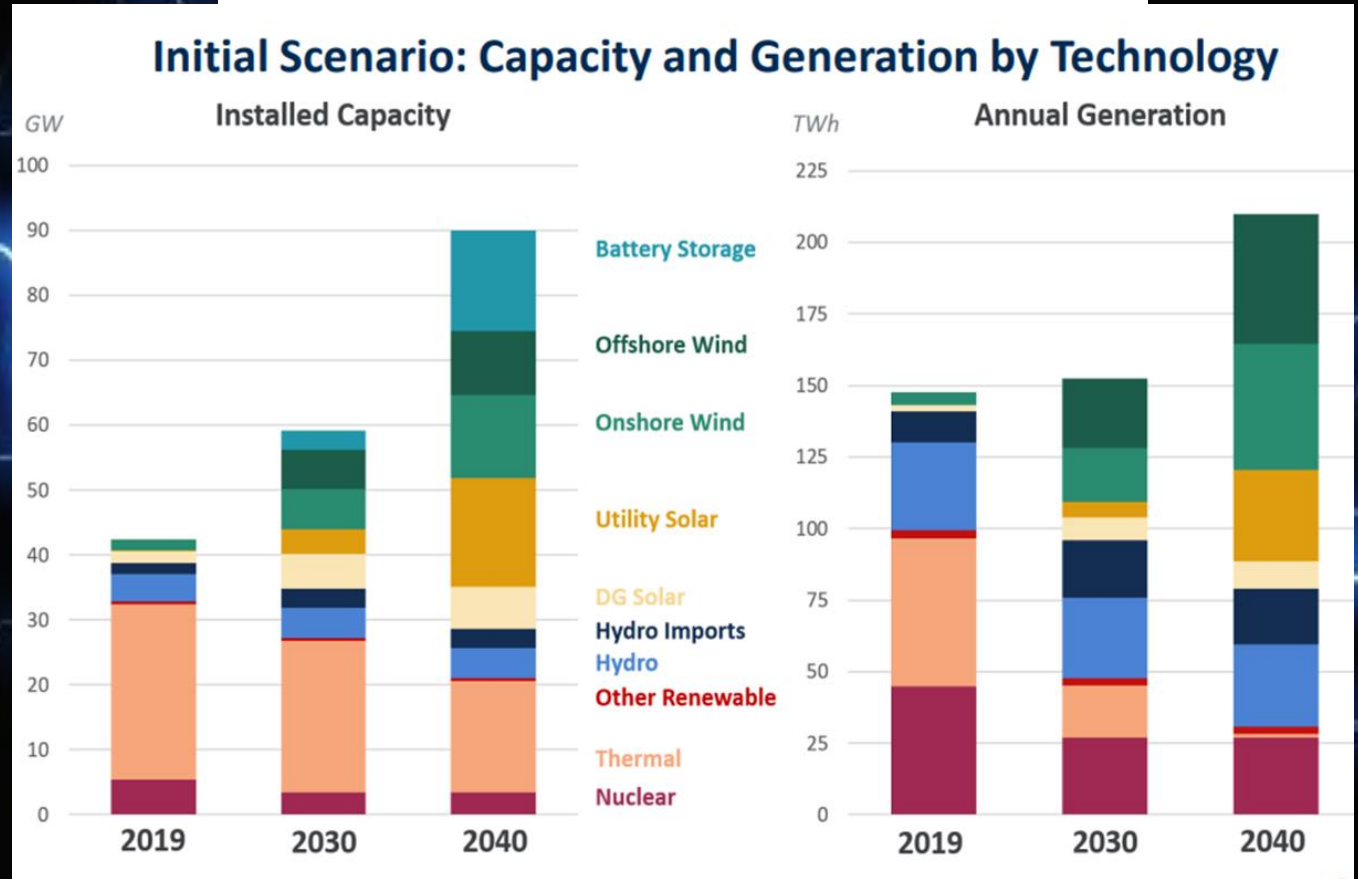
9. Identify solutions to the challenges associated with renewable/alternative energy, including environmental, social, and economic incentives.



Key Topic 4:

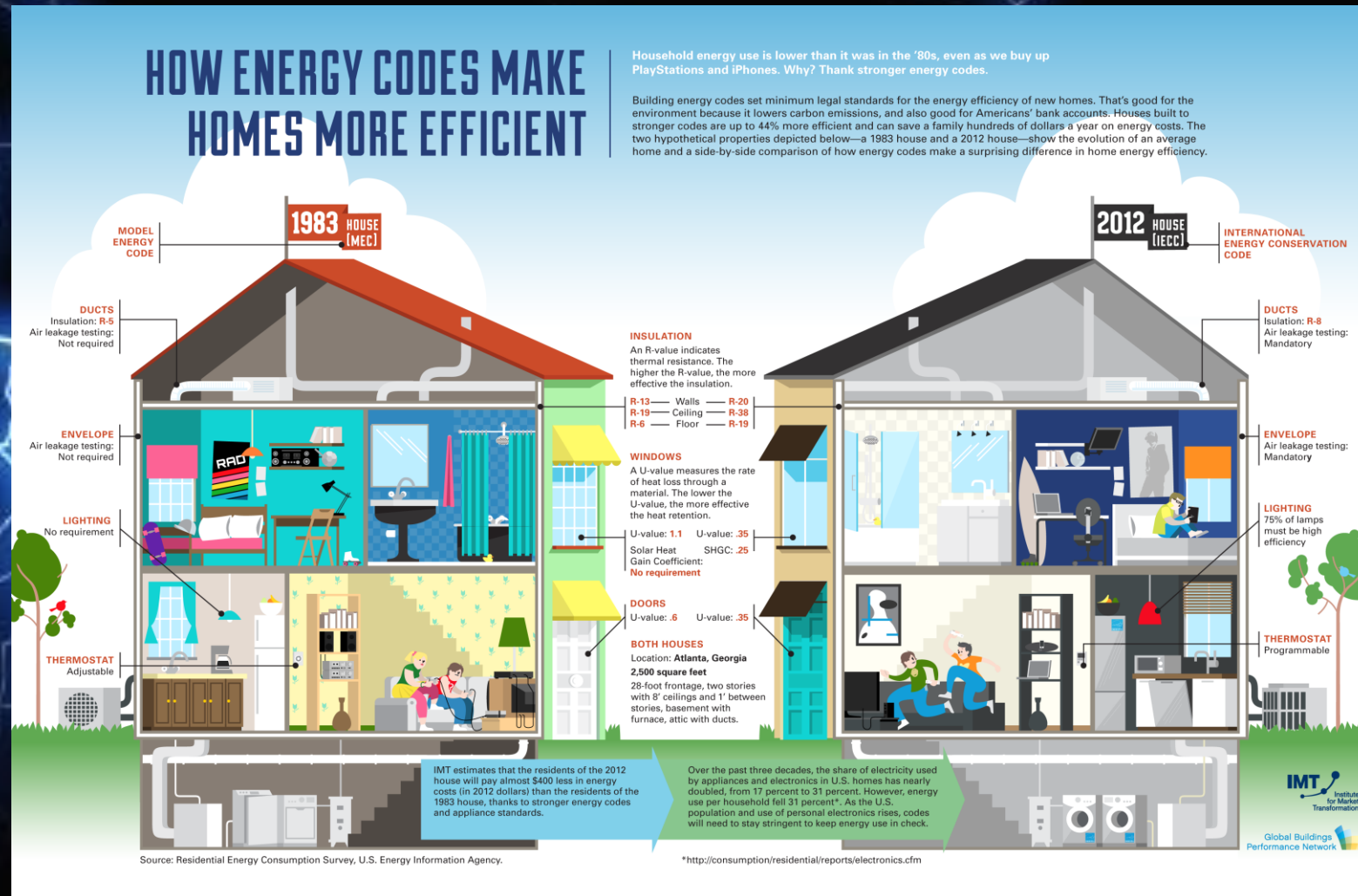
Changing roles and responsibilities in making energy decisions

10. Describe how energy regulations are created at the local, state/provincial, and international levels and how these regulations impact producers and consumers.



<https://www.epa.gov/climate-change/climate-change-regulatory-actions-and-initiatives>

10. Describe how energy regulations are created at the local, state/provincial, and international levels and how these regulations impact producers and consumers.



11. Identify what energy use decisions can be made on an individual/household level.

Saving Energy in Every Room



Attic

If you see attic ceiling joists, add insulation. Additional 3-12" can cut heating costs by 20% and cooling costs by 10% (Department of Energy).

Reduce incoming drafts and outgoing temperature-controlled air by installing inexpensive foam outlet gaskets and spring-loaded outlet covers.

Home Office

Plug multiple electronics into a smart power strip with programmable timer or motion detector.

Bedroom

Set ceiling fan direction to clockwise in winter to draw up cold air; counter-clockwise in warm months.

Bathroom

Switch to 10-minute showers and change to a low-flow showerhead of -2.5 gallons per minute.

Use the self-cleaning feature right after cooking to take advantage of residual heat.

Garage

Install weatherstripping around the garage door; attach fiberglass duct wrap or foamed insulation panels inside.

Living Room

Use a programmable thermostat to adjust temps 10-15 degrees while you are away or sleeping.

Kitchen

Move oven rack closer to heating unit to cut cooking time up to 20%. Get new seal on refrigerator door.

Basement

Seal small gaps with caulk, fill holes with spray foam, and cover large holes with spray foam and foamboard.



10 MONEY-SAVING TIPS FOR AROUND THE HOME



1 CLEAN THE BACK OF THE FRIDGE FOR MAXIMUM EFFICIENCY



2 REPLACE THE A/C FILTER EVERY 30 DAYS



3 CLEAN THE DRYER VENT HOSE



4 INSTALL A PROGRAMMABLE THERMOSTAT



5 CLOSE CLOSET/ROOM DOORS TO AVOID HEATING AND COOLING UNUSED SPACE



6 REPLACE REGULAR BULBS FOR LED LIGHT BULBS



7 LOWER WATER HEATER TEMPERATURE



8 ADD INSULATION OR RADIANT SHIELD TO YOUR ATTIC

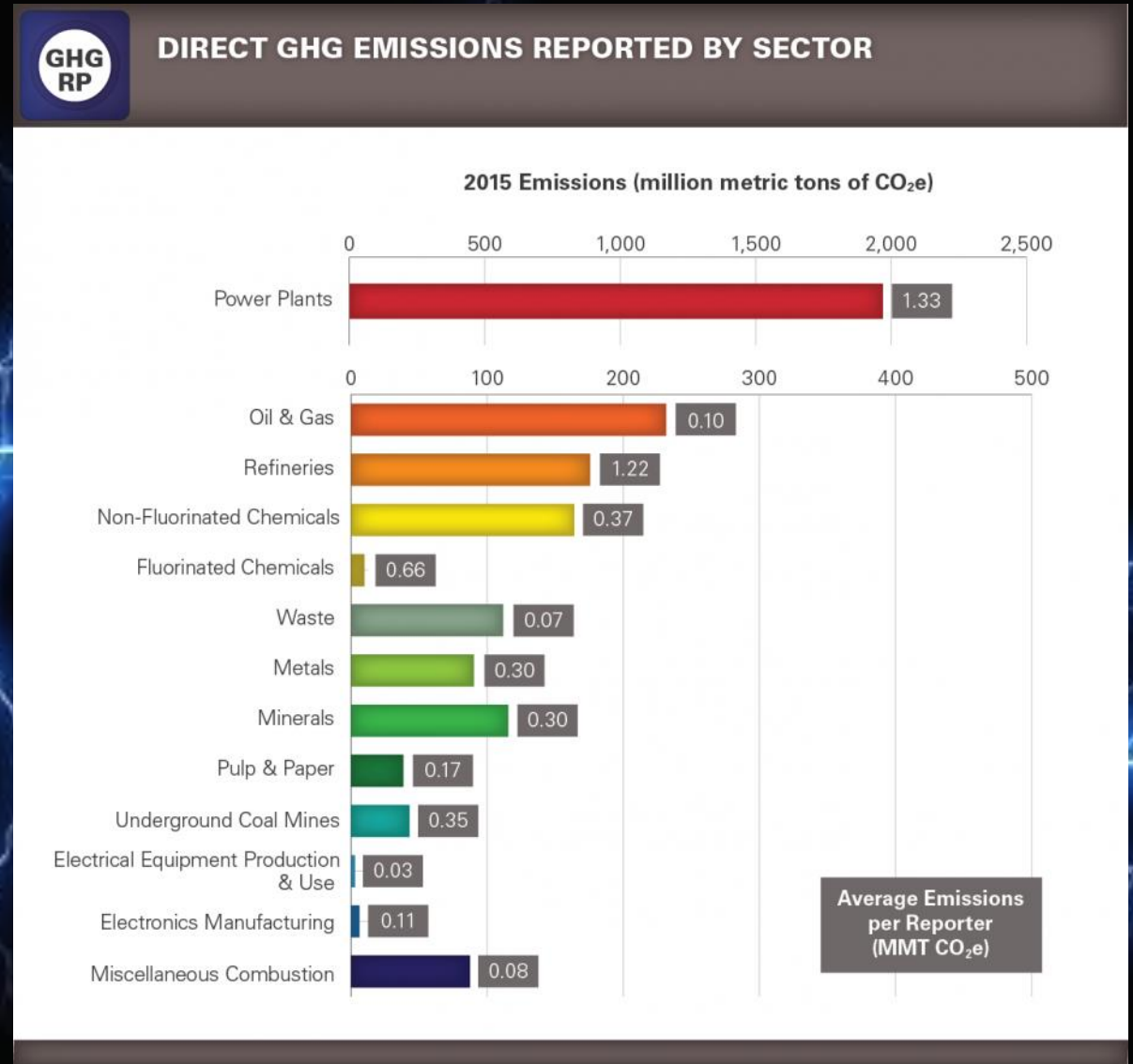


9 UNPLUG UNUSED ELECTRIC DEVICES



10 USE BLINDS OR CURTAINS TO ELIMINATE SOLAR HEAT IN THE SUMMER

12. Explain the accountability process for pollution/emissions related to energy generation and distribution at the local, state/provincial, and international levels.



13. Describe how financial incentive programs work in the green energy space and explain the socioeconomic and environmental impacts of carbon offset credits, renewable energy credits, and other trade-off programs.



Renewable Energy Financial Incentives

 **State and Local Tax Incentives**

Examples:

- Investment Tax Credit (ITC)
- Renewable Electricity Production Tax Credit (PTC)
- Modified Accelerated Cost-Recovery System

 **Renewable Energy Certificates (RECs):**

Examples:

- ENERGY STAR Certification for Buildings
- ENERGY STAR NextGen Certification for Buildings
- ENERGY STAR Tenant Space

 **Grants and Rebates:**

Examples:

- Commercial Light Fixtures
- Commercial Water Heaters
- Heating and Cooling Upgrades

 **Green Bonds**

Largest Issuers:

- Wells Fargo
- Bank of America
- Duke Energy
- Fannie Mae



Key Topic 5:

Vulnerabilities and Opportunities



14. Identify vulnerabilities inherent with an increased demand for alternative energy sources: (such as weather conditions, Solar flares, human disruption).

U.S. Climate Extremes Index (CEI)

Introduction Data Used Definition **Graph** Regional Overview References

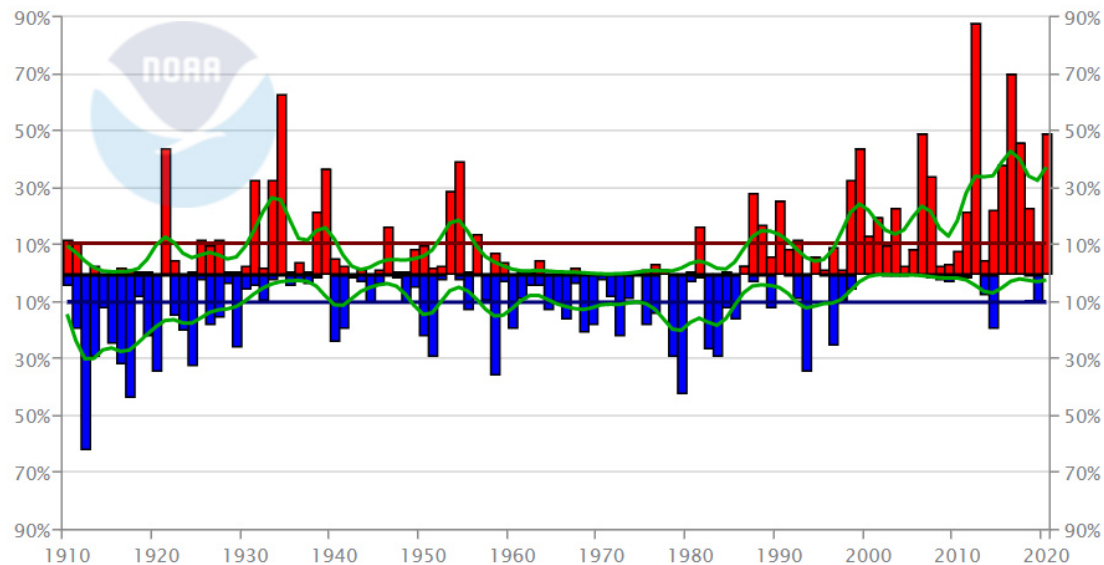
Region: Contiguous U.S.

Period: Annual (January-December)

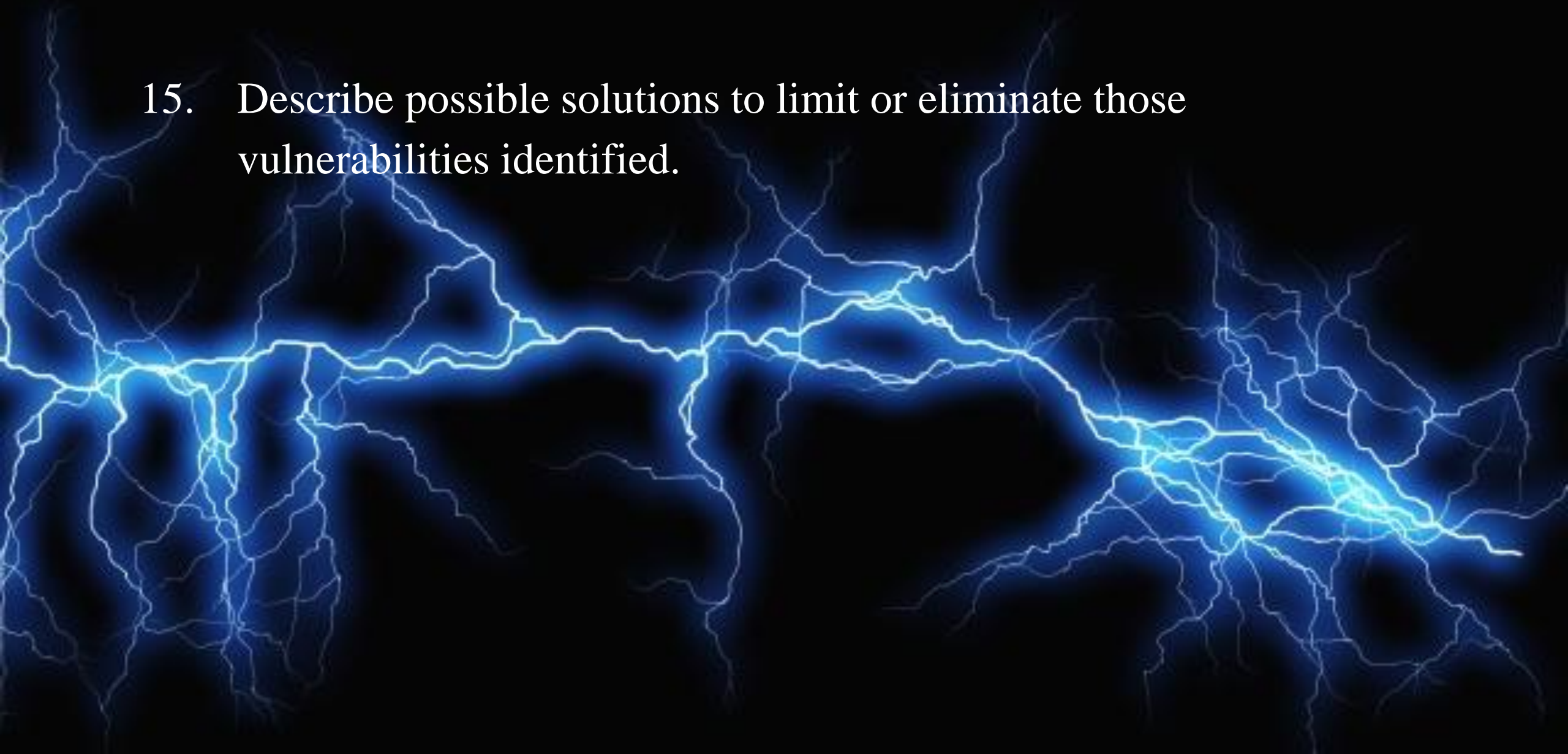
Indicator: Extremes in Maximum Temperature (Step 1)

Plot

Contiguous U.S. Extremes in Maximum Temperature (Step 1)
Annual (January-December)

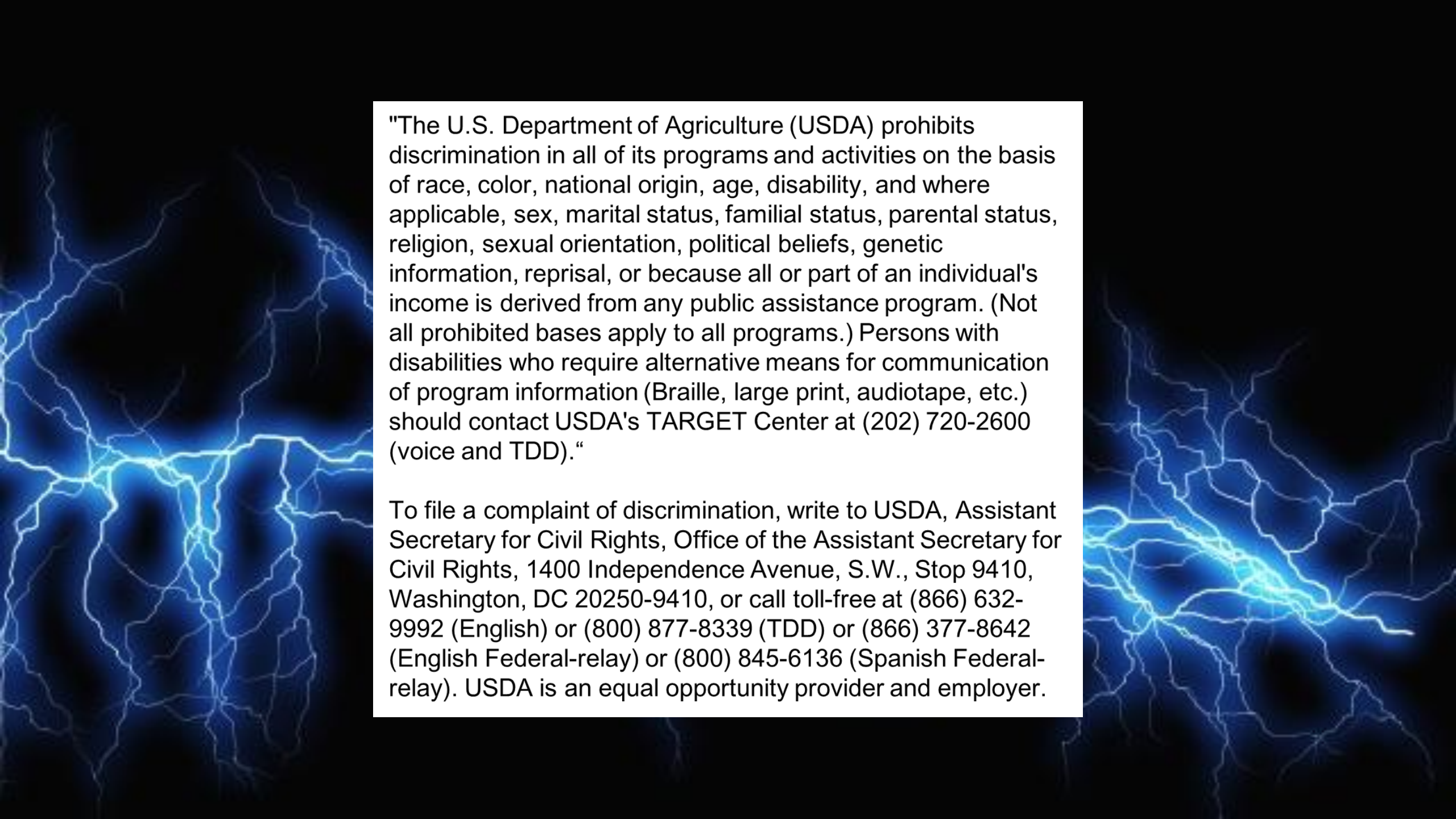


15. Describe possible solutions to limit or eliminate those vulnerabilities identified.



The image features a dark, almost black background filled with numerous bright blue lightning bolts. The bolts are jagged and branching, creating a complex, web-like pattern of light. A prominent, thicker bolt runs horizontally across the center of the image, with many smaller bolts branching off from it. The overall effect is one of intense energy and power.

Questions?



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