



MASSACHUSETTS
CLEAN ENERGY
CENTER®



Navigating the Future: Pathways to My Career in Clean Energy

**Innovation and the Future
of Climate-Tech**



Opening Activity

Which energy innovation am I?

I was invented in 1712.

My original purpose was to pump water out of coal mines.

Today, you find me generating electricity in geothermal power plants.

steam engine



Opening Activity

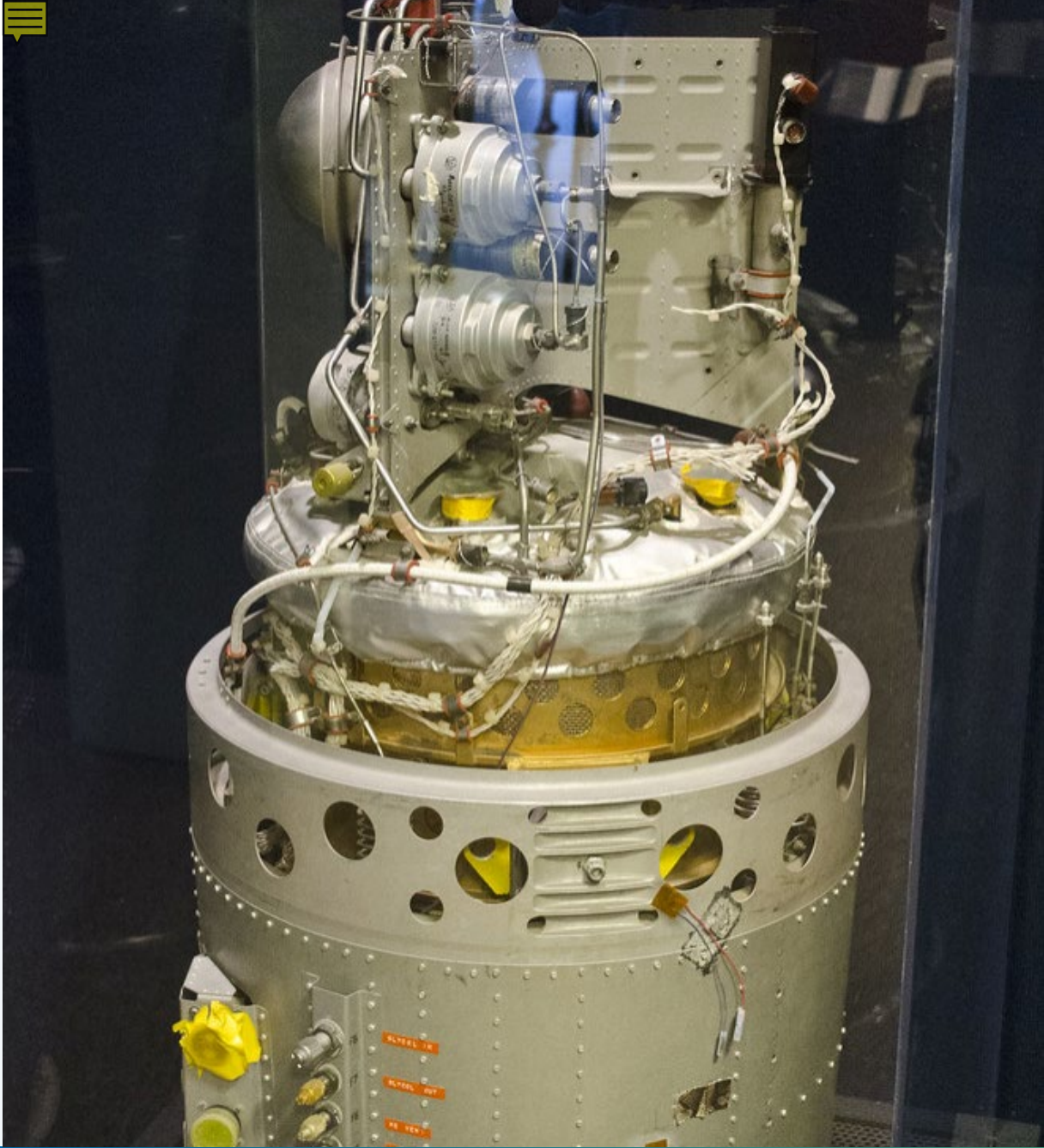
Which energy innovation am I?

I was invented in 1962.

I was first used as a low-power indicator light for electronic devices.

Today, you will find me illuminating energy-efficient homes, schools, and buildings worldwide.

light-emitting diode (LED)



Opening Activity

Which energy innovation am I?

I was invented in 1838 but gained fame in the 1960s during the space race.

I was used to generate clean electricity and water for astronauts on space missions.

Today, you can find me powering zero-emission vehicles and providing backup power for critical infrastructure.

fuel cell



Today's Agenda

- **The Big Question and My Climate Goals**
- **Climate Watch and Discussion**
- **Innovating Climate Solutions**
- **Innovation Impact Map**
- **Takeaways and Closing**





The Big Question

How do innovation and creative thinking help us reach our climate goals in Massachusetts?





My Climate Goals

**When you complete this lesson,
you'll be able to:**

1. Identify examples of how innovation has advanced Massachusetts's climate solutions.
2. Identify and describe innovations that will accelerate the creation of new solutions to climate change.
3. Describe how research and design contribute to innovation in climate solutions.



Climate Watch: Video





Climate Watch: Video





Climate Watch Discussion

Share what you learned from the video and listen to your classmates' perspectives. Here are a few thoughts to get you started.

1. What does DQ like about her career?
2. What does the specialized paint do?



Vehicle-to-Grid (V2G) Technology

Electric vehicles (EVs) can send electricity back to the power grid, acting as mobile batteries.

- Balance energy supply and demand
- Provides backup power
- Reduces reliance on fossil fuels



Floating Wind Turbines

Wind turbines on floating platforms anchored to the seabed

- can be installed in deeper waters where winds are stronger
- can expand offshore wind capabilities and expand clean energy production.





Low-Carbon Steel and Cement

New manufacturing methods reduce CO₂ emissions during production.

- Cement and steel are essential for nearly all construction and infrastructure projects.
- Traditional materials are significant sources of GHG.



Long-Duration Batteries

- Store electricity for several hours to days
- Maintain a steady supply of renewable energy
- Ensure a reliable energy supply, making renewables more practical

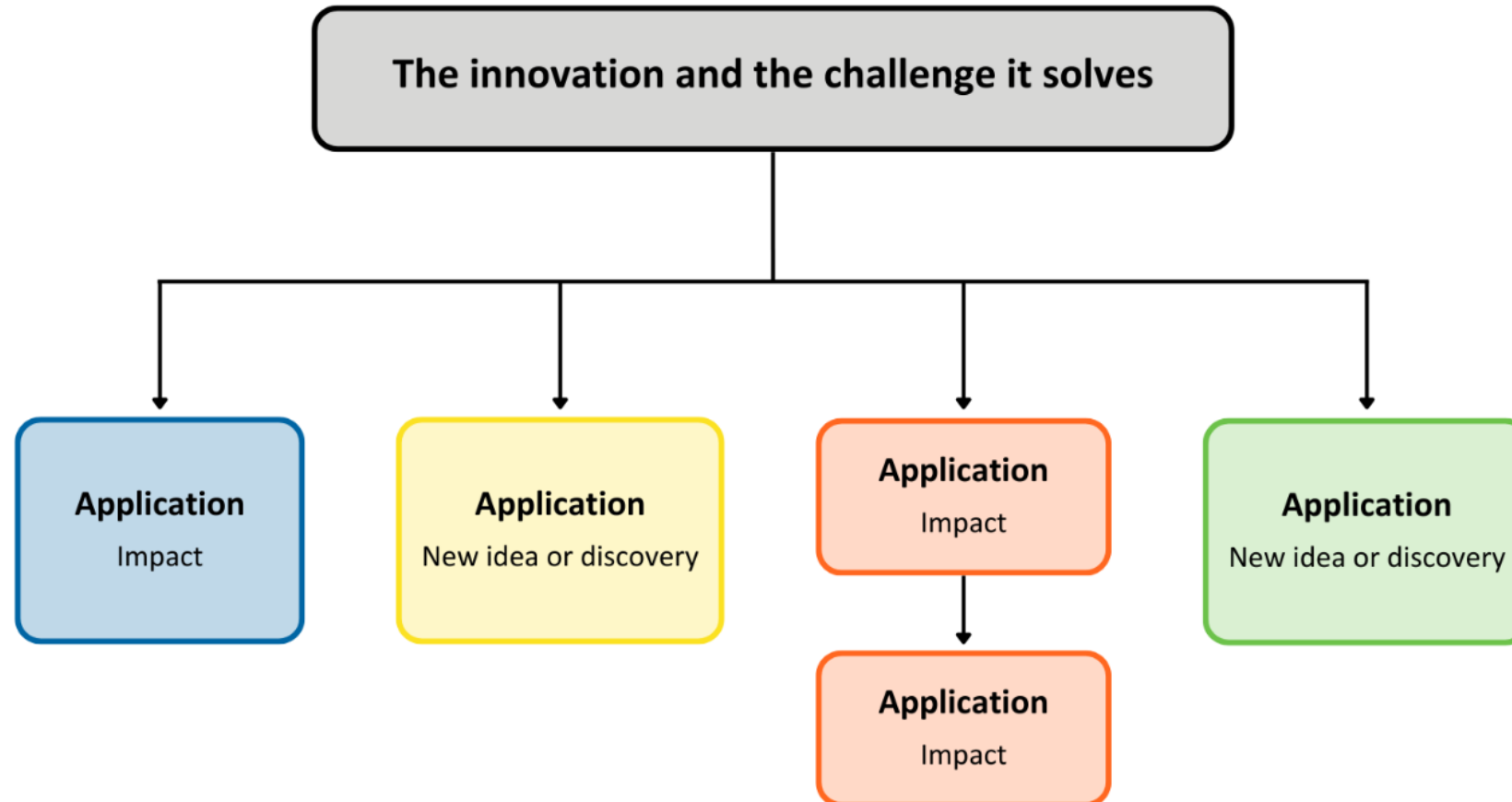


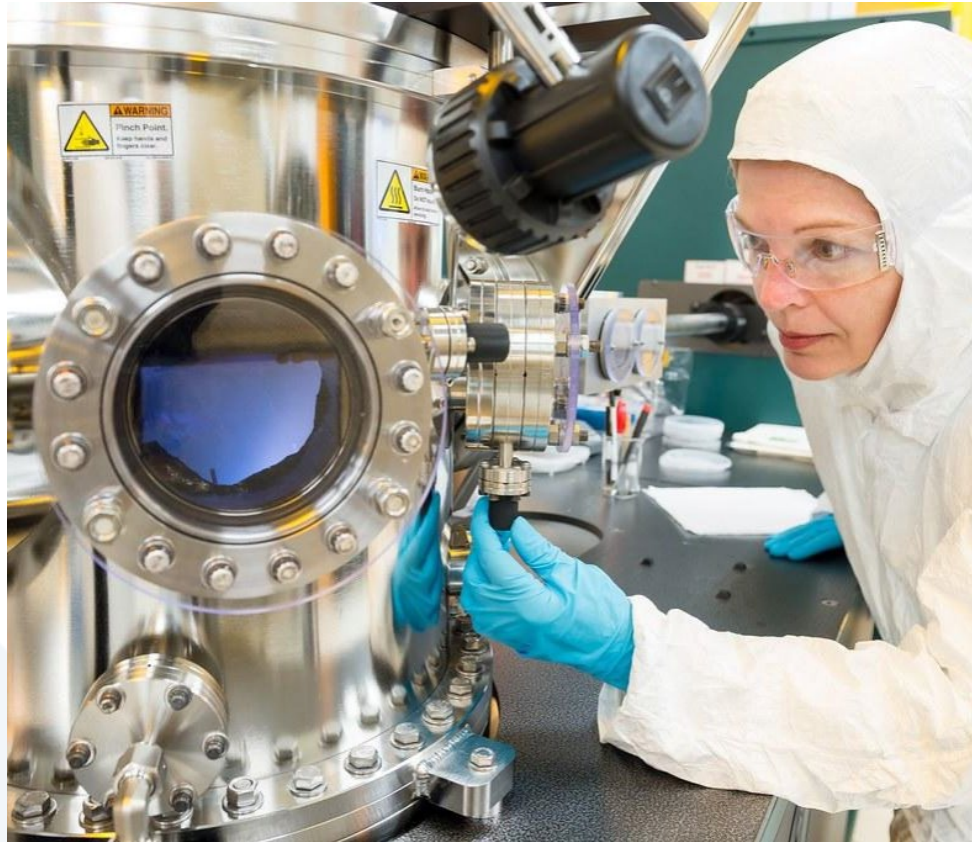
Courtesy of Invinity Energy Systems



Today's Group Activity

Innovation Impact Map





Key Points

- Innovation drives clean energy progress.
- Historical technologies can have modern applications.
- Energy innovations create diverse career paths.
- Adaptability and curiosity fuel innovation.





Closing Activity

1. What is one climate-related problem or question that needs a solution?
2. What is one climate-related innovation that has had a significant impact on Massachusetts's energy transition?





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Innovating climate solutions is an essential step in meeting Massachusetts's clean energy and efficiency goals.