

# *4-H Electric Program Overview*

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NC STATE UNIVERSITY



**“We Bring  
Engineering  
to Life”**

# 4-H Electric Program Sponsors

- Duke Energy
  - *Duke Energy Progress – (44)*
  - *Duke Energy Carolinas – (38)*
- Dominion Energy
  - *Northeast District (18)*
- North Carolina Association Electric Co-ops

Electric Program Website

<https://nc4h.ces.ncsu.edu/electric/>



# 4-H Electric Program Objectives

- Develop effective leadership, character, and citizenship
- Develop life skills
  - *Critical thinking*
  - *Problem solving*
  - *Teamwork*
  - *Time management*
  - *Public speaking*
- Learn about the fundamentals of electricity and its safe efficient use
- Create an awareness of energy usage, generation, distribution
- Energy conservation, renewable energy technologies
  - *Solar, Wind, Hydro*
- Generate enthusiasm for Science and Technology (STEM)



# Electric Program Activities

- 4-H Electric curriculum books
  - *Magic of Electricity*
  - *Investigating Electricity*
  - *Wired for Power*
  - *Entering Electronics*
- Building can lamps
- Wiring outlets and switches (basic wiring)
- Learn how to use electrical tools (volt-ohm meter, soldering iron)
- Identify circuit components and read circuit diagrams (electric kits)
- Integrates well with robotics curriculum
- Tour local or regional electric generation/distribution facilities
- County, District, and State electric presentations

# Activities cont. – Electronic Kits

- Different project kit selected annually
- Funding provided by Duke Energy and Dominion Energy
- Twenty free kits per county
- Additional can be purchased
- Requirements
  - *Attend training*
  - *Request submitted by Agent or PA*

# Electric Kit Training Opportunities



# ***4-H Electric Congress***

- Annual awards and educational event that recognizes youth that have excelled in the Electric Program
- Travels from region to region of the state
- Participate in educational workshops
- Energy Industry Career Fair
- Meet Energy Company representatives
- Tours / Excursions
- 2023 – 76<sup>th</sup> Electric Congress
  - July 11-13 UNC-Wilmington



# Transportation Provided – Holiday Tours



# Electric Congress Delegates

- Minimum age requirement (11 by Jan. 1)
- *County Delegate* (2 per county)
- *Electric Portfolio Delegate* (2 per county)
- *Recruiting Delegate* (1 per county)
- *At-Large Recruiting Delegate* (10)
- *At-Large Electric Portfolio Delegate* (10)
- Adult Leaders (2 max), 4-H Agent or Program Assistant
  - 3 or less youth, 1 Adult leader plus Agent or PA
  - 4 or more youth, 2 Adult leaders plus Agent or PA



# Community Service Project





# Careers in the Energy Industry





# Electric Vehicle Technology – Past and Present





# Territorial Awards

- Selection based on Electric Portfolio submitted to state office
  - *Duke Energy Progress*
  - *Duke Energy Carolinas*
  - *Dominion Energy*
- First place – *iPad (\$500 Card)*
- Second Place – *Samsung Galaxy Tablet (\$250 Card)*
- Third place – *JBL Portable Bluetooth Speaker (\$150 Card)*





# County and Individual Recognition

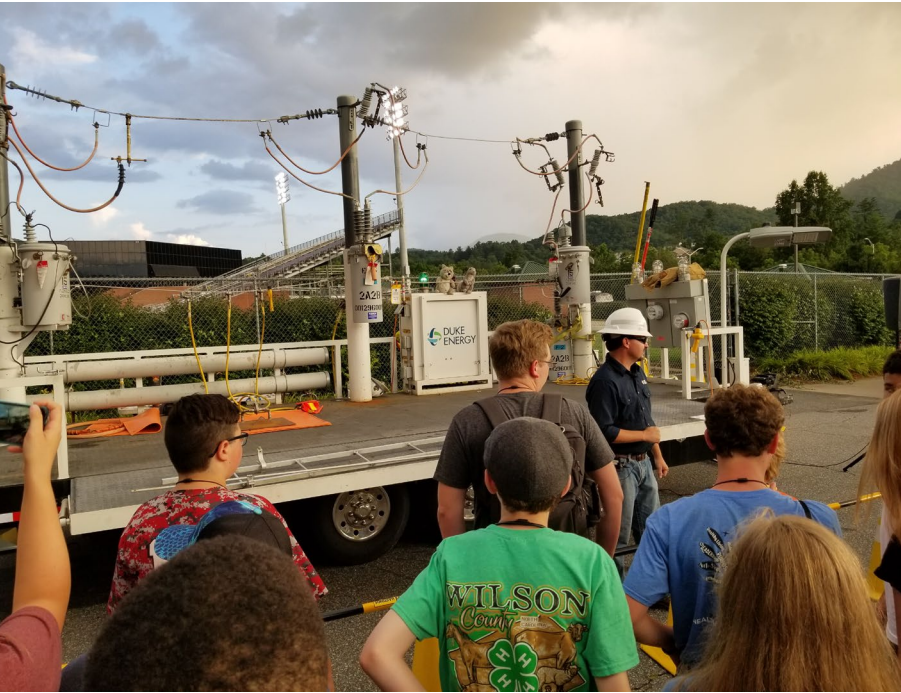




# Educational Workshops



# Live Line Demonstration





# Thorpe Hydroelectric Plant Tour





# Electric Congress Excursions

- White water rafting
- Swimming in the ocean
- Carowinds
- Agritourism farm
- Train ride
- Outdoor drama
- Ocean cruise
- Water park



# Electric Congress Excursions – cont.







# Electric Congress Impacts

- Rewards youth for their hard work during the year
- Unique opportunities beyond the county level
- Career Fair
  - *Hybrid vehicles, electric vehicle technology (Tesla)*
  - *Linemen skills, job requirements, education*
  - *Career opportunities in the energy industry*
  - *Engineering opportunities*
- Learning more about assembling a circuit, renewable energy, soldering
- College campus experience
- Electric “ideas”
- Meet with other youth from across the state with similar STEM passion
  - [https://www.youtube.com/watch?v=nrUAZP-L\\_1M&feature=youtu.be](https://www.youtube.com/watch?v=nrUAZP-L_1M&feature=youtu.be)

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Healthy Living programming at its finest. Way to go Brunswick County. Teen leaders teaching learn Eat Grow Go... fb.me/GJgZmGcF

Jan 31, 2018

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Header Image: HUNGRY CHILDREN

## 4-H Electric Program

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The Electric Program is coordinated through the [Department of Biological and Agricultural Engineering](#) and sponsored by: Duke Energy, Dominion Energy, and NC Assoc. of Electric Cooperatives.

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- [Murphy Power Board and 4-H Teaching Youth About Electricity](#) — Cherokee County Center
- [Protect Your Home From Paranormal Activity During National Radon Month](#) — Durham County Center
- [Henderson County 4-H Public Speaking Competition](#) — Henderson County Center

Image: Four youth participants working on electronic projects.

The 4-H Electric Program is an informal hands-on youth program conducted by the [North Carolina Cooperative Extension Service](#) and its professional 4-H agents and volunteer adult leaders located in all 100 counties and the Cherokee Reservation. Youth learn about the fundamentals of electricity, renewable energy technologies, and energy conservation. Activities include learning how to solder, learning the difference between series and parallel circuits, and assembling can lamps. Youth learn many life skills while participating in this program, but also generate more enthusiasm for science and technology.

- [Electric Program Overview](#)
- [Electric Congress Delegate Criteria and Program Awards](#)

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<https://nc4h.ces.ncsu.edu/electric/>

# Electric Kit Objectives

- Learn to read and follow an electric schematic
- Identify electronic circuit components
- Function of circuit components (Electric Guide IV)
- How to solder correctly
- Electric activity to assist with promoting the program
- Promote Science and Technology

# 2023 Electric Kit

- Continuity Tester kit will be used again
- “How to Assemble” video will be posted to the 4-H website
- Counties interested in obtaining the kits will need a volunteer, Agent or PA to assemble the kit for eligibility
- Counties trained in 2022 can request the kit again
- Promote Science and Technology