



## SCENARIOS FORUM 2019

# ELECTRIFICATION: IMPROVING SCENARIOS FOR A CLEAN ENERGY TRANSITION

13 March 2019, University of Denver

Jeffrey Logan

National Renewable Energy Laboratory



# NREL at a Glance

1,998

## Employees,

Plus more than

**600**

early-career researchers  
and visiting scientists



## World-Class

facilities, renowned  
technology experts

nearly  
**820**

## Partnerships

with industry,  
academia, and  
government



## Campus

operates as a  
living laboratory

**\$1.1B**  
annually

## National Economic Impact

- NREL is the only DOE national laboratory dedicated to RE and EE: Love of Mission
- Strong growth since 2006
- Fundamental R&D, analysis, and deployment activities around the globe
- JISEA: Research endeavor between NREL, 3 Colorado universities, MIT & Stanford

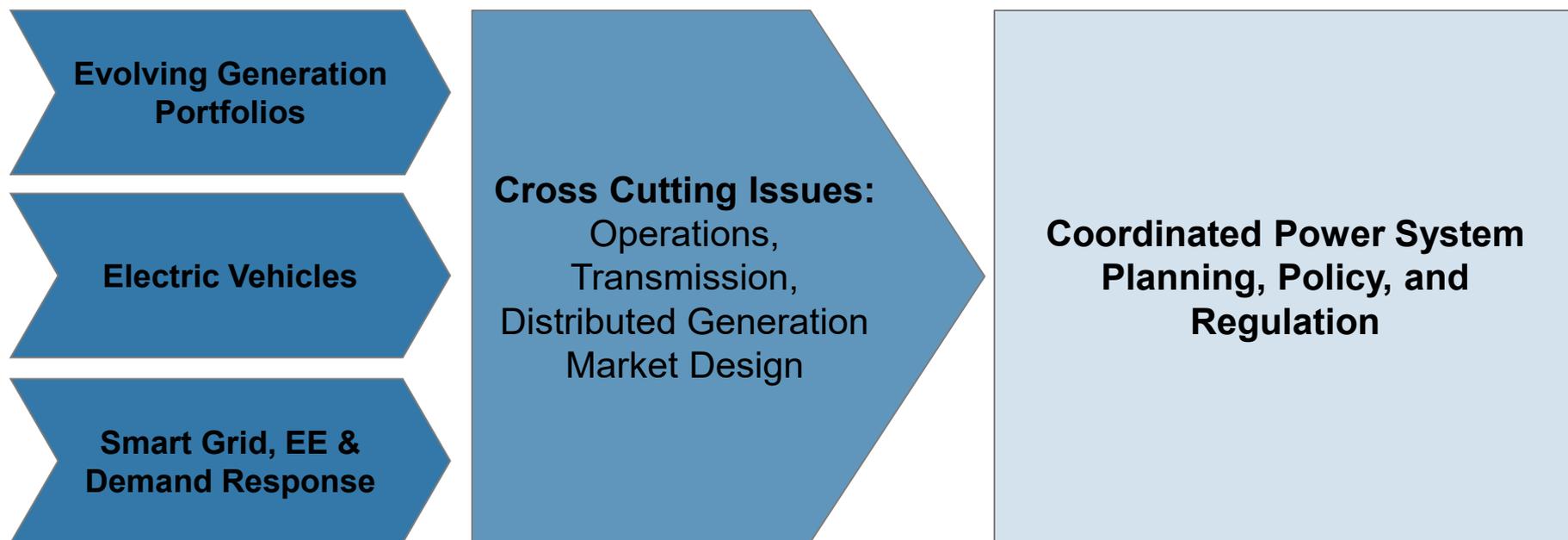
# WHAT IS THE CLEAN ENERGY MINISTERIAL?

- Annual gathering of energy ministers from world's 25+ largest energy consumers.
- Approximately 25 work streams led by countries and operating agents to conduct year-round work on “energy transition” priorities
- Strong focus on sharing lessons-learned and best practices
- IEA, IRENA, NREL/JISEA and others help run many of the work streams
- [www.cleanenergyministerial.org](http://www.cleanenergyministerial.org)

# WHAT IS THE 21CPP?

## POWER SYSTEM TRANSFORMATION

**Accelerating the transition to clean, efficient,  
reliable, and cost-effective power systems.**



*Coordinating with other CEM Campaigns*

JISEA and NREL are the Operating Agent for 21CPP

# BACKGROUND: FUNDERS AND SELECT TECHNICAL PARTNERS



Federal Ministry of the Interior



WORLD RESOURCES INSTITUTE

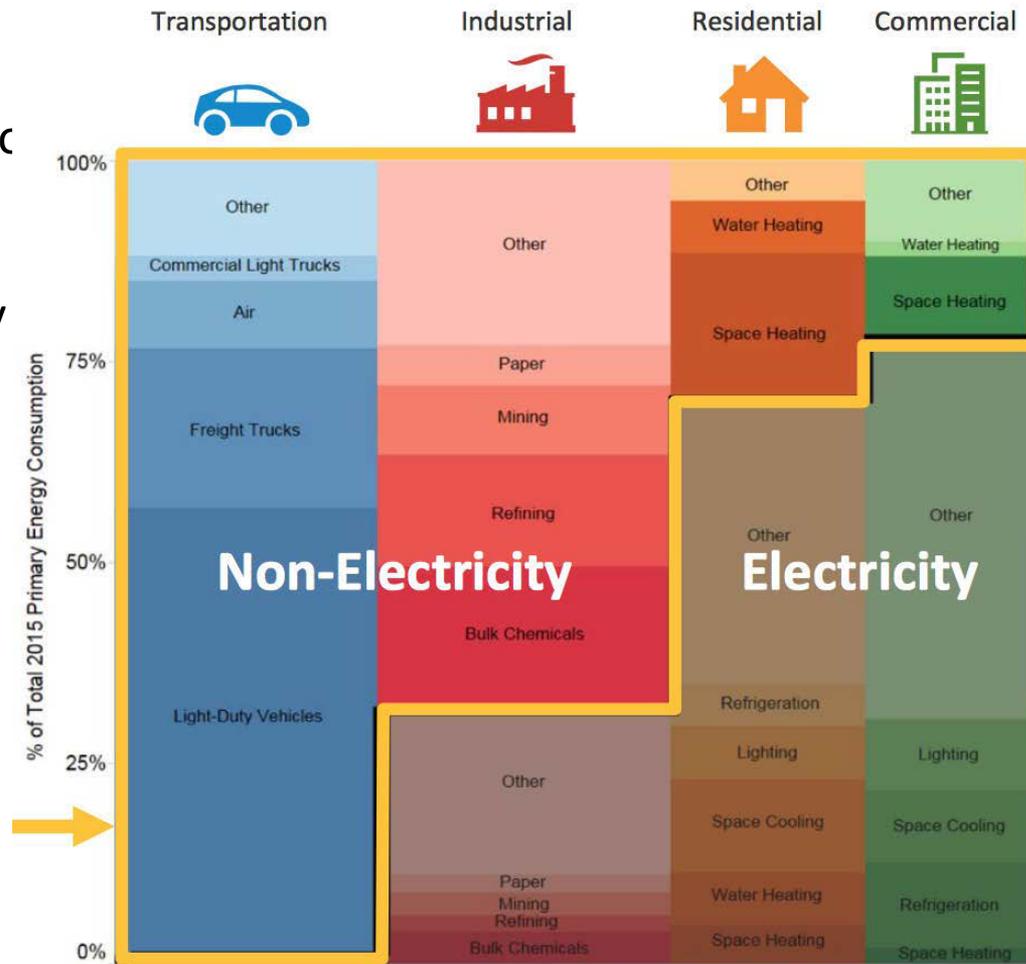


- Annual Program of Work Includes:
- “Thought-Leadership” studies that focus on generic power system transformation topics across the world
- In-country technical assistance focused on coordinated power system planning & operations, including technology innovation, policy, and regulation
  - High-resolution grid integration studies often highlight this work
- Information exchange, capacity building, fellowship programs, and other exercises to share lessons-learned
- [21stcenturypower.org](http://21stcenturypower.org)



# NREL Electrification Futures Study

- **Multi-year, multi-stakeholder, multi-report** study on potential to electrify the U.S. economy
- **Electrification:** the shift from any non-electric source of energy to electricity at the point of final consumption
- Uses **high-resolution** modeling
- **Focus on 2050**, but transition modeled as well



<https://www.nrel.gov/efs>

# Thank you.

[Jeffrey.logan@nrel.gov](mailto:Jeffrey.logan@nrel.gov)

[www.nrel.gov](http://www.nrel.gov)

NREL/PR-6A20-73473

This work was authored by the National Renewable Energy Laboratory, managed and operated by Alliance for Sustainable Energy, LLC for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Funding provided by U.S. Department of Energy Office of Energy Efficiency and Renewable Energy Office of Strategic Programs and Fuel Cells Technology Office. The views expressed in the article do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the article for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.

