

# Overview of Basic Research Needs Workshop Process

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ORNL is managed by UT-Battelle, LLC for the US Department of Energy

# DOE Basic Research Needs Workshops

Identify fundamental research areas to provide breakthroughs required for future technology needs of the Department of Energy (DOE)

Longer term scope (10 years and beyond) than for applied programs (2–4 years)

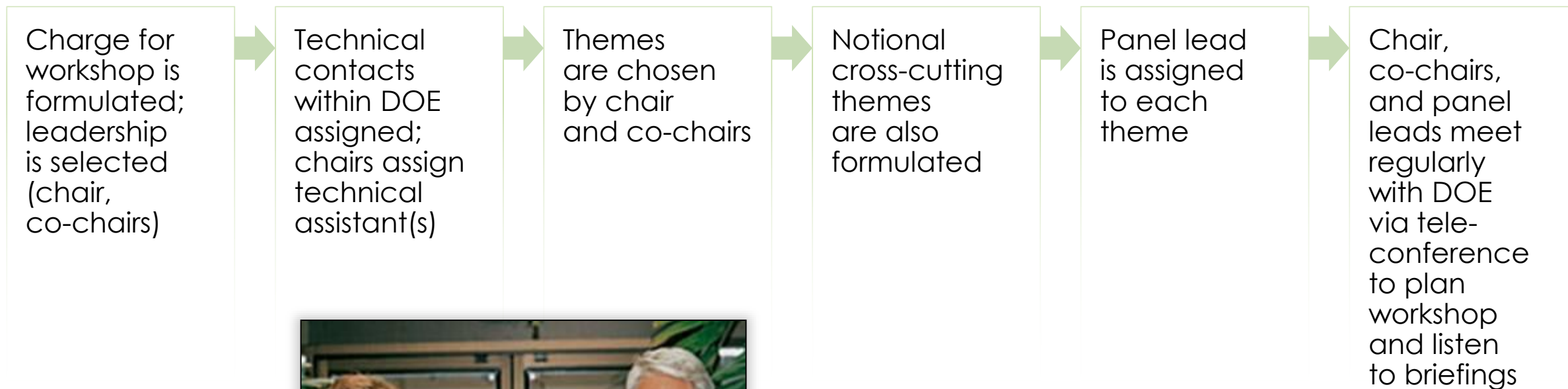
Basic Research Needs (BRN) workshop reports have become a model of how to engage the basic research community in problems associated with our Nation's energy agenda



# BRN workshop goals

- Identify research topics that address both short-term technology showstoppers and long-term grand challenges that may produce disruptive (not incremental) changes in technologies
- Identify a set of Priority Research Directions (PRDs)
  - The most promising basic research areas that could result in revolutionary advances in the targeted technology area
- Identify Cross-Cutting Research Directions that may impact some or all workshop themes
- Identify Science Grand Challenges
  - A scientific problem, the solution to which is not presently clear, that would significantly impact the energy future if it were solved

# Preparation begins months ahead of workshop



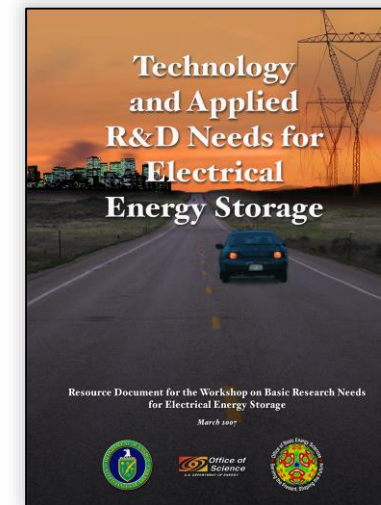
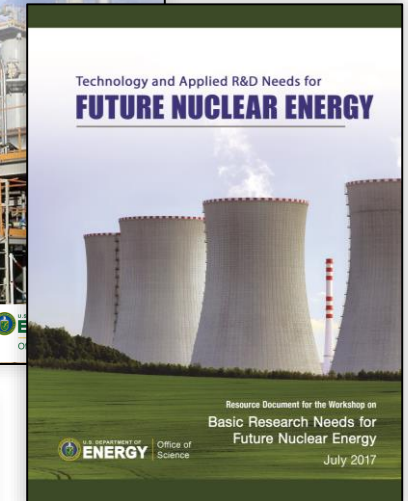
Basic Energy Sciences Workshop on Hydrogen Production, Storage, and Use, May 13–15, 2003: Michelle Buchanan (ORNL, Co-Chair), Millie Dresselhaus (MIT, Chair), and George Crabtree (ANL, Co-Chair)



# Technology Perspectives Factual Document underpins the BRN workshop

- Based on technical briefings and literature
- Written by technical experts in field, including those from industry and from DOE applied technology offices
  - Describes current state of the technology
  - Identifies technology bottlenecks
- Serves as foundation for workshop participants as they formulate potential PRDs

Additional background resources are also provided via workshop website



# Participants are energized by process

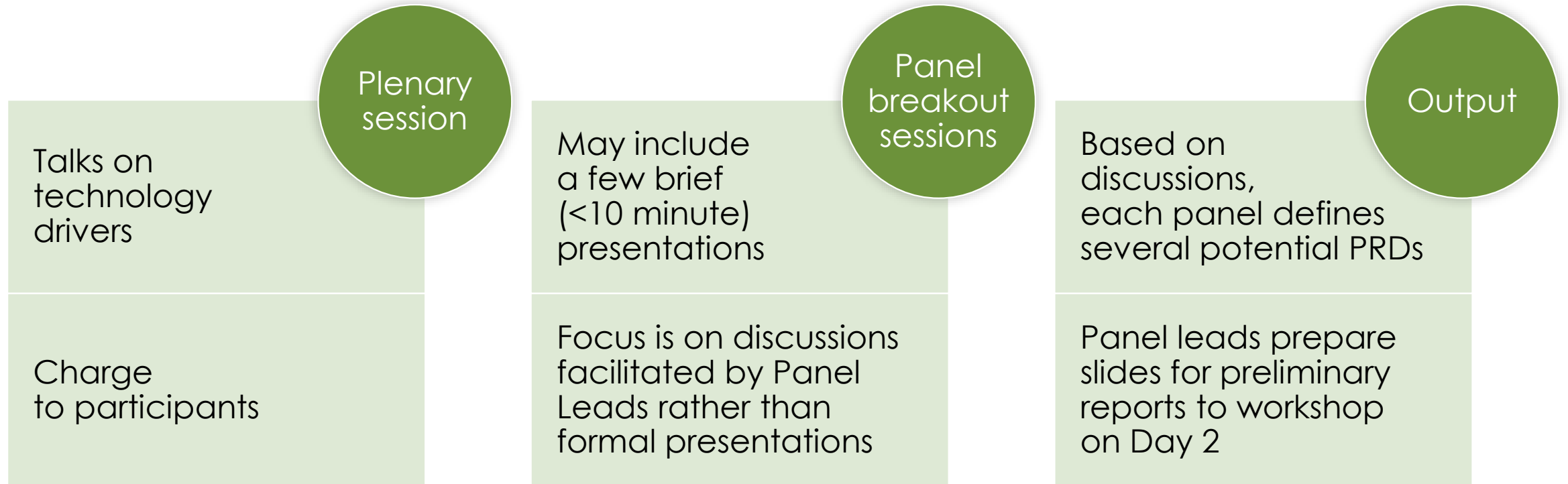
Workshop is by invitation only:  
~100–200 total attendees

- Participants are charged with representing the community, selected for their scientific expertise in a broad range of science, and assigned to a specific panel
- Non-participating observers from stakeholder organizations are also invited to attend

Each workshop represents a focused effort

- 2 days of panel deliberations with additional 1.5 days for panel leads and a few people tasked to draft workshop report
- Panels typically work during/after dinner
- Chair and co-chair ensure panels stay focused on basic research topics and make progress towards drafting report

# Workshop Agenda: Day 1



# Title of Panel:

(enter name of priority research direction here)

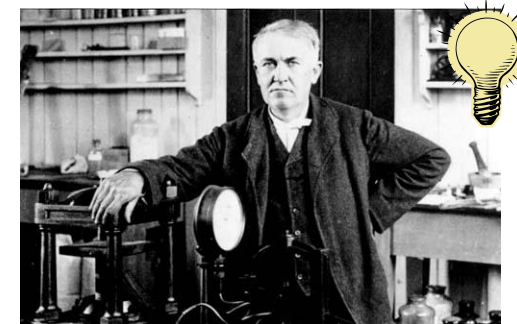
## Scientific challenge

Brief overview of the underlying S&T challenge

Please use 1 slide for each priority research direction (PRD), and use this 4-panel format

## Summary of research direction

What will you do to address the challenge?



## Potential scientific impact

What new scientific discoveries will follow?  
What new methods and techniques will be developed?



## Potential impact on workshop topic

How might this impact the targeted technology area?  
What's the time scale in which that impact may be felt?



# Workshop Agenda: Day 2

## Mid-term plenary session

Provides participants with view of where panels are headed

Identifies areas to be combined within and/or across panels or defined as cross-cuts

Allows workshop chairs to provide feedback

## Panel breakout sessions

Finalize PRDs and prepare slides for closing session

Slides include detail on knowledge gap/technology needs, PRDs, examples of areas to be studied

Slides form basis of slide deck that will be used to present workshop results to various audiences

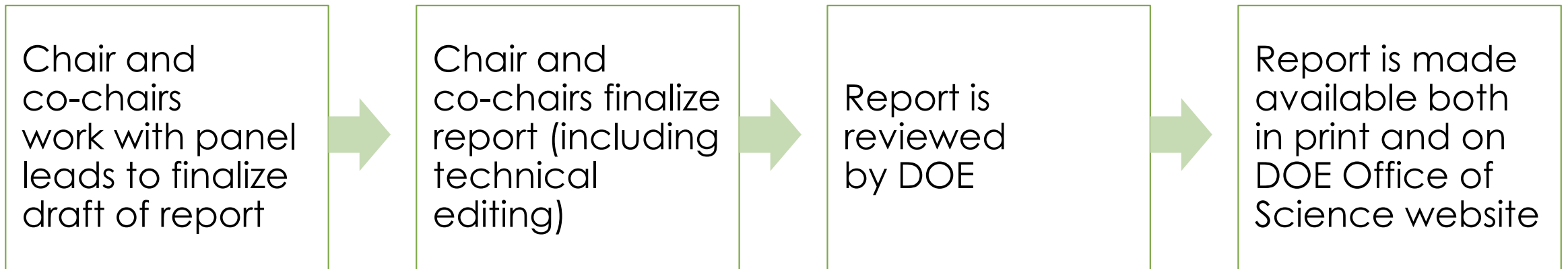
## Closing session

Presents a preview of what the workshop report will include

# Outline of BRN workshop report

<b>Introduction</b>	Prepared by workshop chair
<b>Panel reports</b>	Prepared by panels and edited by panel chairs
<b>Priority research needs</b>	Prepared by panels and edited by panel chairs
<b>Cross-cutting research</b>	Prepared by cross-cut panel
<b>Conclusions</b>	Prepared by workshop chair
<b>Appendices</b>	Factual document prepared prior to workshop Other information (workshop participants, agenda, etc.)

# Document finalization



# Each BRN Workshop report is a valuable document

- Helps to define research priorities for >10 years
  - Should be forward-looking; not a roadmap
- Designed to inspire the broader research community to develop breakthrough concepts
  - Should engage multiple disciplines
- Written for the general technical audience

Slides prepared at workshop are used for outreach



Nate Lewis (Caltech), Chair, BRN workshop on Solar Energy Utilization, delivers a post-workshop outreach talk at an OSTP Hot Topics in Science and Technology seminar on August 10, 2005



# Discussion

