2015 Integrated Resource Plan
Joint Public Session

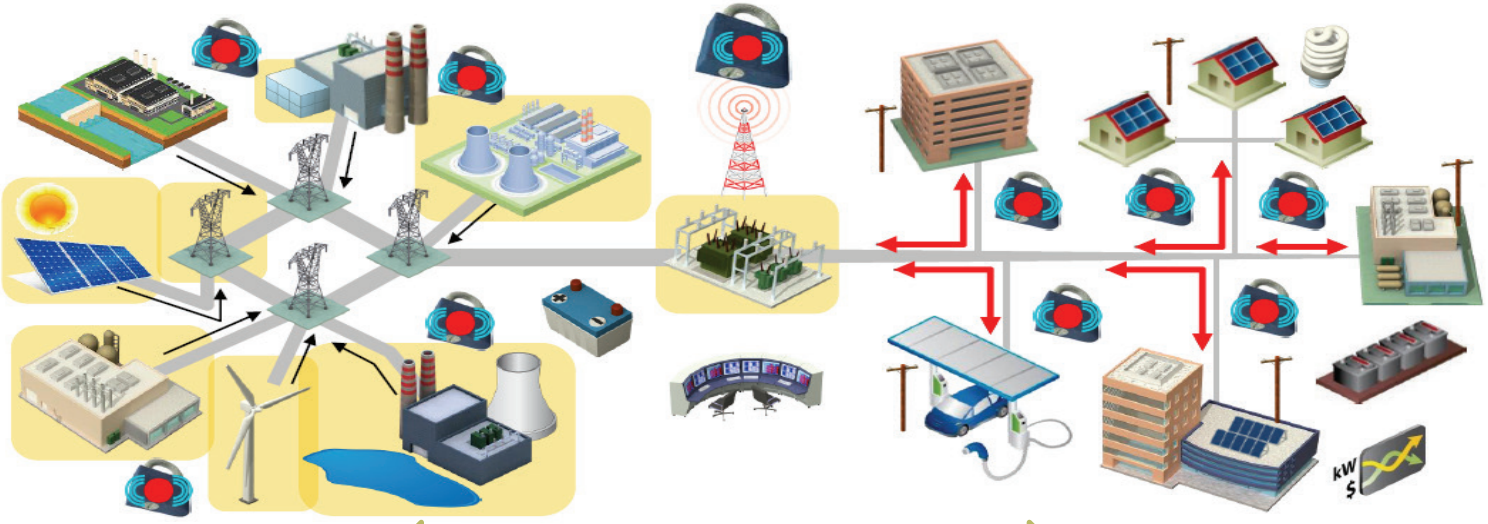
TVA Regional Energy Resource Council and TVA Board

April 20, 2015

welcome

Safety First

TVA and the Valley's Energy Future is Evolving

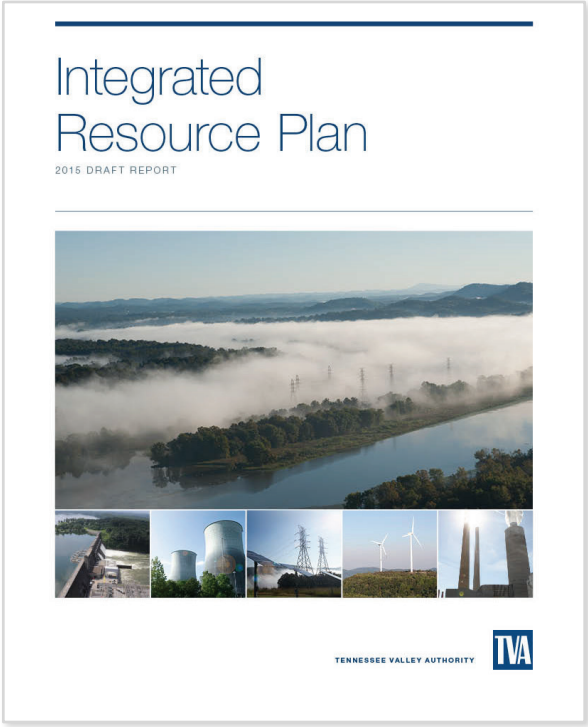


Supply Side ⟷ ***Demand Side***

Image Source: EPRI

Integrated Resource Plan

The IRP is a study of how TVA might meet energy and capacity needs in a variety of future environments.



TVA's Mission Remains the Cornerstone

Energy

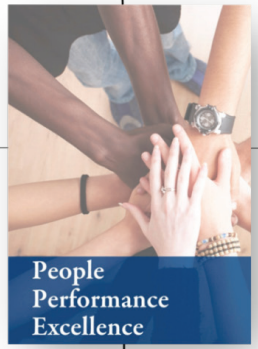
Environment

Economic Development

IRP

RATES:
maintain low rates

ASSET PORTFOLIO:
meet reliability expectations & provide a balanced portfolio



STEWARDSHIP:
be responsible stewards

DEBT:
live within our means

Today's Session

- Panel sessions with Q&A from the Board and the RERC
  - Renewables
  - Energy Efficiency
  - Utility Landscape
- Public listening session
- Conclude by 4:45pm

IRP Preliminary Results

Scott Self
Vice President, Enterprise Planning
TVA

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Economic Development

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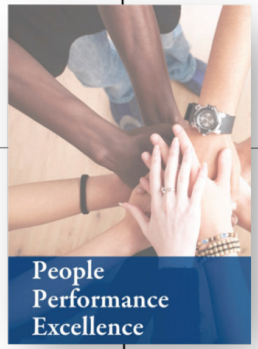

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Our Current Portfolio

Hydro	Nuclear	Renewables	EEDR	Gas	Coal
4,200 MW conventional 1,600 MW pumped storage	6,700 MW	1,500 MW wind 120 MW solar/biomass	1,300 MW avoided capacity	5,500 MW CT and diesels 4,500 MW CC	12,400 MW

Approximately 37 percent of TVA's capacity is emission-free

Selected Scenarios and Strategies

External Factors Shaping the Environment

Scenarios
1 - Current Outlook
2 - Stagnant Economy
3 - Growth Economy
4 - De-Carbonized Future
5 - Distributed Marketplace

TVA's Response & Portfolio Goals

Strategies
A - The Reference Plan
B - Meet an Emissions Target
C - Focus on Long-Term, Market-Supplied Resources
D - Maximize Energy Efficiency
E - Maximize Renewables

Key Criteria Used to Evaluate Strategy Performance

Cost	Identifies long-range and shorter term system costs
Financial Risk	Measures the uncertainty around the cost of various plans
Environmental Stewardship	Captures multiple measures related to the environmental “footprint”
Valley Economics	Measures per capita income & employment changes
Flexibility	Determines how easily the generation fleet can follow load swings

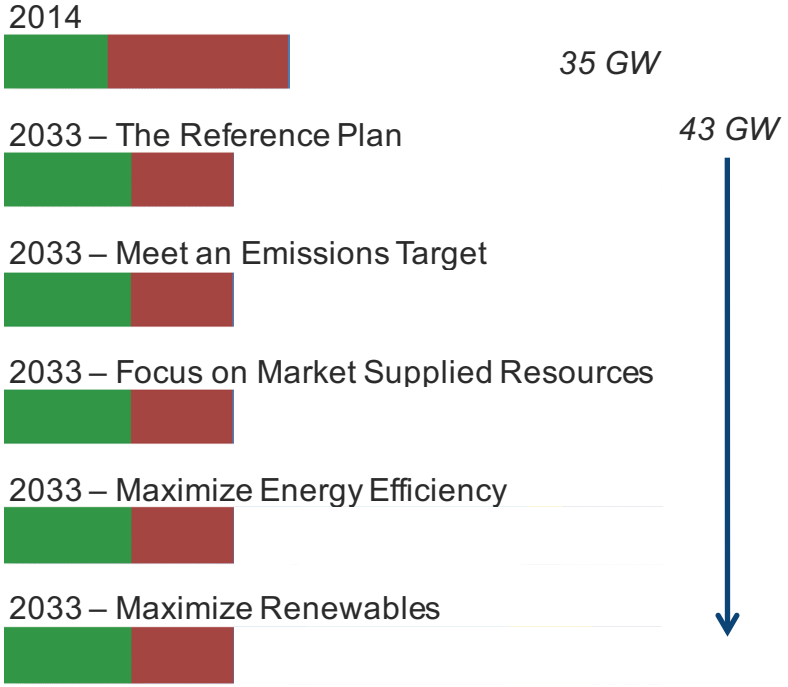
How Do the Strategies Compare?

- **COST:** Long-term total costs are similar, but emphasizing renewables or energy efficiency may lead to higher rates later
- **FINANCIAL RISK:** Scores are higher for strategies that emphasize particular resource choices
- **ENVIRONMENTAL STEWARDSHIP:** All strategies show improvement
- **FLEXIBILITY:** Generally good; most limited if renewables are emphasized.
- **VALLEY ECONOMICS:** All strategies have a similar, but small, impact on overall economic health

Strategies
A - The Reference Plan
B - Meet an Emissions Target
C - Focus on Long-Term Market Supplied Resources
D - Maximize Energy Efficiency
E - Maximize Renewables

The Generation Fleet

Potential Capacity Mix Under Current Planning Scenario

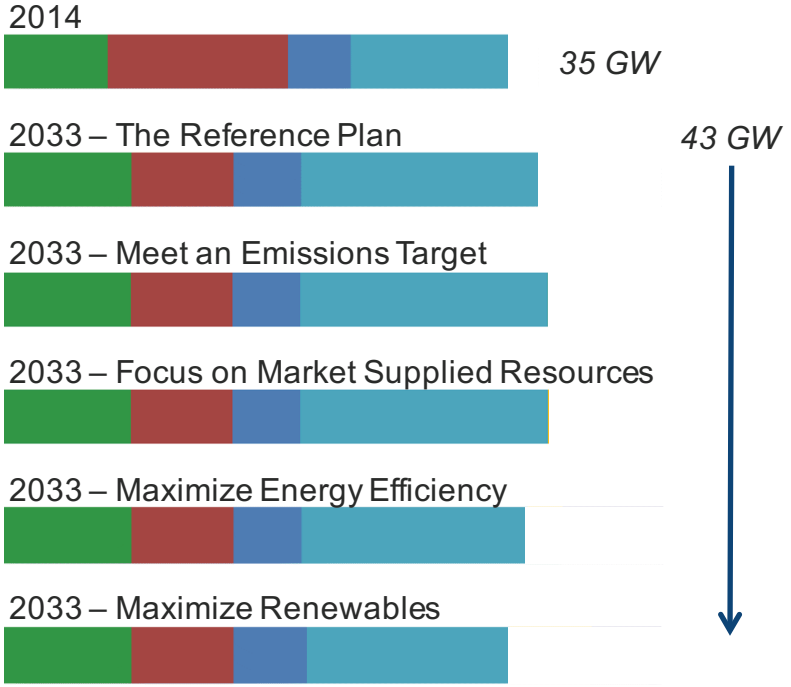


Resource Types

- Nuclear
- Coal

The Generation Fleet

Potential Capacity Mix Under Current Planning Scenario

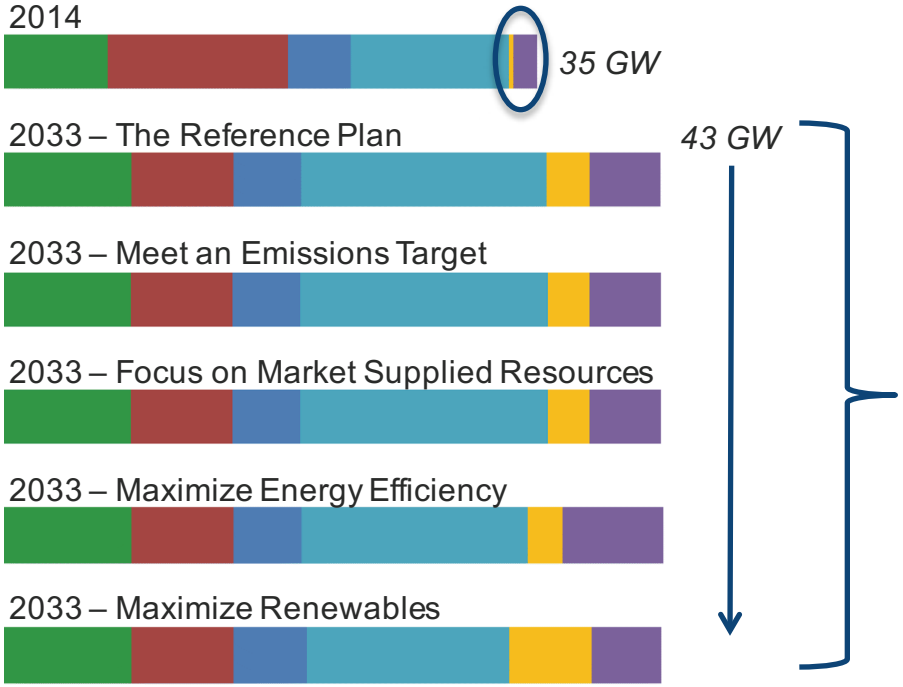


Resource Types

- Nuclear
- Coal
- Hydro
- Natural Gas

The Generation Fleet Will Be Cleaner

Potential Capacity Mix Under Current Planning Scenario



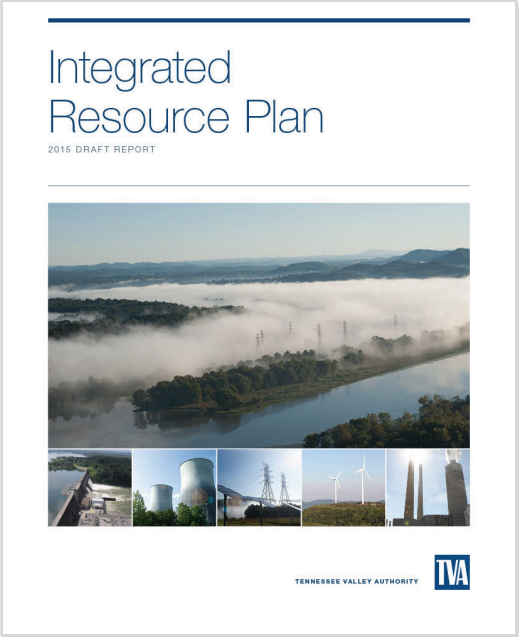
Non-emitting sources account for 60% to 75% of the energy supply

Resource Types

- Nuclear
- Coal
- Hydro
- Natural Gas
- Renewables
- Energy Efficiency & Demand Response

The Future of Our Energy Supply

- TVA power will still be reliable, affordable and sustainable
- We will rely more on cost-effective energy efficiency
- There will be more solar and wind power and less coal
- Natural gas plays an important role
- TVA will continue to provide for economic growth in the Tennessee Valley
- Partnering for a better tomorrow



Running The Business

- Plan Using Least Cost
- Watch Signposts
- Optimize Portfolio
- Adapt to Market Conditions
- Partner with Stakeholders
- Deliver Reliability
- Communicate

TVA

Panel Presentations

Panel 1: Looking Ahead in Renewables

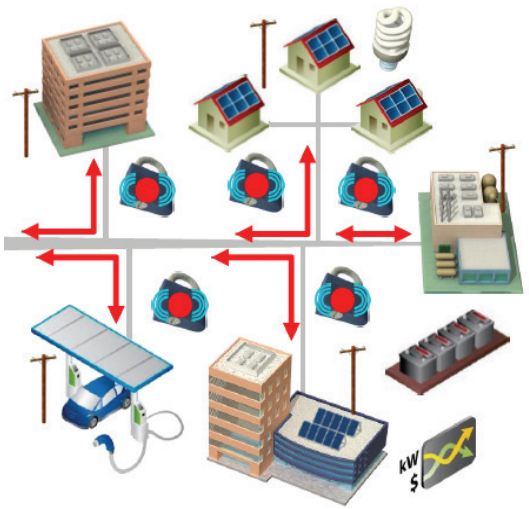
- **Neil Placer**, TVA, *Moderator*
- **Mary Shaffer-Gill**, TenneSEIA and Aries Energy
- **Len Peters**, Commonwealth of Kentucky
- **Greg Williams**, Appalachian Electric Cooperative
- **Jack Simmons**, Tennessee Valley Public Power Association

Break

Panel 2: Looking Ahead in Energy Efficiency

- **Cindy Herron**, TVA, *Moderator*
- **Clifford Stockton**, Greater Memphis Chamber
- **Curt Puckett**, DNV GL
- **Michelle Walker**, State of Tennessee
- **Becky Williamson**, Memphis Light Gas and Water

Panel 3: The Changing Utility Landscape



- **Joe Hoagland**, TVA, *Moderator*
- **Van Wardlaw**, TVA
- **Jay Stowe**, Huntsville Utilities and Seven States Power Corporation
- **Pete Mattheis**, Tennessee Valley Industrial Committee
- **Wayne Henson**, East Mississippi Electric Power Association and Tennessee Valley Public Power Association

Break

Public Comment Session

- **Public participation is appreciated**
- **This is a listening session; responses are typically not provided**
- **Comments are time limited**

Closing Comments

Thank You

Please Travel Safely