



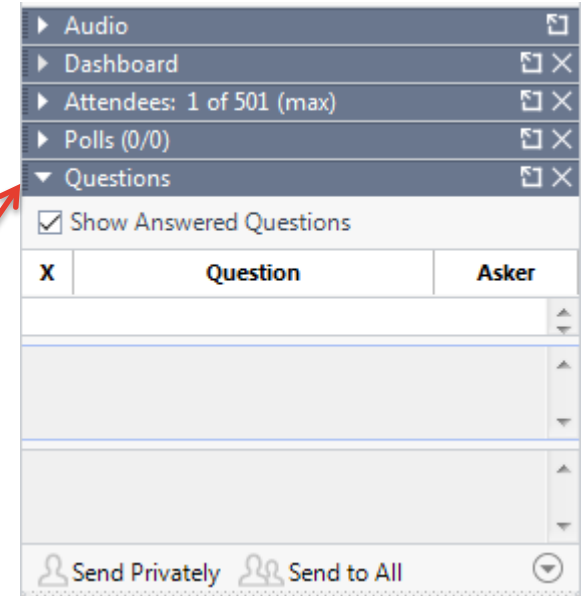
2019 INTEGRATED RESOURCE PLAN

Quarterly Public Update Webinar
September 10, 2018



About Today's Meeting

- This a Webinar Meeting.
- **Attendees** are in listen-only mode.
- Questions **will be accepted during the webinar**; please use the question box to submit your questions.
- This session is being recorded and will be available on the TVA 2019 IRP website.
- 2019 IRP website: www.tva.com/irp



Webinar Agenda

- **Welcome and Meeting Purpose**
- **Overview of the 2019 Integrated Resource Plan and current status**
 - **Scenarios and Strategies being considered in the IRP**
 - **About Resource Technologies**
- **Update on the NEPA process**
- **How to stay up to date on the 2019 IRP**
- **Clarifying Questions from Audience**



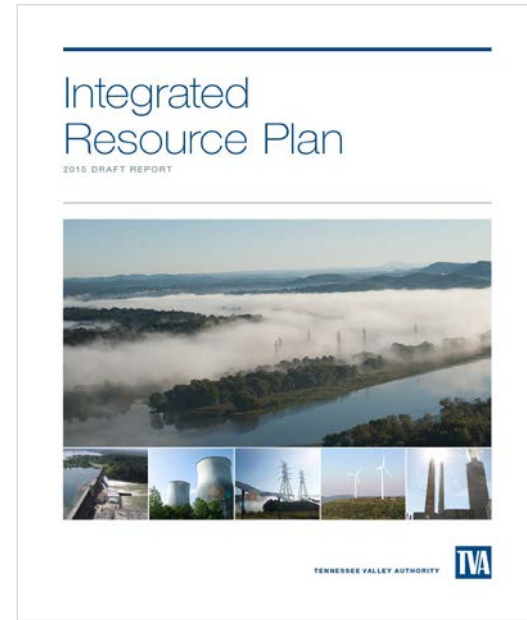
Welcome & Meeting Purpose

Laura Campbell
Vice President, Enterprise Planning

TVA's Integrated Resource Plan

The IRP is a comprehensive study that provides direction on how to best meet future electricity demand.

A programmatic Environmental Impact Statement (EIS) accompanies the IRP to analyze the impacts associated with an updated IRP to the Valley.





About the 2019 IRP and Project Update

Hunter Hydas
Enterprise Planning

Integrated Resource Planning

- Collaborate with stakeholders to envision the power generation needs of the future
- Determine how TVA can continue to provide low-cost, reliable electricity; support environmental stewardship; and spur economic development
- Inform the company's next long range financial plan

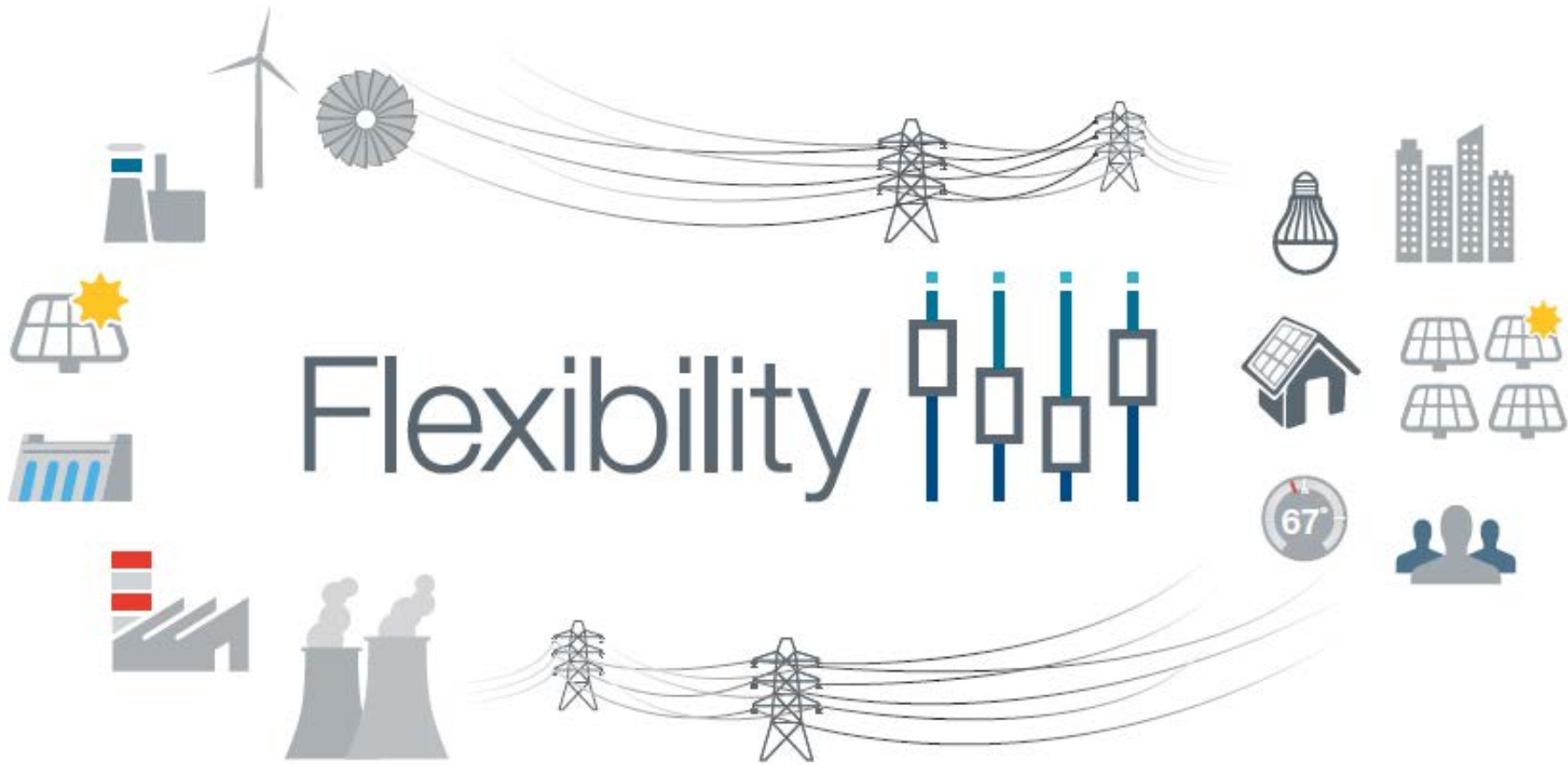


The IRP functions like a compass, not a GPS

2019 IRP Focus Areas

- System flexibility
- Distributed Energy Resources
- Portfolio diversity





Goals for an Optimal Resource Plan

Low Cost

Risk Informed

Environmentally
Responsible

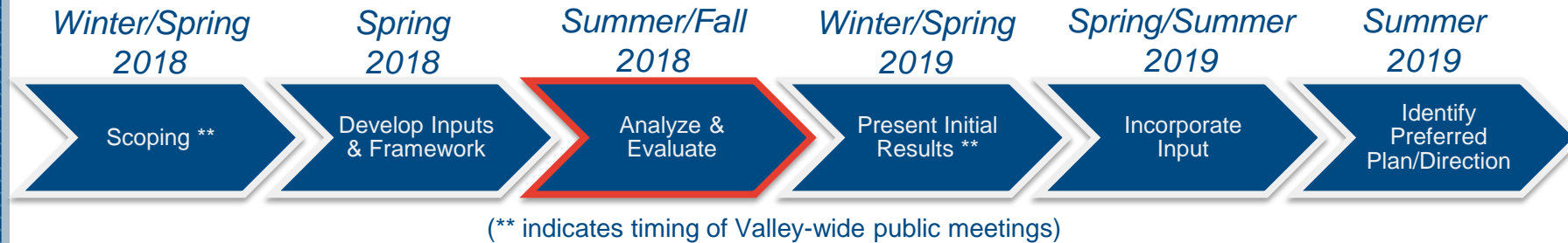
Reliable

Diverse

Flexible

2019 IRP Schedule: Schedule & Milestones

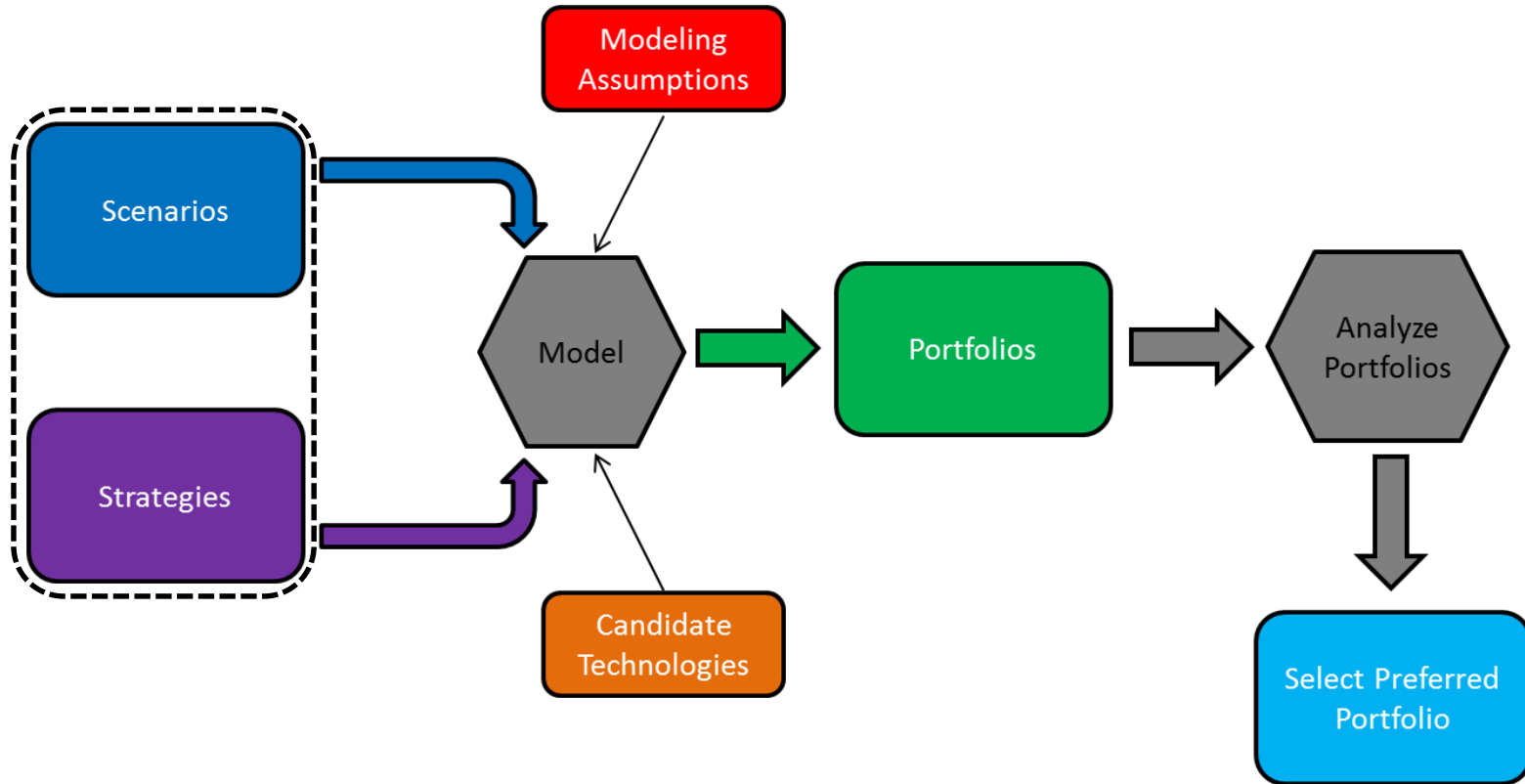
The 2019 IRP Study Approach is intended to ensure transparency & enable stakeholder involvement.



Key Tasks/Milestones in this study timeline include:

- Establish stakeholder group and hold first meeting (Feb 2018)
- Initial modeling (June 2018)
- Publish draft EIS and IRP (Feb 2019)
- Complete public meetings (April 2019)
- Board approval and final publication of EIS and IRP (expected Summer 2019)

Integrated Resource Planning Process



Planned Scenarios & Strategies



Scenarios

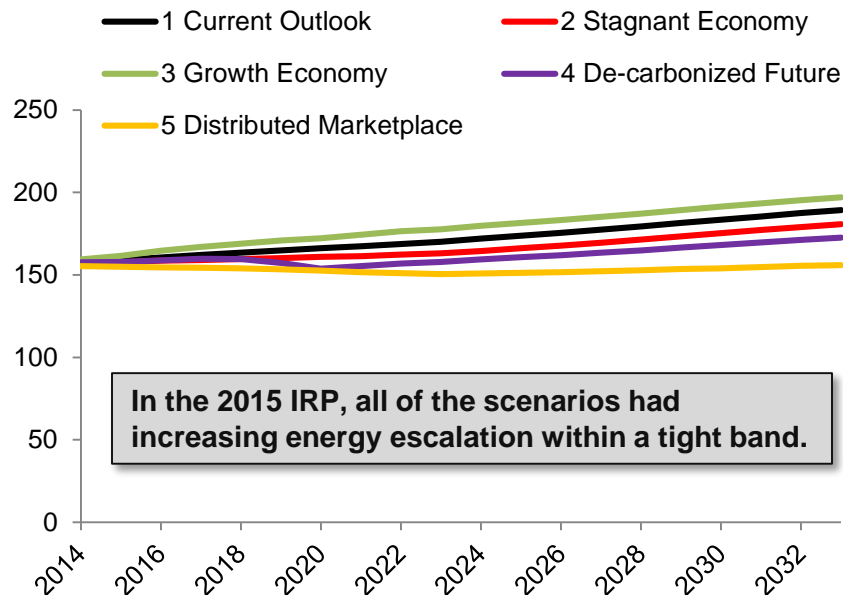
1. *Current Outlook*
2. *Economic Turndown*
3. *Valley Load Growth*
4. *Decarbonization*
5. *Rapid DER Adoption*
6. *No Nuclear Extensions*

Strategies

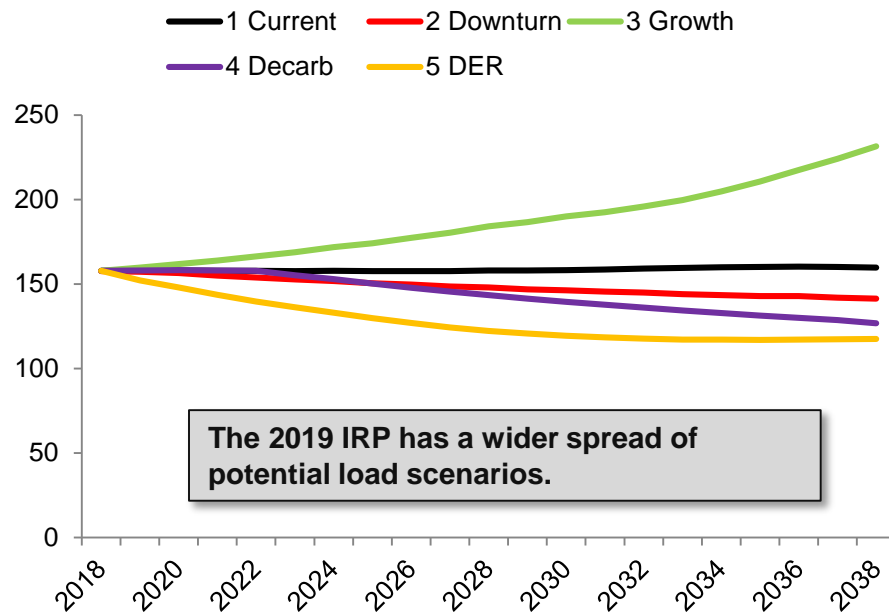
- A. *Base Case*
- B. *Promote DER*
- C. *Promote Resiliency*
- D. *Promote Efficient Energy Usage*
- E. *Promote Renewables*

IRP Comparison

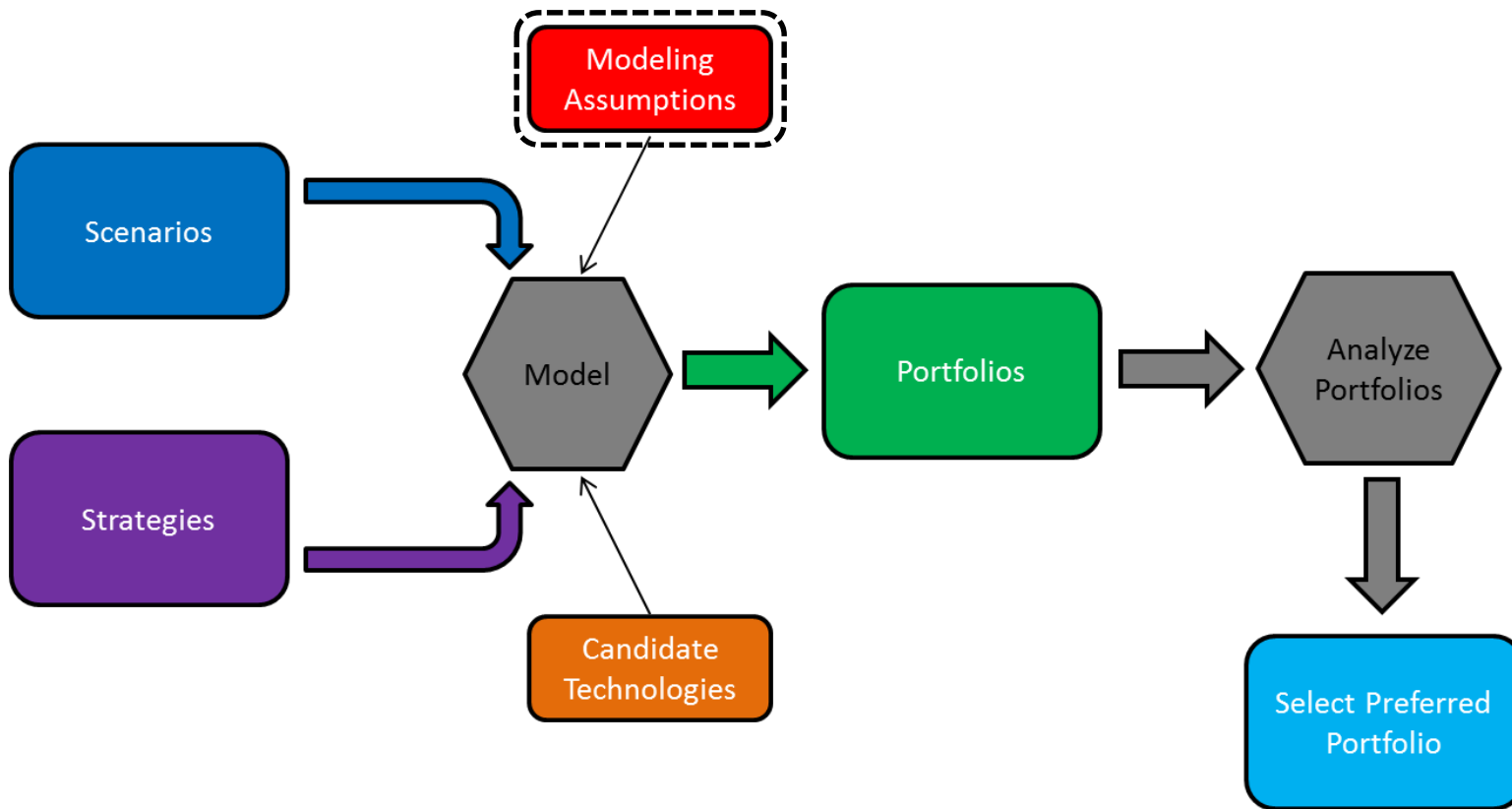
2015 IRP Energy (TWh)



2019 IRP Energy (TWh)



Framework Informs Portfolio Optimization



Planning for an Evolving System



Winter Peaking Demand

Updated reserve margins support reliability in both winter and summer and with more renewables on the system



More Renewable Resources

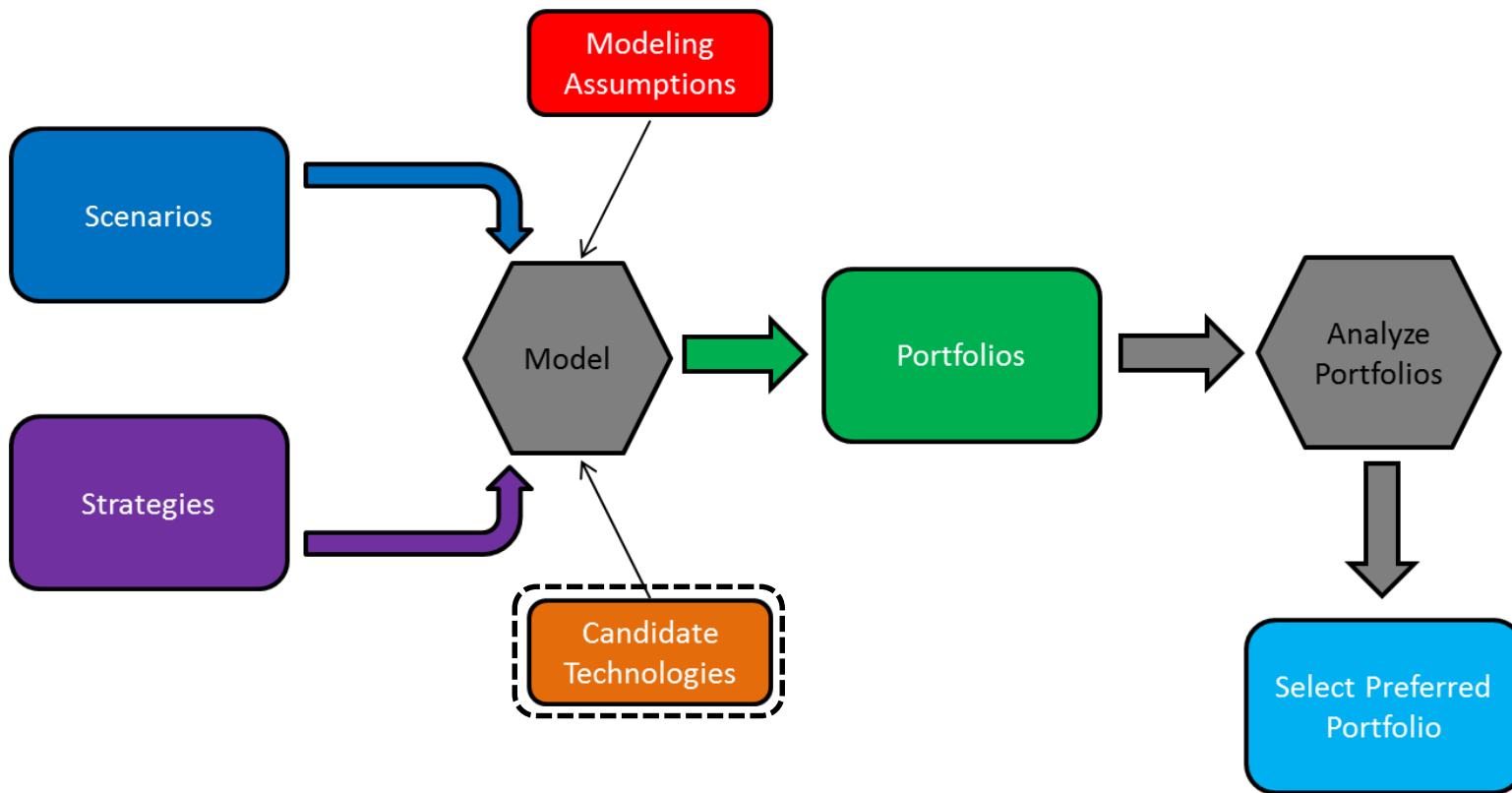
Integration cost recognizes the costs driven by integrating intermittent resources onto the system



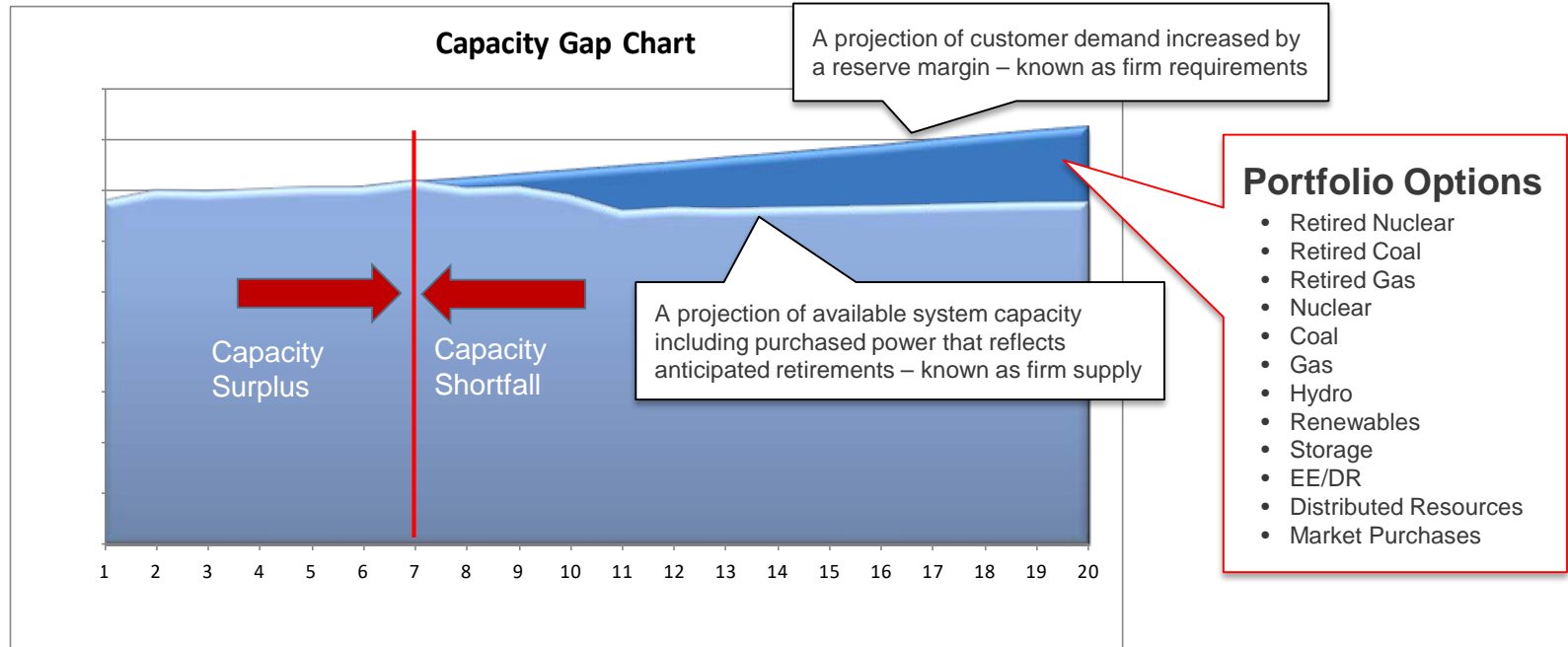
Increasing Need for Flexibility

Flexibility benefit recognizes the benefits driven by integrating flexible resources onto the system

Resource Options Are Offered for Selection



Resource Planning for Future Capacity Needs



Recommended path provides a low-cost, reliable, diverse and flexible system.

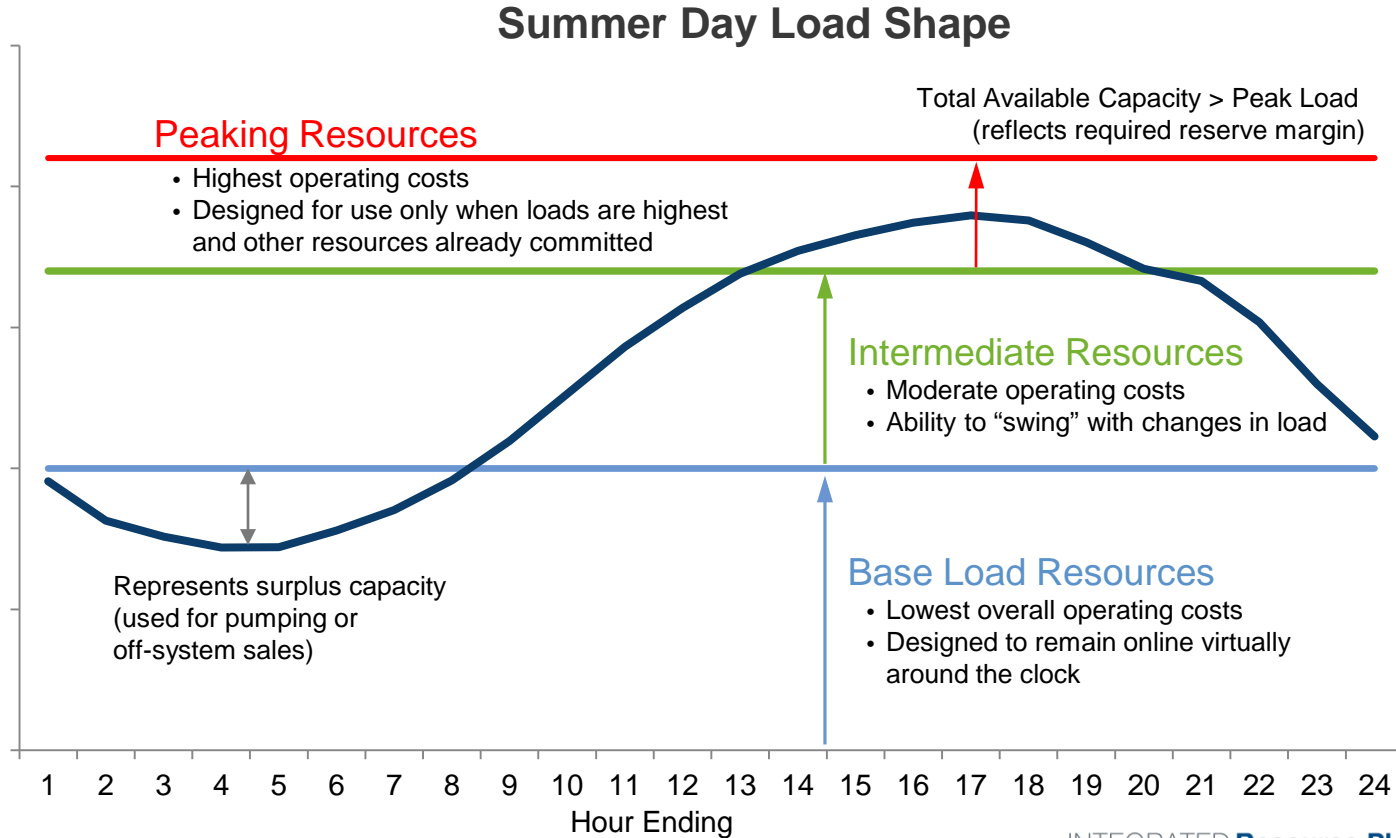
Wide Variety of Resource Options to Consider



Resource options are screened based on multiple criteria:

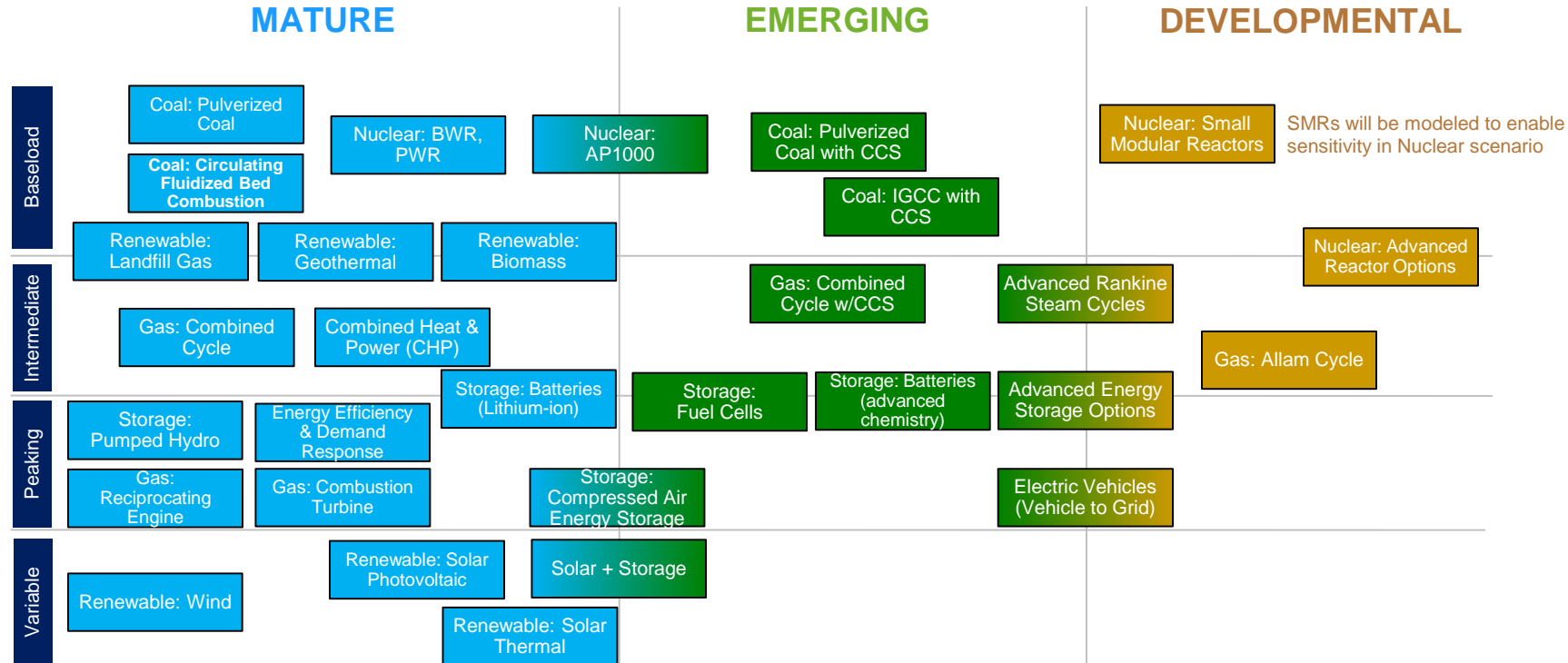
- Technological viability and maturity
- Economic (based on levelized cost)

Resources Have Different Characteristics



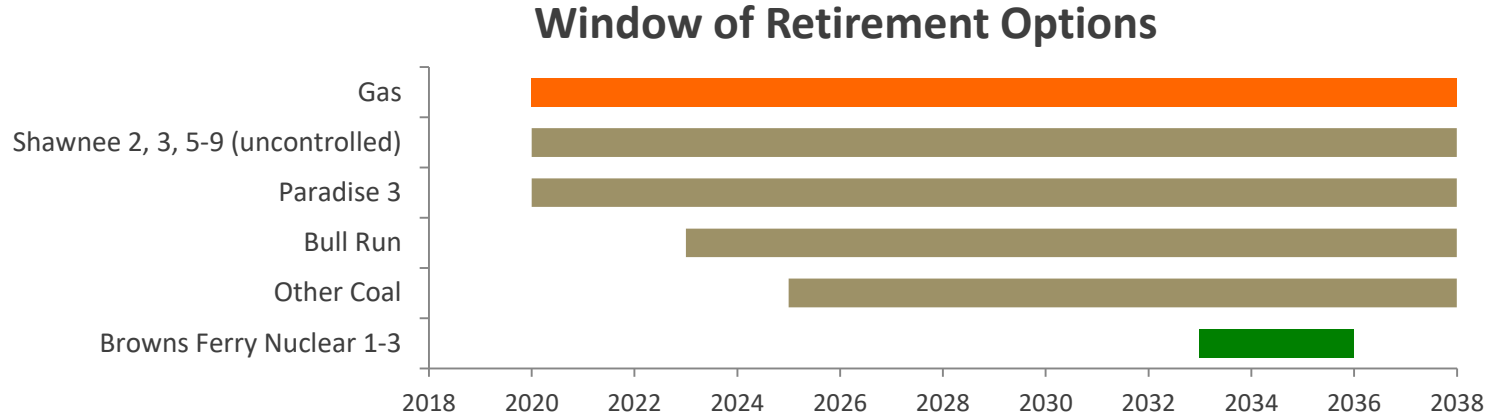
Mature and Emerging Options Will Be Modeled

Tabulation of resources by duty cycle and maturity



Retirement Options

Total costs can be reduced in low load scenarios or when replacement resources are more economic than the ongoing costs of existing resources. It is important that accurate ongoing costs, demolition/closure costs, and transmission upgrades required to retire resources are considered against the cost of new resources.





Update on the NEPA Process

Ashley Pilakowski, NEPA Specialist

IRP Environmental Impact Statement - Purpose and Approach

- Determine environmental impacts system-wide
- Inform decision makers of potential impacts
- Provide public involvement

EIS Process



(** indicates timing of Valley-wide public meetings)

2019 IRP Public Scoping Report

Scoping period: 2/15/2018 to 04/16/2018



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2019 Integrated Resource Plan

TVA has begun work on the 2019 Integrated Resource Plan (IRP)—a comprehensive study that provides direction on how to best meet future electricity demand. Building upon the work done in prior plans, TVA has started the 2019 IRP to proactively address the changing utility marketplace.

The 2019 IRP will explore various scenarios related to expansion of distributed energy resources (DER) in the Tennessee Valley. We will also seek to improve TVA's understanding of the impact and benefit of system flexibility with increasing renewable and distributed resources.

The IRP will consider many views of the future to determine how TVA can continue to provide low-cost, reliable electricity; support environmental stewardship; and spur economic development in the

TVA Publishes 2019 IRP Scoping Report

On Aug. 1, 2018, TVA published the 2019 Integrated Resource Plan (IRP) Scoping Report that includes public comments related to TVA's work on the IRP and related Environmental Impact Statement (EIS). The scoping report includes information about how the IRP and EIS are being developed, and captures public comments TVA received online, by mail and at public meetings during the 60-day scoping period that ran from Feb. 14 to Apr. 16, 2018. [Click here to read the full report.](#)

**2019 IRP SCOPING
REPORT NOW
AVAILABLE AT
www.tva.com/irp**

Major Themes: Scope of EIS

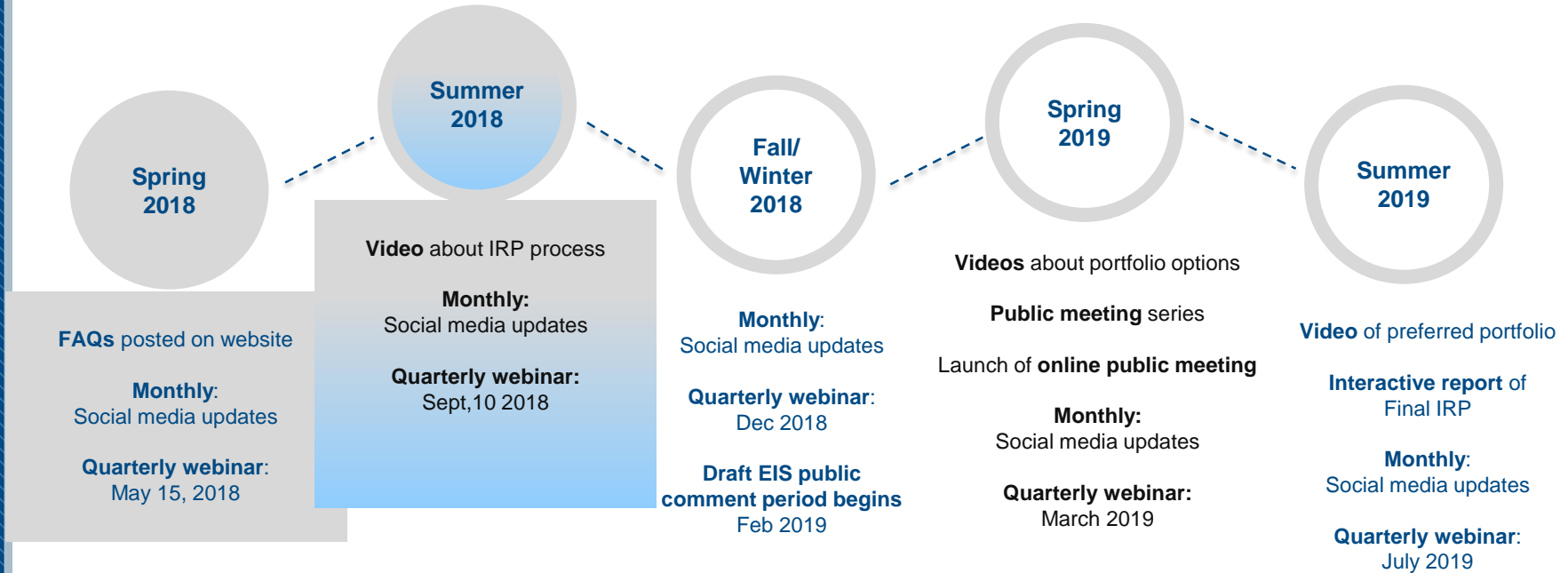
Cumulative effects of generating facilities on wildlife, listed species, and water resources

Call for special attention to environmental justice/ affected environment analyses on impacts to limited income households

General comments on best practices for future evaluations of site specific actions

General input on air quality and greenhouse gas emissions/climate change

Upcoming IRP Public Outreach



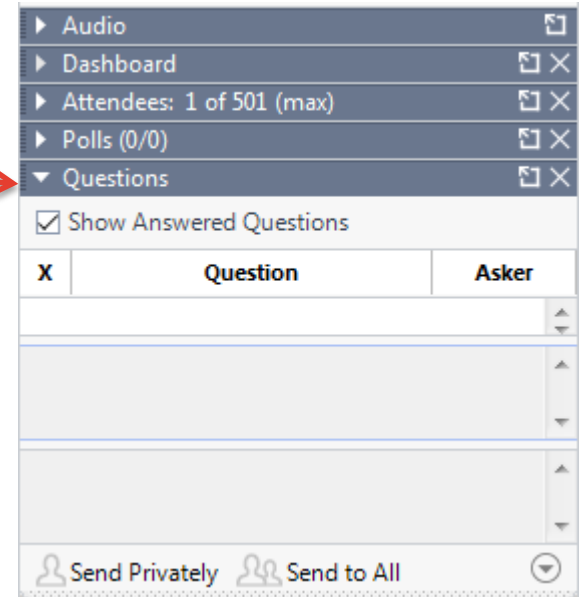
Note: Dates Subject to Change



Question and Answer Session

Clarifying Questions

- Use the 'Question' area of the webinar toolbar to ask clarifying questions

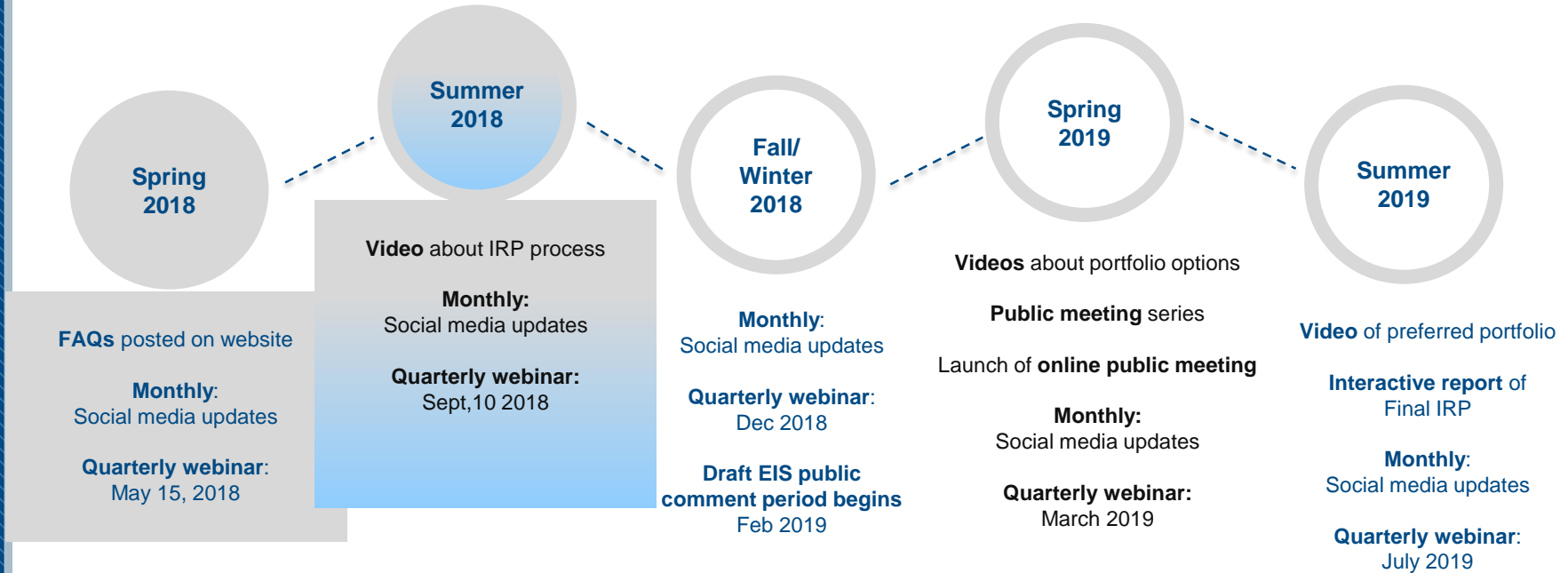




Wrap Up

Hunter Hydas
Enterprise Planning

Upcoming IRP Public Outreach



Note: Dates Subject to Change

How You Can Stay Up to Date

- Visit www.tva.com/irp for current information and content.
- While there, sign up for the email list to receive updates.

