

# Integrated Resource Planning

Roundtable Meeting #20-1

March 19, 2020



# MEETING LOGISTICS

## ▪ Participants:

- Ask questions via 'chat' feature
- Meeting will stay open during breaks, but will be muted
- Electronic version of presentation:

*[portlandgeneral.com/irp](http://portlandgeneral.com/irp)*

## ▪ Teams Live event

- Please click the invite link sent to your email
- You can fully participate via computer (visual and audio) if you have a built in microphone
- If you call in using your phone in addition to joining via the online link please make sure to mute your computer audio
- When we start we will have the all presenters muted but during the presentations we want you to be able to ask questions, please mute yourself when you are not speaking and be aware of background noise



# SAFETY MOMENT

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- Preparing for safe travel
  - Label your luggage with tags that hide your name and address
  - Make photocopies of your photo ID and leave a copy at home with someone
  - Leave a copy of contact names and your itinerary at home and at work in case of emergency
  - Be aware of airport security measures
    - OR identification is not compliant with the REAL ID Act (2005)
    - Starting October 2020 current state ID cards are not valid with TSA requirements
    - DMV will begin issuing compliant ID cards in July 2020
    - Tonight: make sure your passport is up to date if you plan to travel in October, you can get a passport card for \$30-65 rather than a full passport book as an alternative



# AGENDA

- 
- IRP schedule and next steps
  - Values refresh
    - Stakeholder collaboration
  - Capacity assessment
    - Overview of capacity assessment and introduction to new model under development
  - Energy efficiency
    - Update on plans for next long-term savings forecast and energy efficiency discussions for this planning cycle



# IRP Schedule and Next Steps

Jessica Graeber



# IRP Schedule and Next Steps

- Next IRP
  - Launching the next cycle now
  - Throughout 2020 we will be performing analysis and enabling studies
- Upcoming roundtables
  - Regularly scheduled – April 30; May 20
  - Additional online meeting in early April – Dates to be distributed as soon as possible
  - Tentative upcoming roundtable meeting coverage/ requests for feedback in Q2 and Q3 include...
    - Values & themes follow up conversation
    - Technology costs
    - Transmission
    - Integration costs
    - Climate adaptation
    - Capacity assessment technical workshop
    - Uncertainties

# Stakeholder Values Refresh

All attendees



# Stakeholder Values Refresh Overview

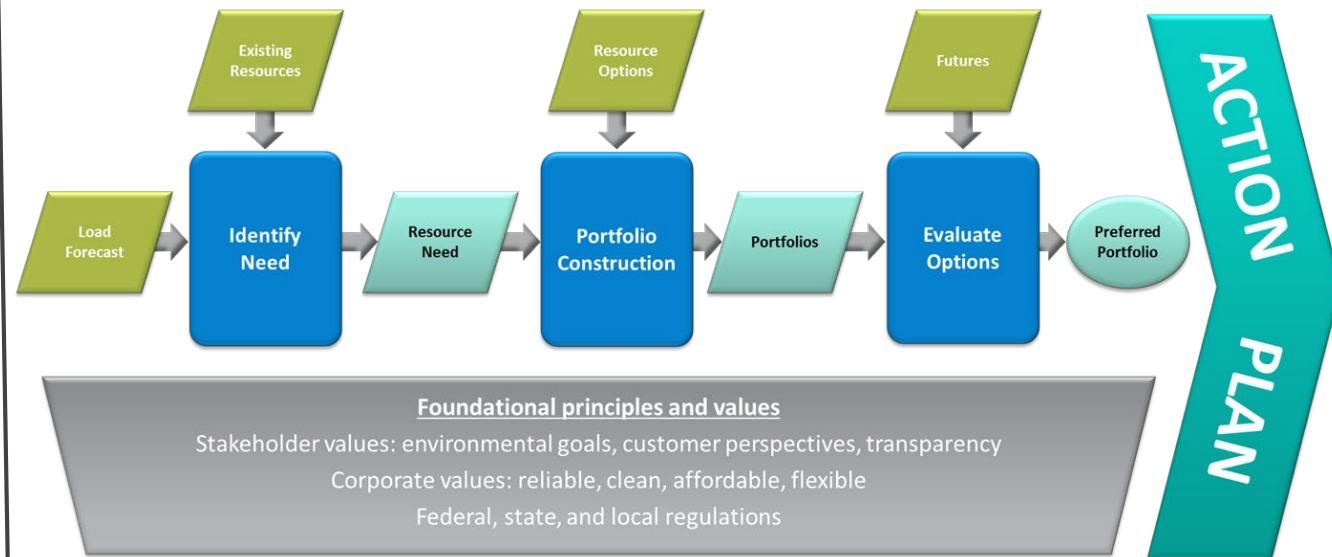
- Reminder of the 2019 values conversation
- PGE's values
- Values discussion
  - What are the values that are important to reflect within the IRP?
    - Time to reflect and share the values which are important to you
- Next steps
  - Combine notes, and confirm values at future roundtable



## 2019 Values Reminder

## Stakeholders' Values

### Sorted expressed Values from RoundTable 17.3 – Word Cloud



# PGE's Values

PGE's long-term planning values stem from our role as a provider of essential service to our customers and the community

- **Reliability**

- Ensure that all customers have reliable essential services – when you flick the switch, the lights come on; your refrigerator has been keeping your food and medicine safe all night

- **Affordability**

- We know that many members of our community struggle to pay their bills and so we strive to keep costs down

- **Sustainability**

- Strive to make decisions which are increasingly clean, in alignment with policies, corporate values, and customer objectives

- **Flexibility**

- Ensure operational and procurement flexibility to provide essential service efficiently in changing markets





# **Group Discussion**

- Time to reflect and discuss the values important to reflect in the IRP (10 minutes)

# Next Steps

- Next steps:
  - We will combine and sort through the expressed values
  - We will return at a future roundtable with the categorized values for a discussion of what we heard
  - Based on the values and other considerations we will identify themes for the next IRP
  - At the future roundtable we will ask stakeholders for input on the themes
  - As a group we will return to these values throughout the IRP process

## IRP themes and innovations

Decarbonization	Uncertainty and Optionality
 <ul style="list-style-type: none"><li>• Decarbonization Study and Decarbonization Scenario</li><li>• Electric Vehicle forecasting</li><li>• Carbon pricing and carbon-constrained portfolios</li></ul>	 <ul style="list-style-type: none"><li>• Portfolio analysis considers 810 futures that explore uncertainty in future needs, technology costs, and market conditions</li><li>• Value of optionality captured in risk metrics</li></ul>
Customer Decisions	Technology Integration and Flexibility
 <ul style="list-style-type: none"><li>• Distributed Energy Resource (DER) adoption forecasting</li><li>• Voluntary renewable program sensitivities</li><li>• Direct Access risks</li></ul>	 <ul style="list-style-type: none"><li>• Holistic approach to renewable integration costs, flexibility value, and flexibility adequacy</li><li>• Consideration of locational value in sensitivity analysis</li></ul>

Example from 2019 IRP

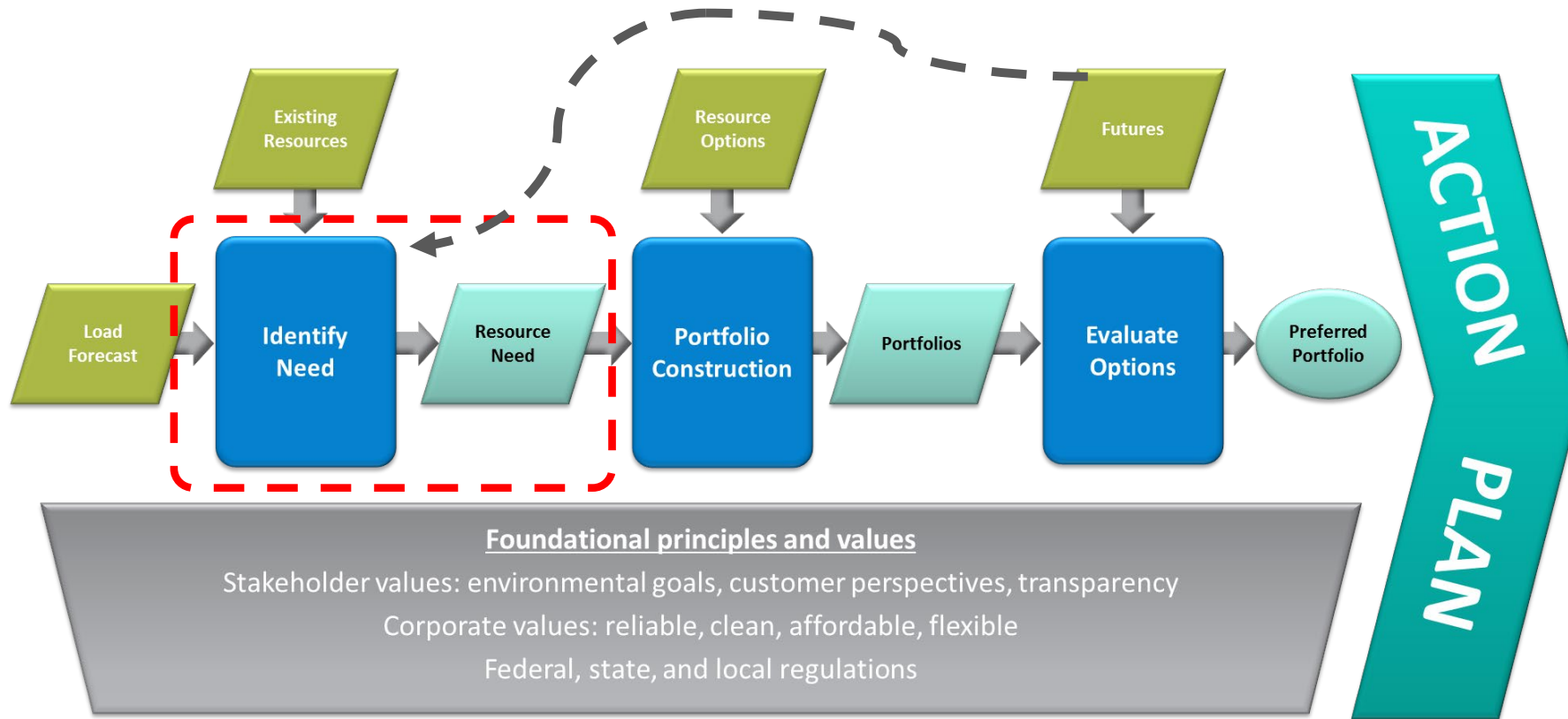


# Capacity Assessment

Kate von Reis Baron



# Need Assessment Analysis





Capacity  
Assessment

Capacity  
Adequacy

Capacity  
Need

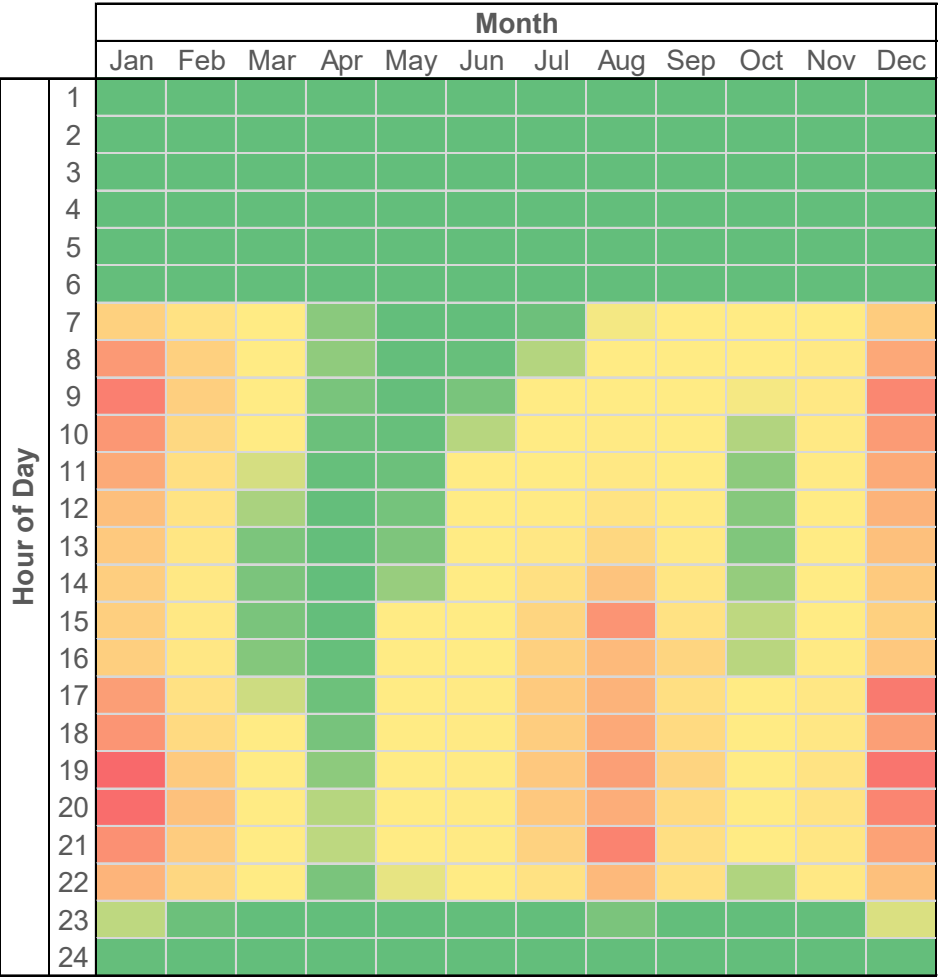
Capacity  
Contribution

# Capacity Assessment Introduction

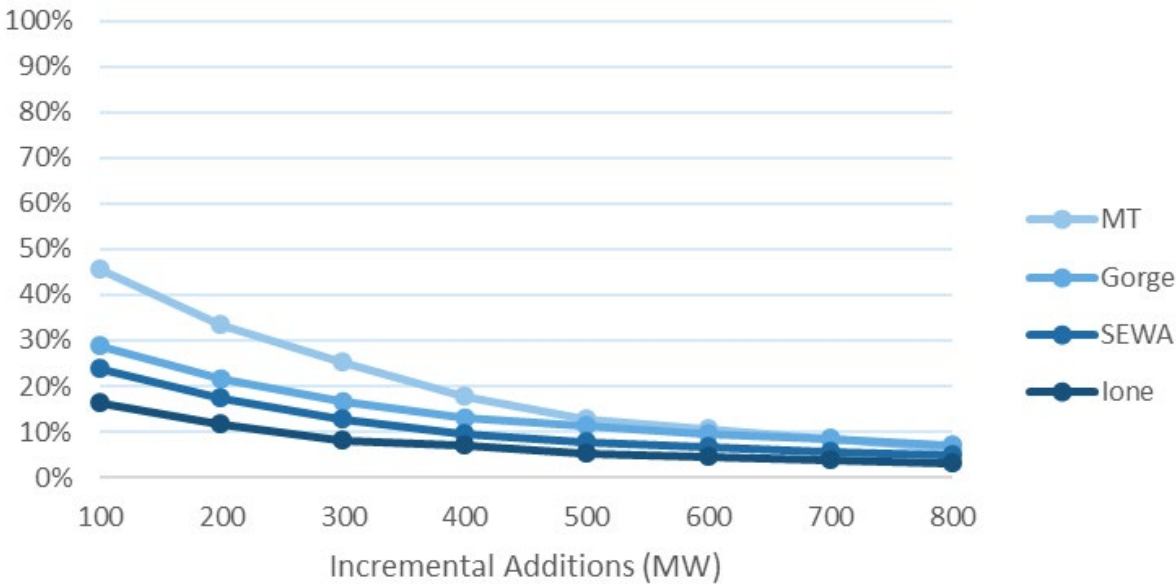
- For long-term planning:
  - **Capacity adequacy** means that a system has sufficient resources to meet a reliability standard (e.g., a loss of load probability of one day in ten years).
  - **Capacity need** is the amount of additional resources needed to achieve the adequacy standard.
  - **Capacity contribution** is the reduction to capacity need from adding an incremental resource. It is dependent both on the new resource characteristics and the characteristics of the system.
- For PGE's IRPs, capacity need and capacity contribution are important components of the Need Assessment and of characterizing potential new resources.
- It is beneficial to use the same model to assess both capacity need and capacity contribution to keep alignment between the values.
- PGE finds that for its system, a probabilistic model is appropriate.

# Capacity Need and Capacity Contribution

Loss of load probability heatmap



Wind Capacity Contribution





# Capacity Assessment Modeling

- PGE adopted the RECAP model for the 2016 IRP.
- This model improved the treatment of variable resources such as wind and solar.
- While the 2019 IRP brought improvements to the modeling of DER and storage resources, the process was inefficient and with room for improvement to better characterize energy-limited resources.
- This will be more important in future planning cycles with increased additions of energy-limited resources.

## Energy-limited Resources

Resources that have limitations to their ability to provide energy (or reduce load) due to limitations of storage, fuel, or duration of calls.

Examples include:

- Demand Response Programs
- Battery Storage
- Pumped Storage
- Hydro with Storage
- Fuel-limited Thermal
- Duration-limited Contracts

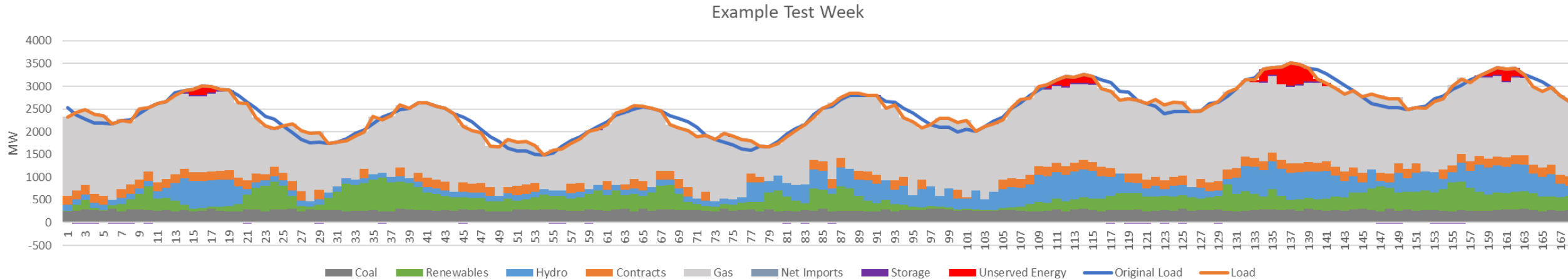
# Introduction to Sequoia

In response to the learnings from the 2019 IRP, PGE began developing an enhanced capacity assessment model, Sequoia.

## Key objectives:

- Improved treatment of energy-limited resources
  - Improved process efficiency
- 
- Sequoia is a probabilistic capacity assessment model that calculates capacity need and capacity contribution of incremental resources.
  - For a given draw of load and resource conditions for PGE's system for a week, Sequoia optimizes resources across the week to minimize loss of load.
    - Single stage: The model has perfect foresight of the whole week.
    - Adequacy: The model solves to minimize unserved energy. It is not an economic dispatch model.

# Introduction to Sequoia



- Python based model, currently uses GAMS and Gurobi for optimization
- Major tasks:
  - Improved inputs for load and resource data sets
  - Data base structure, user interface
  - Python and GAMS code development, testing, validation
  - Output reports, documentation

# Introduction to Sequoia

- Preliminary Schedule
  - May 2020 – Technical workshop – Share draft results, opportunity for Stakeholders to learn more details about the draft model and provide feedback
  - Q3 2020 – Plan to share finalized model and results

## Thoughts and Questions?



# Energy Efficiency

Kate von Reis Baron



# Energy Efficiency Update

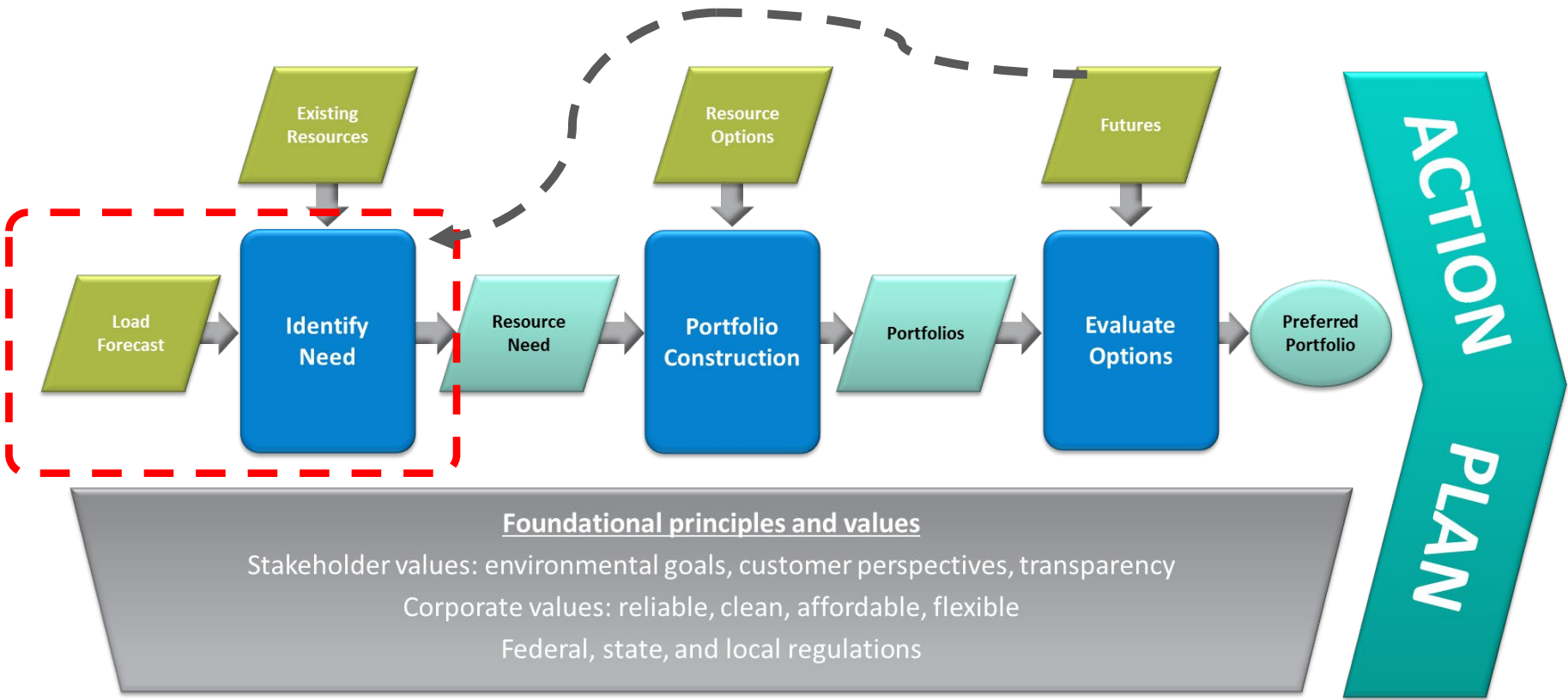
The Energy Trust of Oregon prepares long-term energy efficiency savings forecasts for PGE's IRP process approximately every two to three years.

- The most recent forecast was provided in November 2017.
- The long-term forecast is informed by, but prepared separately from the annual budget forecasts that are based on inputs from Docket No. UM 1893.

Preliminary schedule for next long-term forecast:

- PGE load and avoided cost inputs to Energy Trust in March 2020.
- Long-term energy efficiency savings forecast from Energy Trust in early June 2020.
- PGE plans to prepare an updated Need Assessment that incorporates the new forecast.
- Forecast will have sensitivities based on load (low/high economic forecast) and avoided cost inputs (low/high).
- Energy Trust plans to attend a 2020 Roundtable to discuss the forecast.

# IRP Analysis





# Energy Efficiency

Upcoming discussions for this planning cycle:

- Considerations for treatment of energy efficiency in need futures (part of larger discussion of futures).
- Consideration of if and how IRP portfolio analysis could include the selection of additional energy efficiency measures beyond those found to be cost effective (part of larger discussion of portfolio analysis enhancements).

**Questions and Thoughts?**



# QUESTIONS/ DISCUSSION?



# THANK YOU

Contact us at:

[IRP@pgn.com](mailto:IRP@pgn.com)

Next Roundtable: April 30, 2020

