

# Integrated Resource Planning

vs.

# Dynamic Modelling

A new approach to  
generation and load planning

Ben Olbrich

April 1, 2026

# IRP with Scenario Based Planning

- **What DPU has done in the past**
- Static assumptions updated every 2 to 5 years
- Scenario-based modeling with fixed inputs with deterministic or stochastic analysis
- Uses historical and forecasted load and selected generation options
- Provides clear long-term direction and generation planning focused on least-cost, reliable generation resource mix to meet future electric demand over 20+ years into the future
- Identifies a preferred generation resource portfolio

# IRP Limitations

- Expensive cost \$300,000+ limits frequency
- Results are coarse, identifying general classes of generation resources which may not be practical or achievable
- Static result - an update is needed to plan for changes in:
  - Candidate generation resources
  - Load forecasts
  - Market prices and forces

# Scenario-Based & Adaptive Planning

- This is what was attempted with the last IRP
  - Multiple scenarios with stochastic analysis
  - One planning update built into the agreement
- One planning update wasn't enough
  - Too many planned generation and market changes over the past three years
  - Large, complex model that isn't owned or licensed to DPU
- The “Adaptive Planning” part was insufficient – we need dynamic modelling, not a static IRP

# IRP Alternatives

- Integrated System Plan (ISP): a holistic, long-term planning process that combines generation, transmission, distribution, and customer-side resources (like DERs) to meet decarbonization and reliability goals
- Integrated Grid Plan (IGP): a comprehensive, strategic process that merges traditionally siloed planning—generation, transmission, and distribution—into a unified, long-term framework
- Non-Wires Alternatives (NWAs): Targeting specific grid needs with demand-side management, storage, or local generation, often avoiding or postponing large transmission/distribution investments
- Scenario-Based & Adaptive Planning: Using probabilistic modeling (e.g., LEAP) to handle uncertainty, rather than relying on a single, linear forecast, allowing plans to adjust as technologies change

# Dynamic Modelling

- A new approach
- Near-real-time or continuous planning cycle
- Continuously updated model reflecting changing generation, load and market conditions
- Adaptive decision-making under uncertainty
- Iterative simulations adjusting to new data
- Requires granular operational, market, weather, DER, and grid sensor data
- Continuously updated datasets

# Quick Comparison

	TRADITIONAL IRP	Dynamic Modelling
Frequency	Every 2-5 years	Near-real-time or continuous
Planning Horizon	20+ years	Days, weeks, months, years
Methodology	Scenario-based modeling with fixed inputs Deterministic or stochastic analysis	Iterative simulations adjusting to new data
Data Inputs	Historical and forecasted load and selected generation options	Granular operational, market, weather, generation and transmission data
Benefits	Clear long-term direction and capital asset planning	High adaptability, improved short-term generation and load planning accuracy and optimization
Limitations	Slow to adapt to rapid changes and limited flexibility	Requires advanced data systems and analytics

# Path Forward – Dynamic Modelling

- Change the scope of work to meet the need
  - Don't ask for an IRP
  - Don't ask for a specific solution
- Ask for solutions for the problem, the statement of need rather than a scope of work
  - Dynamic generation and load forecasting
  - Build the model as a starting point
  - Allow for frequent updates to the inputs and constraints as needed, not simply periodically
    - Could be performed as an on-call service
    - Could be performed by staff if the model is licensed to DPU
  - Option for day-ahead and real-time generation and load planning to support **Extended Day-Ahead Market (EDAM)**