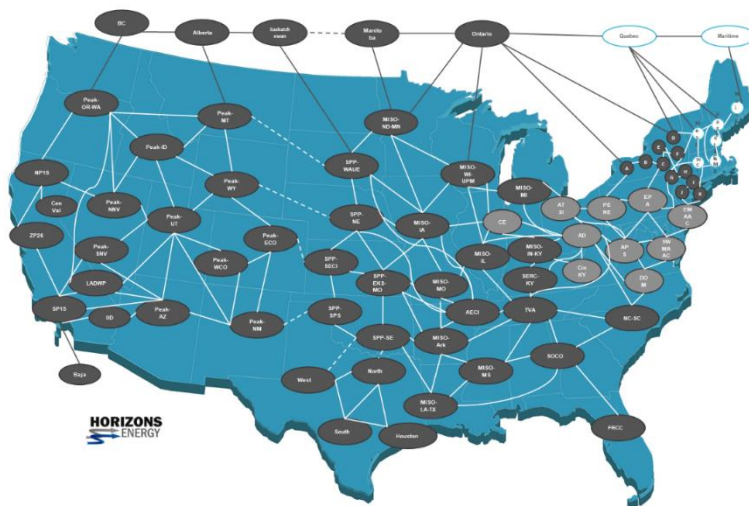


### Overview

- Forward-looking view of North American energy industry
- Fundamental analysis of the electricity markets: energy, fuel, capacity, renewable energy shadow prices and emissions pricing and ancillary services
- Integrated with related markets: fuels, emissions, transmission, demand and emerging technologies
- Forecast out to 2050 across nine scenarios
- Extensively researched, benchmarked and analyzed



### Applications

- Asset valuation to determine profitability of investment by developers, banks, investors
- Market intelligence for developers
- Environmental analysis for IOUs, market players
- Integrated resource planning by IOUs
- Public policy for governmental agencies, market participants

### Deliverables

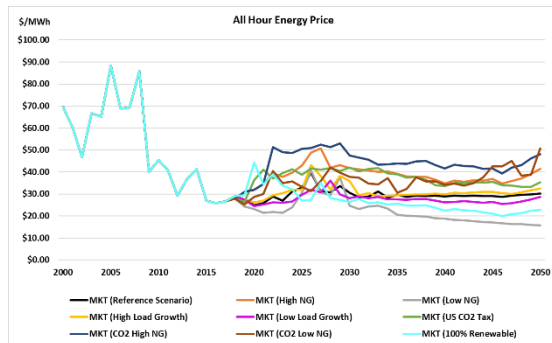
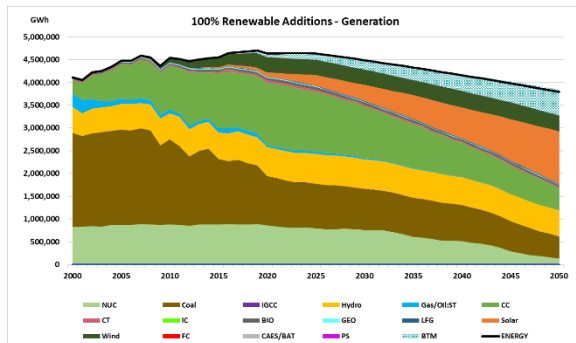
- **Forward-looking View** – Horizons Energy’s semi-annual report covers forecasts and analysis of 78 North American power markets. This document includes a Market Overview of both electricity and related markets. It contains assumptions for resource expansion as well as retirement options. Also, there are market break-outs for each of the 21 NERC Assessment Areas and a summary of the assumptions and results for the nine scenarios.

Content	Description	Granularity
Evaluator™	Interactive dashboard user-selectable that allows for evaluation of results for generation, energy and fuel prices, emissions, implied heat rate across 9 scenarios	Market area, assessment area, USA, Canada
Fuel Prices	Daily Henry Hub, delivered natural gas, and oil, annual basin and delivered coal prices	Market area
Energy Prices	Annual and monthly on-, off-peak prices, all hours and 8,760	Market area
Resources	Individual units by fuel and technology type	Market area, state, fuel delivery point
Production Results	Peak, available capacity, reserve margin, generation, average production and load weighted price (\$/MWh)	Market area
Additions/Retirements	Summary of economic additions and retirements	Market area, assessment area

## Value

Key advantages of the Horizon Advisory Service over the competition are results provided nationally for 30+ years in a single Excel workbook, interactive dashboard to review results, content delivered where average production cost can serve as an indicator of avoided energy cost.

- **No Short-cuts Here** - The entire North American database simulated at once. This critical requirement for capturing national and state policies (RPS, emissions), related markets (such as fuel) and system constraints.
- **Multiple Scenarios** –Our nine scenarios include a Base Case and eight variations of Natural Gas Price, Load Growth, CO<sub>2</sub> Policy, Renewable Technology Cost and Penetration.
- **Hourly Detail** – 8,760 hours per year to provide high-level time resolution for power operations.
- **Blended History and Forecast** - to create the Horizon Advisory Service we thoroughly backcast from the year 2000 to 2016 and forecast to 2050, allowing for a comprehensive understanding of markets, technologies and operations unique to each area.
- **Supply Chain Constraints** - dynamically captures costs associated with expanding resource technologies beyond available production capability.
- **Bid Behavior** – included to provide a better estimate of the value of scarcity and hourly/daily market price volatility.



## About Horizons Energy

Horizons Energy provides a broad array of consulting services and products to meet the needs of energy industry participants. To learn more contact [Horizons Energy](#).

### Powered By EnCompass

The Horizons Advisory Service utilizes the [EnCompass](#) power planning model provided by Anchor Power. EnCompass deploys a powerful mix-integer linear programming framework capable of representing long-term planning, portfolio optimization and both hourly and sub-hourly operations for zonal and nodal powerflows. By combining the Horizons North American database with the EnCompass simulation engine Horizons Energy derives *simultaneous price forecasts* of multiple markets including: energy, ancillary, capacity, environmental and REC's.

[Horizons Energy](#)