Electricity Market in Japan - Background

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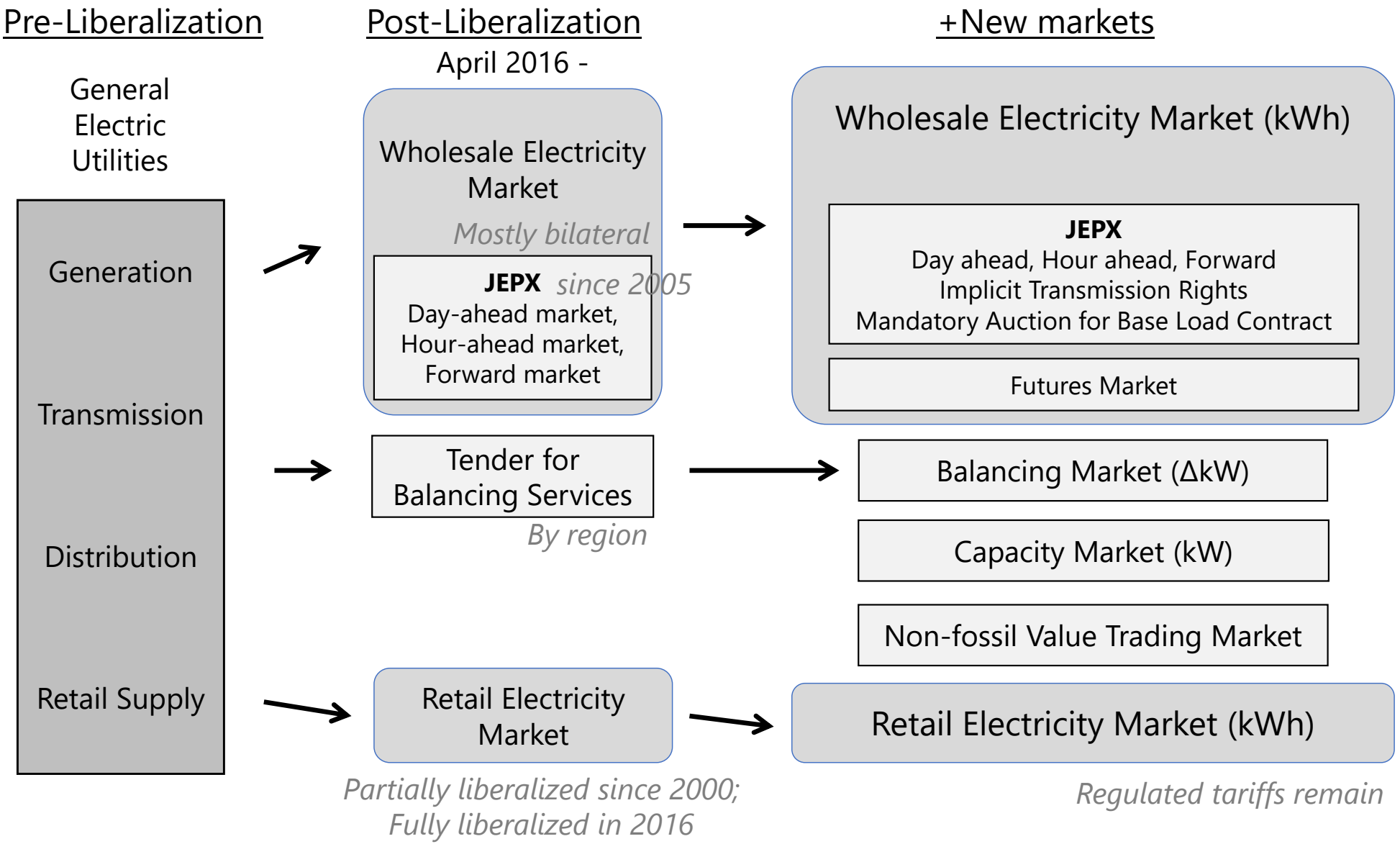
Historical Development



Source: Author's own illustration

International Comparison

U.S. liberalized market	Europe	Japan
Dispatch		
Central dispatch	Self dispatch	
Bid-format (day-ahead market)		
Unit-specific bids containing economic and technical parameters (e.g., TPO)	Energy bid per MWh (kWh) based on their portfolio-based position	
Real-time balancing responsibility		
ISO/RTOs have balancing responsibility; Deviations from DA schedule settled at RT market price	Balancing responsible parties (Europe) / balancing groups (Japan) incentivized to self-balance with system operator's balancing role meant to be residual	
Procurement of Balancing Service		
Several types of balancing services centrally co-optimized with energy in DA or RT	Balancing service procurement and energy markets run sequentially by different entities; Generators can choose which market to sell	
Congestion Management		
Nodal pricing	Zonal pricing and re-dispatch	Area prices and re-dispatch

Source: Partially adopted from Roques, F. (2019). "Wholesale power market design – Key issues and principles for an efficient decarbonization"

On the Latest Development

- Long-term Decarbonized Capacity Auction
  - 20-year capacity contract for decarbonized generation and storage
  - Successful bidders can recover fixed cost (by design), eliminating the revenue risk
  - Pay-as-bid auction with technology-based offer cap; i.e., cost-based auction with regulatory oversight
- Optimization of spot market and balancing market
  - Adopting the U.S.-style centralized wholesale market operation but maintaining the decentralized framework of balancing groups responsible for imbalance?