

# The Economics of Power System Transitions

## Objective

In regulated markets, current integrated resource planning does not account for trends underway on the demand side that predict significant growth in consumers' electricity demand, nor does such planning consider future changes in how electricity is consumed or in consumers' demand for reliability.

## Approach

We assess the need for the implementation of more efficient electricity market designs that provide reliability and cleaner energy and that reflect heterogeneous consumer demands and preferences for reliability.

## Impact

A broader energy system transition will require changes to the way in which electricity is demanded and supplied, and at a pace much faster than has occurred historically.

- Total power system capacity in 2050 is predicted to be 69 percent larger than today, and total generation is predicted to be 36 percent larger than today.
- The share of renewables (other than hydroelectricity) will increase from 16 to 43 percent of capacity.
- In future power systems dominated by variable renewable energy (VRE), intermittent generation will create challenges for the provision of reliable electricity supplies.
- Going forward, greater integration and engagement with the demand side by planners is essential.

Webster, M., K. Fisher-Vanden, I. Sue Wing, 2024, "The Economics of Power System Transitions," Review of Environmental Economics and Policy, volume 18, number 1, winter 2024. <https://doi.org/10.1086/728101>



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