Energy market design for transition to high shares of renewables

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How can market design support reliability against larger uncertainties during transition to high shares of renewables and flexibility?

	Contribution	Design question
Energy market with forward contracting	• Retail competition limits contracting -> Implement mandatory contracting? • Government intervention in extreme events limits credibility/contracting -> Requires additional measure?	• Shift from base-load to renewable profile as reference contract? • Complement with contracts for flexibility (price spreads)? • Decision criteria: when are markets suspended in emergency?
Capacity mechanisms additional revenue for **all** resources	• Uncertain accreditation/qualification for flexibility reduces investment case • Increasing reserve levels reduces energy price variability and flexibility usage	• How to account for MW and MWh in capacity products?
Reliability reserve **only reserve** is remunerated, released at strike prices	• Historically disregarded as inefficient and not credible to investors • During transition could insure energy market with forward contracting • Environmental requirements could enhance credibility of mechanism	• What trigger-price is high enough for demand response and low enough to be regulatory robust? • Who can participate in reserve? • Alignment with curtailment mechanism in emergency?

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For more discussion see: „A coordinated strategic reserve ..", https://doi.org/10.1016/j.jup.2016.02.002