

# Beyond Generation: Considerations for Microgrid Tariffs

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Topic: Stakeholder Development & Industry Trends  
Vertical: Analytics  
Strategic Pathway: Optimize  
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## PROBLEM

- Microgrids have generally been developed on a limited basis for private benefits—primarily resilience during grid outages—that cannot be monetized.
- Tariffs can be a means for aligning private resilience objectives with utility reliability objectives, but no state has yet developed tariffs that allow microgrids to operate on multiple properties or sell grid services.

## APPROACH

The objective of this project is to provide states and utilities with practical guidance in designing economic tariffs that allow microgrids to sell grid services.

We do this by describing microgrids and the grid services they can provide, looking at existing tariffs that govern microgrid operations, and then identifying mechanisms for assigning value to the services that microgrids can provide.

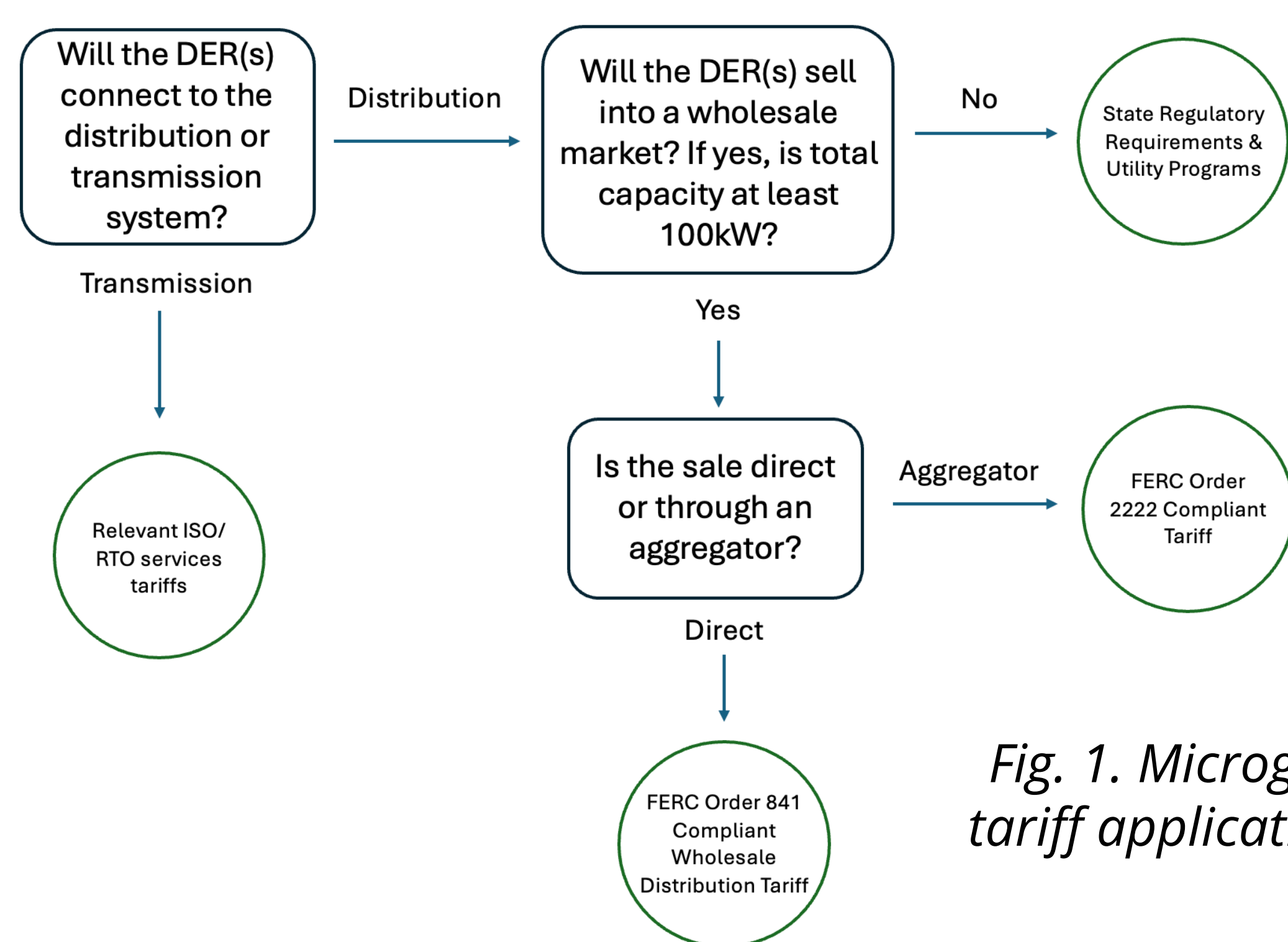


Fig. 1. Microgrid tariff applications

## STATE MICROGRID TARIFF PROGRESS

While no state has yet developed a tariff that allows microgrids to sell grid services, limited activity in some states to develop rules for microgrid operations provides foundational principles:

- Definitions for microgrid boundaries and eligibility
- Criteria for design, operation, and aggregation
- Incentive program design and customer protection
- Rate rules for participating customers
- Interconnection considerations for exit fees, self-supply fast tracking, and sizing rules

## GRID SERVICE EVALUATION

There are few examples for how to calculate grid service values outside of wholesale markets, but grid modeling tools are available and summarized in Table 1 by the grid operational objectives they can address. Decision makers can use this simplified view of potential approaches and determine how to include state-specific performance objectives for grid services.

Table 1: Grid Service Objectives and Evaluation Approaches

| Operational Objective         | Performance Evaluation                                                                          |
|-------------------------------|-------------------------------------------------------------------------------------------------|
| Peak Shaving                  | Capacity expansion model, effective load carrying capability analysis, capacity auction results |
| Load Shaping                  | Production cost model                                                                           |
| Frequency Regulation          | Power flow model, production cost model                                                         |
| Spinning/Contingency Reserves | Production cost model                                                                           |
| Voltage Management            | Power cost model                                                                                |

## CONCLUSIONS AND NEXT STEPS

When designing economic microgrid tariffs, utilities and regulators may consider:

- Interconnection requirements that will unleash certified utility-interactive and grid-support capabilities
- Matching grid constraints to service objectives that can be valued within grid service programs
- Sizing microgrids and aggregation programs based on distribution and transmission system needs
- Compensation at the aggregated level and rate protection at the customer level
- Designing tariffs in terms of grid needs rather than resource types to maintain flexibility in design and operations

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