

Appendix B

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CPUC Energy Storage Use Case Analysis

[Application]

[Use Case]

Version 0.1

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1. Overview Section

2. Use Case Description

2.1 Objectives

2.2 Actors

<i>Name</i>	<i>Role description</i>

2.3 Proceedings and Rules that Govern Procurement Policies and Markets for This Use

<i>Agency</i>	<i>Description</i>	<i>Applies to</i>

Probably some text here.....

2.4 Location

2.5 Operational Requirements

2.6 Applicable Storage Technologies

<i>Storage Type</i>	<i>Storage capacity</i>	<i>Discharge Characteristics</i>

2.7 Non-Storage Alternatives for Addressing this Objective

Narrative

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3. Cost/Benefit Analysis

3.1 Direct Benefits

<i>End Use</i>	<i>Primary/ Secondary</i>	<i>Benefits/Comments</i>
1. Frequency regulation	P	
2. Spin	P	
3. Ramp	P	
4. Black start		
5. Real-time energy balancing	P	
6. Energy arbitrage	P	
7. Resource Adequacy	P	
8. VER ¹ / wind ramp/volt support,		
9. VER/ PV shifting, Voltage sag, rapid demand support		
10. Supply firming		
11. Peak shaving: load shift		
12. Transmission peak capacity support (deferral)		
13. Transmission operation (short duration performance, inertia, system reliability)		
14. Transmission congestion relief		
15. Distribution peak capacity support (deferral)		
16. Distribution operation (volt/VAR support)		
17. Outage mitigation: microgrid		
18. TOU energy mgt		
19. Power quality		
20. Back-up power		

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¹ VER = Variable Energy Resource

3.2 Other Beneficial Attributes

<i>Benefit Stream</i>	<i>Y/N</i>	<i>Assumptions</i>

3.3 Costs

<i>Cost Type</i>	<i>Description</i>
Installation	
O&M	

3.4 Cost-effectiveness Considerations

Narrative

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4. Barriers Analysis & Policy Options

4.1 Barrier Resolution

<i>Barriers Identified</i>	<i>Y/N</i>	<i>Policy Options / Comments</i>
System Need		
Cohesive Regulatory Framework		
Evolving Markets		
Resource Adequacy Value		
Cost Effectiveness Analysis		
Cost Recovery Policies		
Cost Transparency & Price Signals		
Commercial Operating Experience		
Interconnection Processes		
Other issues		
		Other comments

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4.2 Other Considerations

5. Real World Example

5.1 Project Description

Location	
Operational Status	
Ownership	
Primary Benefit Streams	
Secondary Benefits	
Available Cost Information	

5.2 Outstanding Issues

<i>Description</i>	<i>Source</i>

5.3 Contact/Reference Materials

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6. Conclusion and Recommendations

Is ES commercially ready to meet this use?

Is ES operationally viable for this use?

What are the non-conventional benefits of storage in this use?
Can these benefits be monetized through existing mechanisms?
If not, how should they be valued?

Is ES cost-effective for this use?

What are the most important barriers preventing or slowing deployment of ES in this use?

What policy options should be pursued to address the identified barriers?

Should procurement target or other policies to encourage ES deployment be considered for this use?

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