IEEE P802.3at
DTE Power Enhancements management ad hoc

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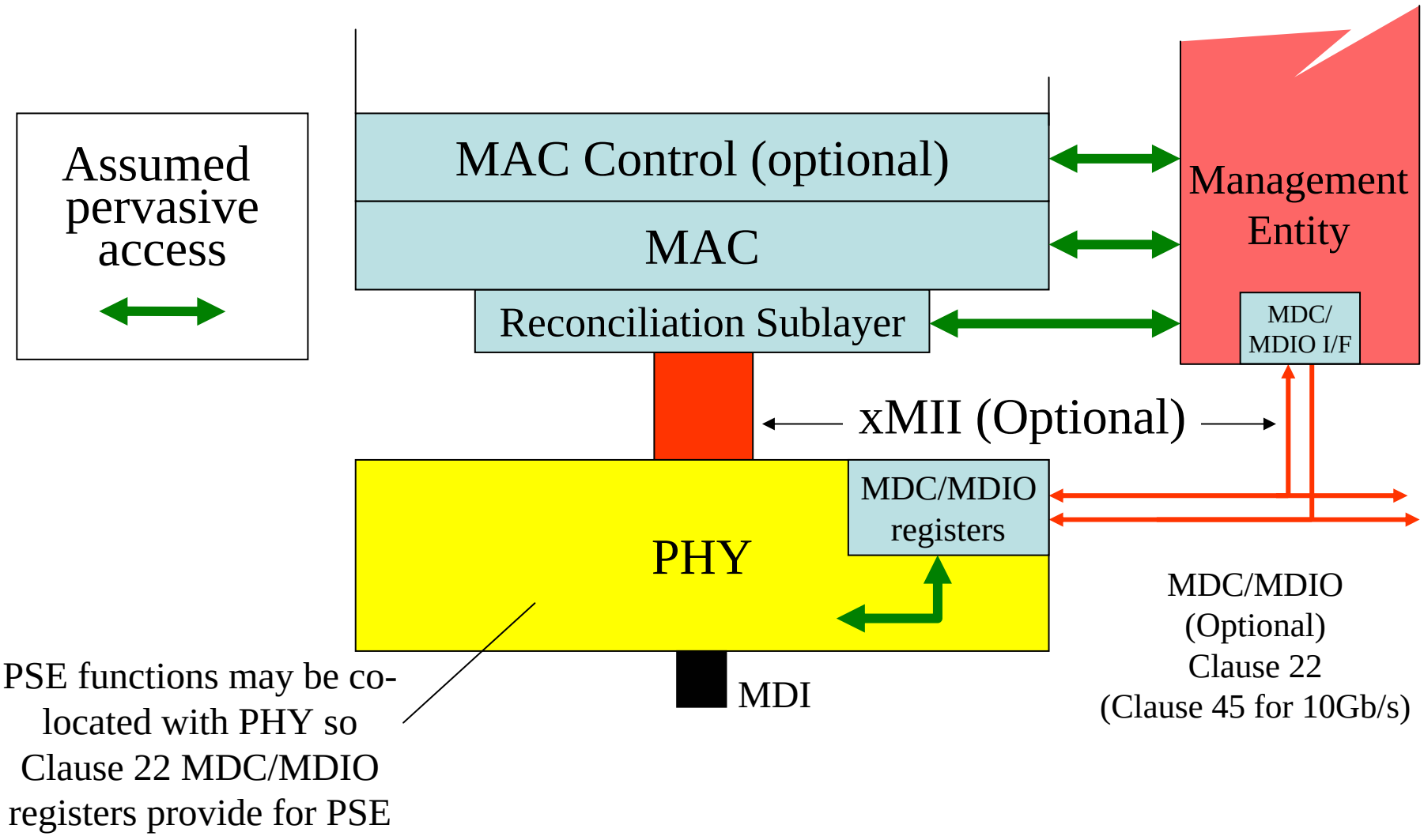
Ad hoc scope

- Management outside of Layer 2
- Out of scope
  - Management of Layer 2 classification
    - Contact Ramesh Sastry
- In scope
  - PSE management
    - Updates to current specification
  - PD management
    - Currently there is none

Management access



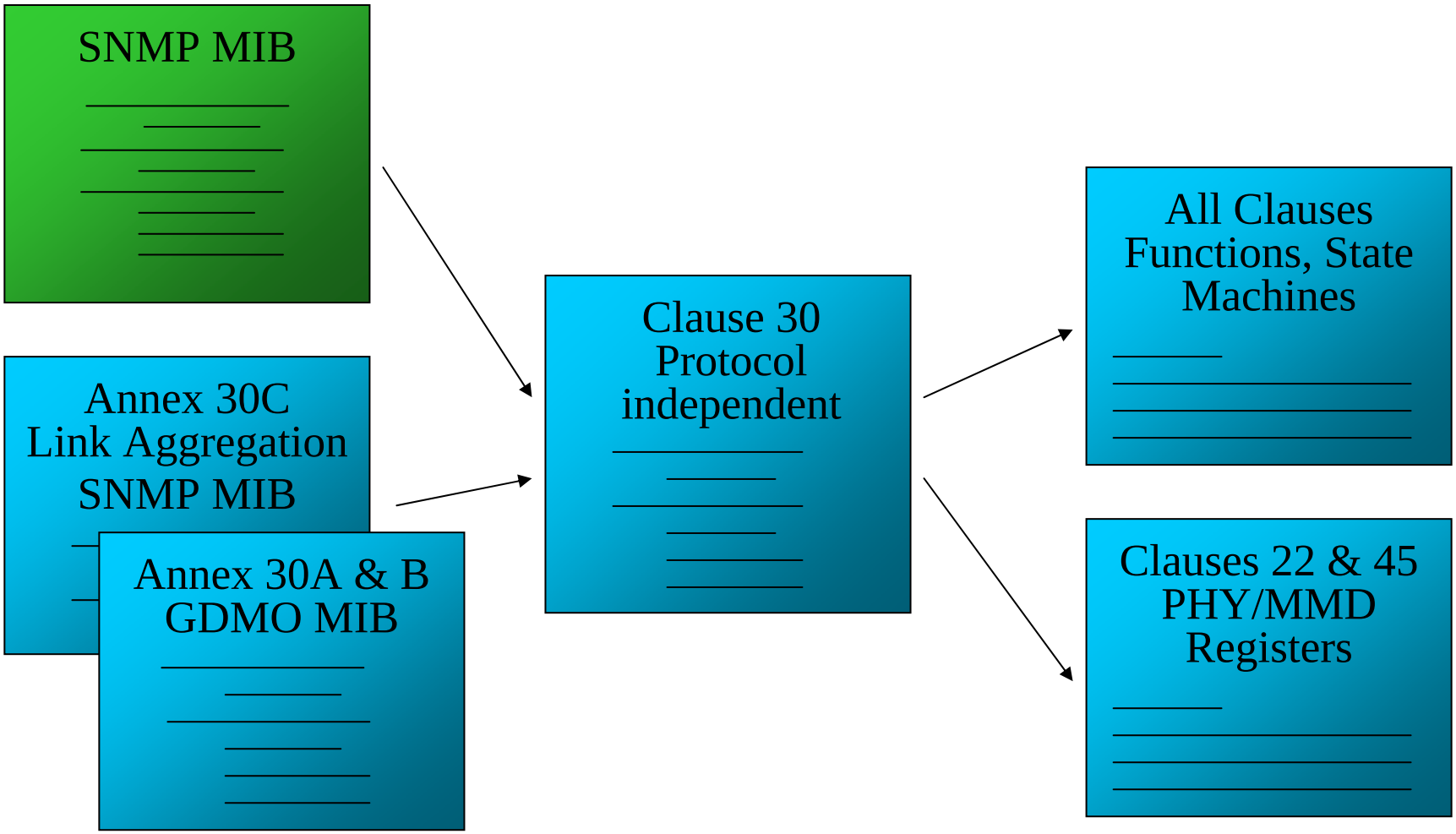
Clause 30 Objects

- Generally provide Objects that are associated with hardware function
  - Object behaviour specifications reference functions and registers within the relevant Clause of 802.3
- Generally don’t provide object if it doesn’t require hardware support
  - Examples
    - Objects that could be calculated from other objects

Management structure

- Protocol independent MIB clause
  - Clause 30
- Protocol dependent MIB annexes
  - GDMO
    - Annex 30A & 30B
  - SNMP - Link Aggregation only
    - Annex 30C
    - Being moved to IEEE 802.1
      - IEEE P802.1AX Link Aggregation project
- Other SNMP MIB use to be generated by IETF
  - Referenced Clause 30 definitions
  - This is no longer happening

References to/from Clause 30



Review of current management attributes

PSE Disabled

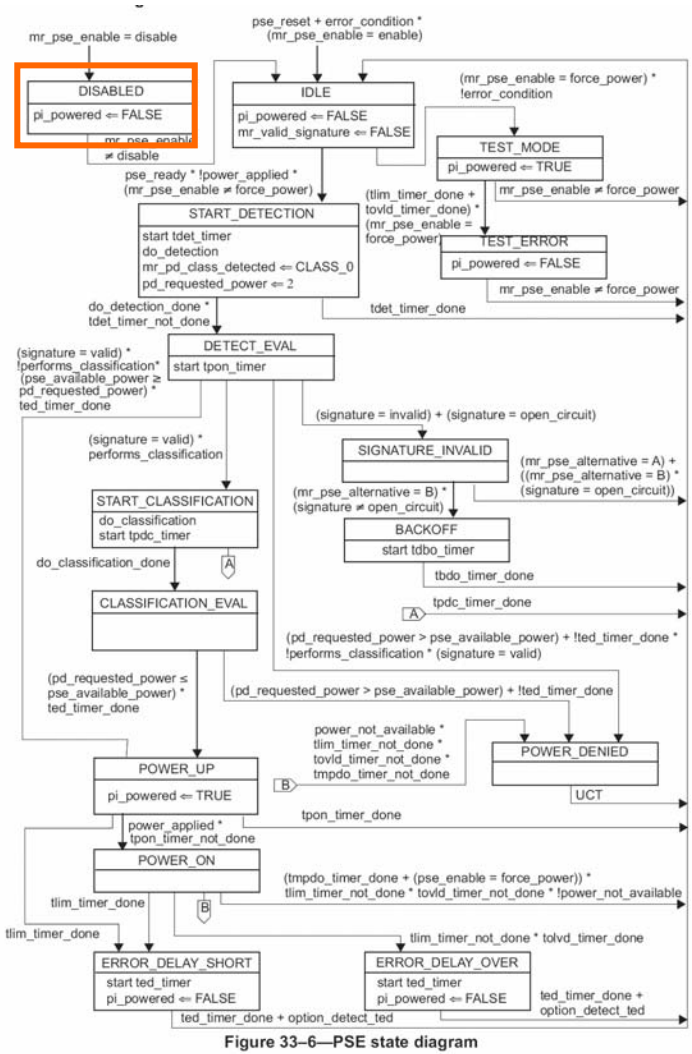


Figure 33–6—PSE state diagram

oPSE managed object class (30.9.1)				
aPSEID	ATTRIBUTE	GET	X	
aPSEAdminState	ATTRIBUTE	GET	X	
aPSEPowerPairsControlAbility	ATTRIBUTE	GET	X	
aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPSEOverLoadCounter	ATTRIBUTE	GET		X
aPSEShortCounter	ATTRIBUTE	GET		X
aPSEMPSAbsentCounter	ATTRIBUTE	GET		X
acPSEAdminControl	ACTION		X	

Attribute	Enumeration/State
aPSEPowerDetectionStatus	disabled
aPSEPowerMaintenanceStatus	MPSAbsent
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Not incrementing

No Signature/Invalid Signature

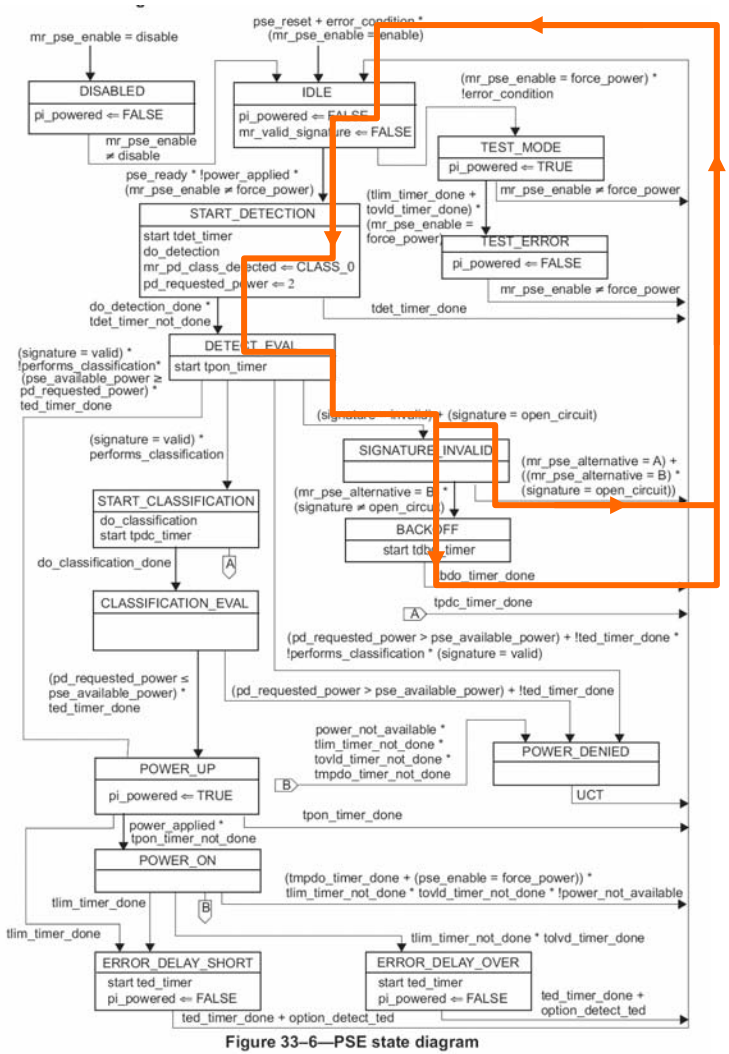


Figure 33–6—PSE state diagram

oPSE managed object class (30.9.1)				
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aPSEAdminState	ATTRIBUTE	GET	X	
aPSEPowerPairsControlAbility	ATTRIBUTE	GET	X	
aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPSEOverLoadCounter	ATTRIBUTE	GET		X
aPSEShortCounter	ATTRIBUTE	GET		X
aPSEMPSAbsentCounter	ATTRIBUTE	GET		X
acPSEAdminControl	ACTION		X	

Attribute	Enumeration/State
aPSEPowerDetectionStatus	searching
aPSEPowerMaintenanceStatus	MPSAbsent
aPSEInvalidSignatureCounter	Incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Not incrementing

Power denied

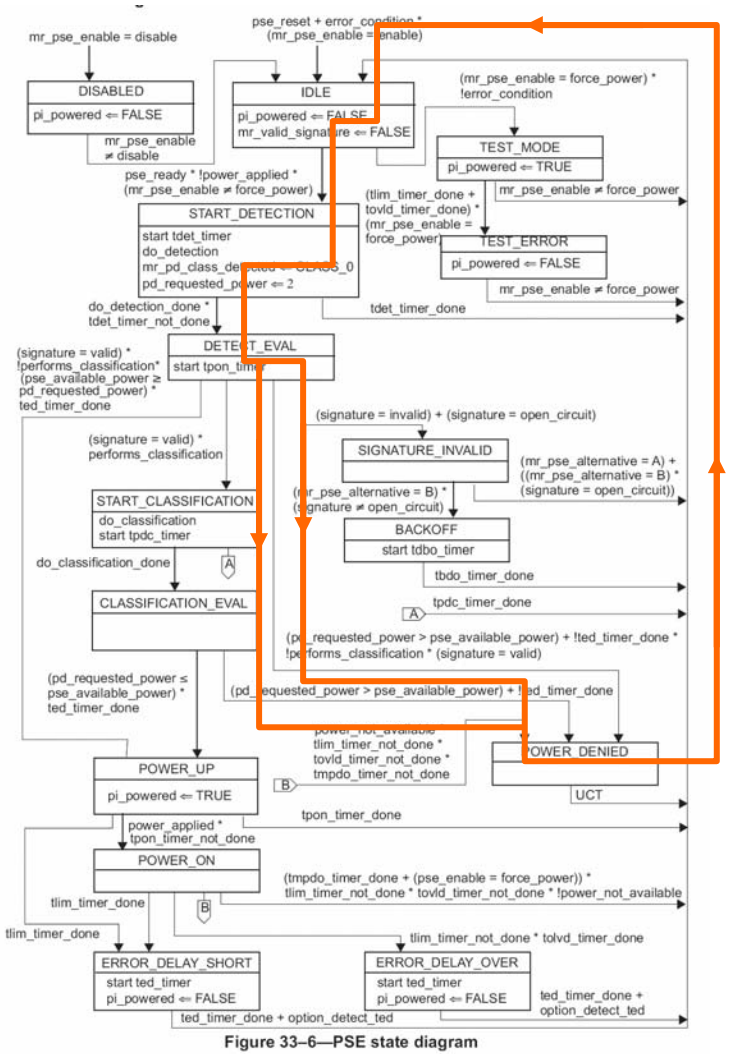

Figure 33–6—PSE state diagram

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aPSEAdminState	ATTRIBUTE	GET	X	
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aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPSEOverLoadCounter	ATTRIBUTE	GET		X
aPSEShortCounter	ATTRIBUTE	GET		X
aPSEMPSAbsentCounter	ATTRIBUTE	GET		X
acPSEAdminControl	ACTION		X	

Attribute	Enumeration/State
aPSEPowerDetectionStatus	searching
aPSEPowerMaintenanceStatus	MPSAbsent
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Not incrementing

PD Removing Maintain Power Signature

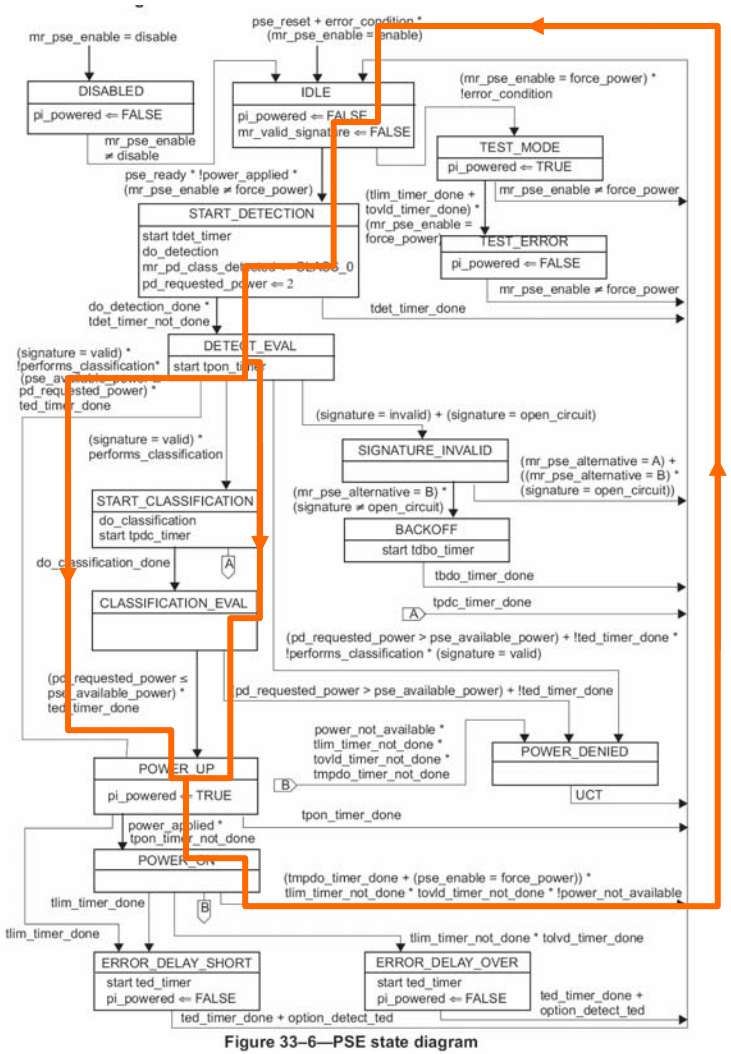
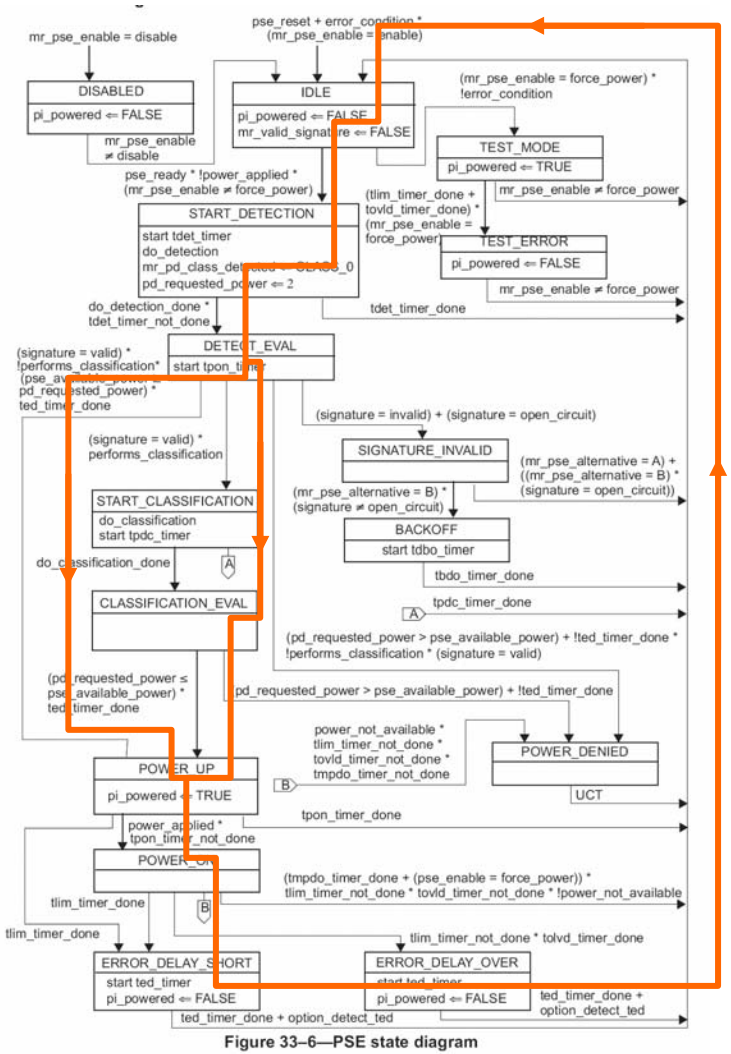


Figure 33–6—PSE state diagram

oPSE managed object class (30.9.1)				
aPSEID	ATTRIBUTE	GET	X	
aPSEAdminState	ATTRIBUTE	GET	X	
aPSEPowerPairsControlAbility	ATTRIBUTE	GET	X	
aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPSEOverLoadCounter	ATTRIBUTE	GET		X
aPSEShortCounter	ATTRIBUTE	GET		X
aPSEMPSAbsentCounter	ATTRIBUTE	GET		X
acPSEAdminControl	ACTION		X	

Attribute	Enumeration/State
aPSEPowerDetectionStatus	searching/deliveringPower
aPSEPowerMaintenanceStatus	MPSAbsent
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Incrementing

Short Circuit



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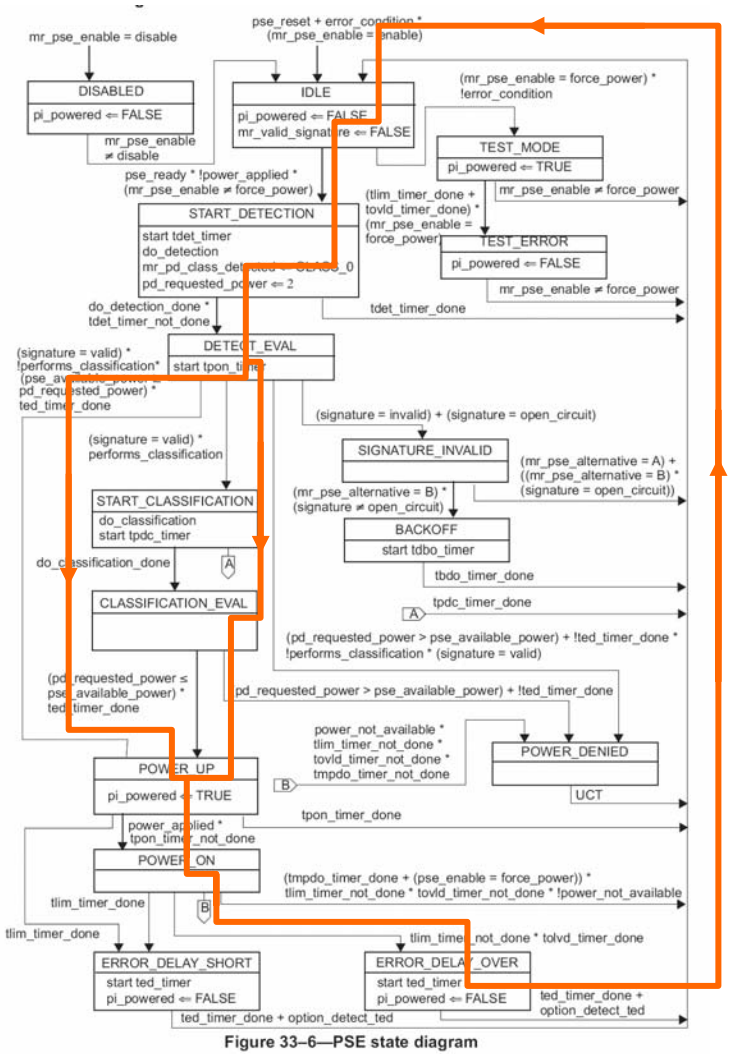
oPSE managed object class (30.9.1)				
aPSEID	ATTRIBUTE	GET	X	
aPSEAdminState	ATTRIBUTE	GET	X	
aPSEPowerPairsControlAbility	ATTRIBUTE	GET	X	
aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X

30.9.5.1.5 aPSEPowerDetectionStatus

NOTE—A derivative attribute may wish to apply a delay to the use of the 'deliveringPower' enumeration as the PSE state diagram will enter then quickly exit the POWER_ON state if a short-circuit or overcurrent condition is present when power is first applied.;

Attribute	Enumeration/State
aPSEPowerDetectionStatus	searching/deliveringPower
aPSEPowerMaintenanceStatus	MPSAbsent/ok
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Incrementing
aPSEMPSAbsentCounter	Not incrementing

Overload



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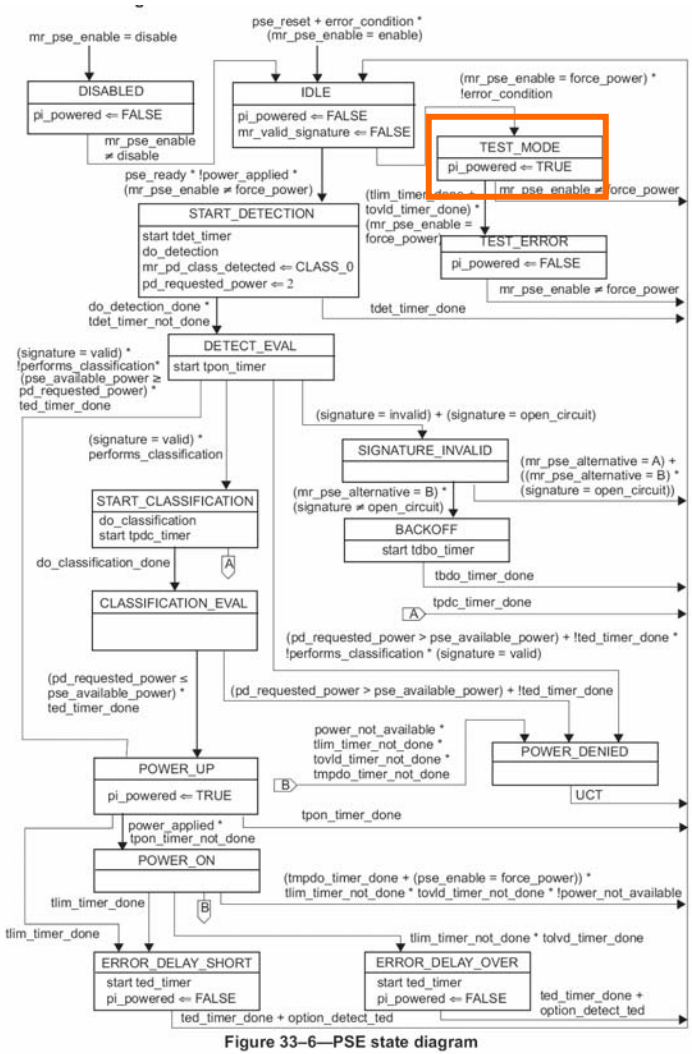
oPSE managed object class (30.9.1)				
aPSEID	ATTRIBUTE	GET	X	
aPSEAdminState	ATTRIBUTE	GET	X	
aPSEPowerPairsControlAbility	ATTRIBUTE	GET	X	
aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X

30.9.5.1.5 aPSEPowerDetectionStatus

NOTE—A derivative attribute may wish to apply a delay to the use of the 'deliveringPower' enumeration as the PSE state diagram will enter then quickly exit the POWER_ON state if a short-circuit or overcurrent condition is present when power is first applied.;

Attribute	Enumeration/State
aPSEPowerDetectionStatus	searching/deliveringPower
aPSEPowerMaintenanceStatus	MPSAbsent/ok
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Not incrementing

PSE in Force Power Test Mode



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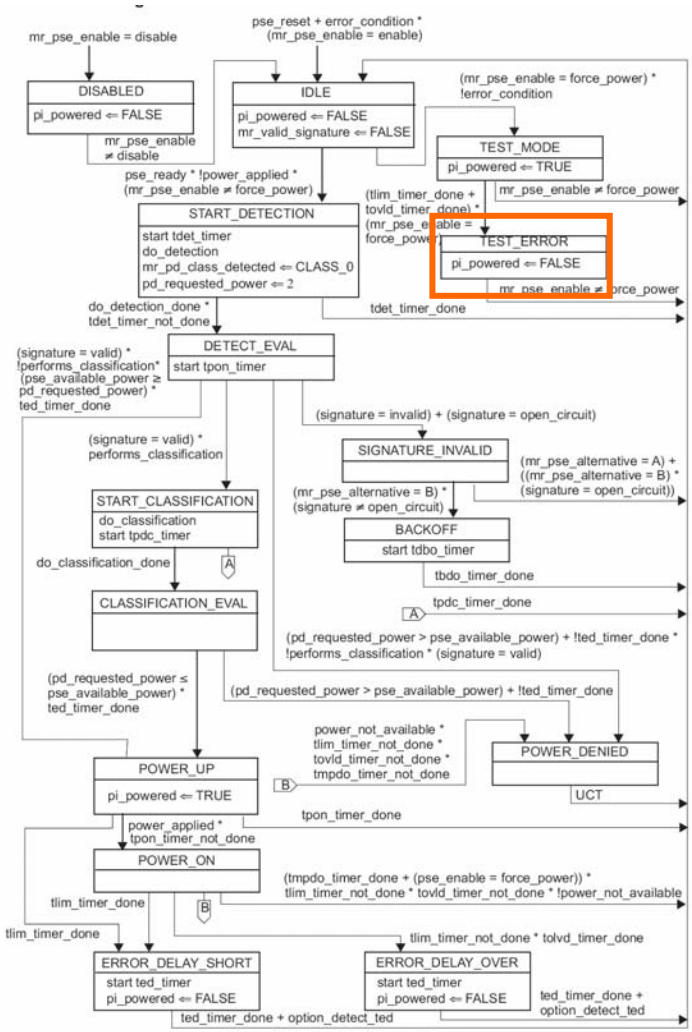
oPSE managed object class (30.9.1)				
aPSEID	ATTRIBUTE	GET	X	
aPSEAdminState	ATTRIBUTE	GET	X	
aPSEPowerPairsControlAbility	ATTRIBUTE	GET	X	
aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPSEOverLoadCounter	ATTRIBUTE	GET		X
aPSEShortCounter	ATTRIBUTE	GET		X
aPSEMPSAbsentCounter	ATTRIBUTE	GET		X
acPSEAdminControl	ACTION		X	

Attribute	Enumeration/State
aPSEPowerDetectionStatus	test
aPSEPowerMaintenanceStatus	MPSAbsent
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Not incrementing

PSE in Force Power Test Mode with Fault



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aPSEAdminState	ATTRIBUTE	GET	X	
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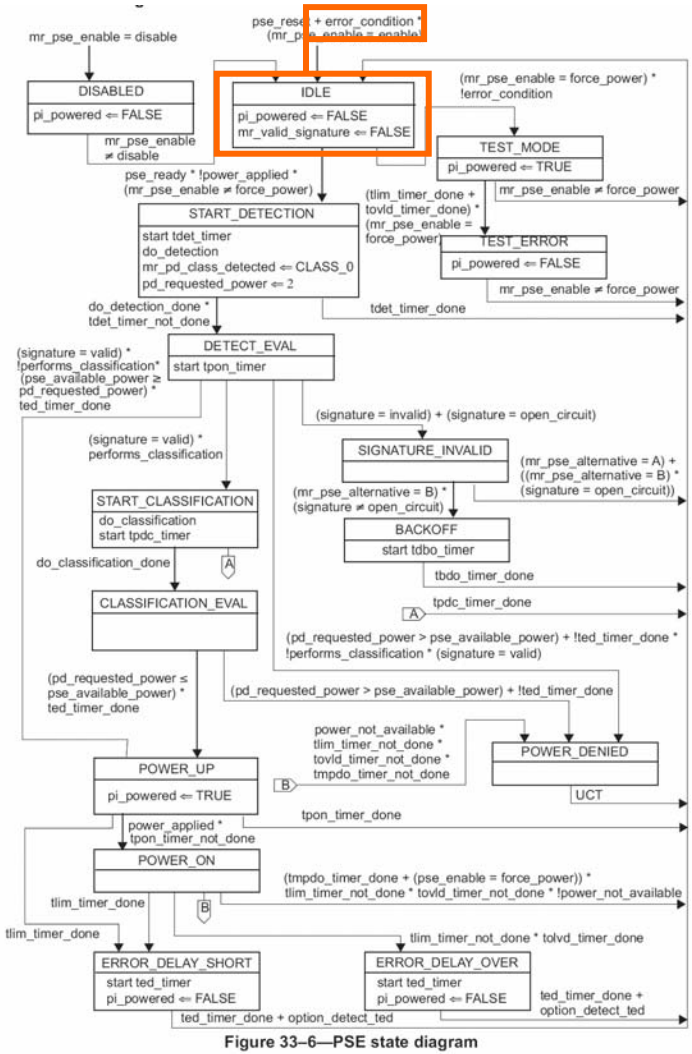
aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPSEOverLoadCounter	ATTRIBUTE	GET		X
aPSEShortCounter	ATTRIBUTE	GET		X
aPSEMPSAbsentCounter	ATTRIBUTE	GET		X
acPSEAdminControl	ACTION		X	

Attribute	Enumeration/State
aPSEPowerDetectionStatus	fault
aPSEPowerMaintenanceStatus	MPSAbsent
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Not incrementing

PSE with Implementation specific fault



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aPSEAdminState	ATTRIBUTE	GET	X	
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aPSEPowerPairs	ATTRIBUTE	GET-SET	X	
aPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPSEPowerClassification	ATTRIBUTE	GET		X
aPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPSEOverLoadCounter	ATTRIBUTE	GET		X
aPSEShortCounter	ATTRIBUTE	GET		X
aPSEMPSAbsentCounter	ATTRIBUTE	GET		X
acPSEAdminControl	ACTION		X	

Attribute	Enumeration/State
aPSEPowerDetectionStatus	otherFault
aPSEPowerMaintenanceStatus	MPSAbsent
aPSEInvalidSignatureCounter	Not incrementing
aPSEPowerDeniedCounter	Not incrementing
aPSEOverLoadCounter	Not incrementing
aPSEShortCounter	Not incrementing
aPSEMPSAbsentCounter	Not incrementing

Some thoughts

- Updating state machines
  - Need to think about MIB
    - Preferable to add enumeration
- Updating Clause 30
  - In some cases need new state machines first