



# Current RF

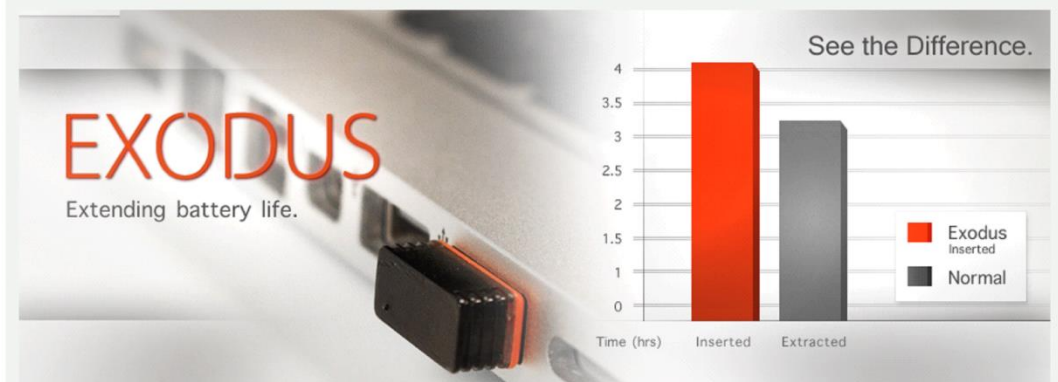
Discovery Bay, California

Saving Power and Money When Servers  
and Network Devices are Active



Independently verified at Thales Defense and Security Inc. (~10% Reduction)  
Independently DataCenter verified (~3% Reduction)



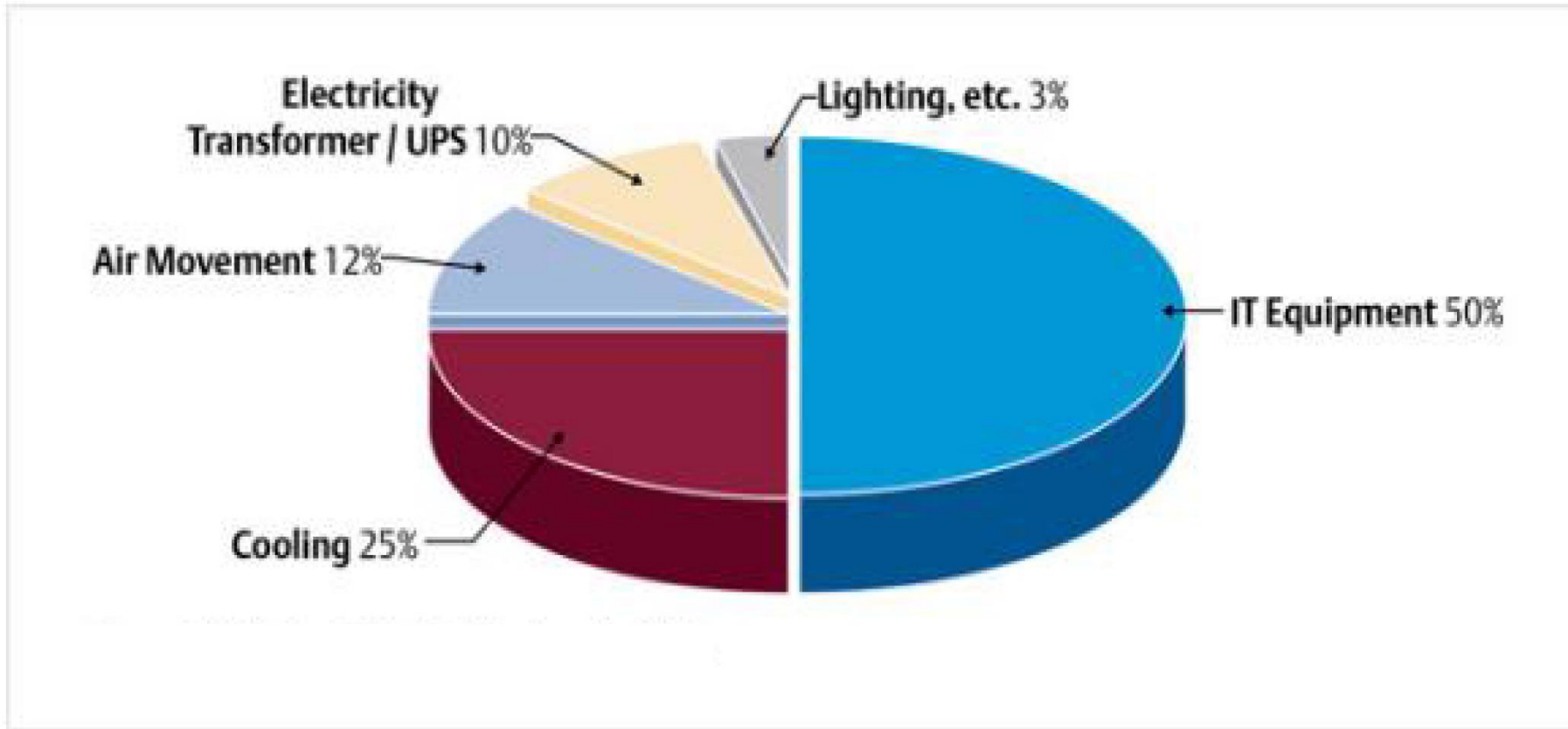


Independently verified at Thales Defense and Security Inc. (~10% Reduction)  
Independently DataCenter verified (~3% Reduction)



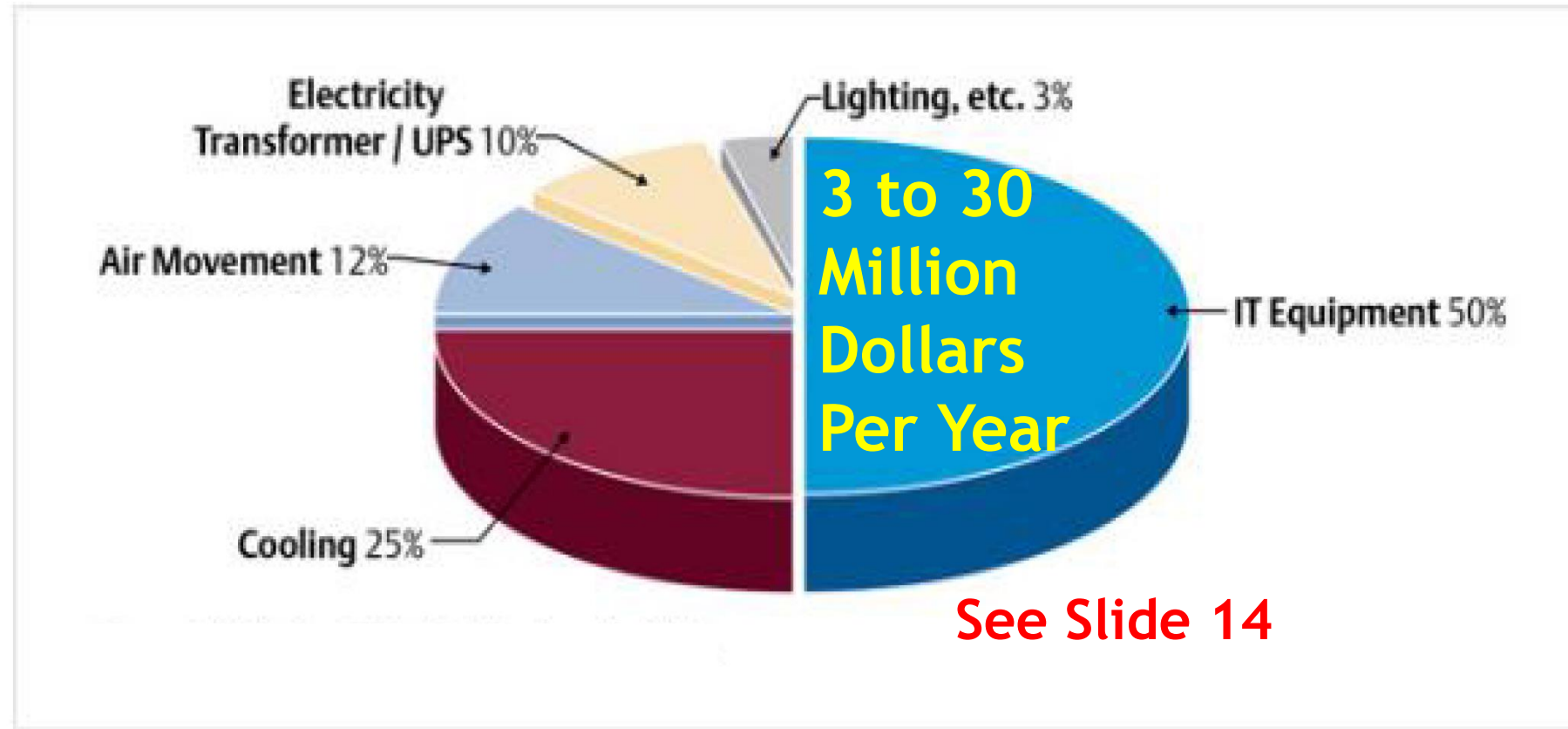


# Datacenter Power-Use Breakout

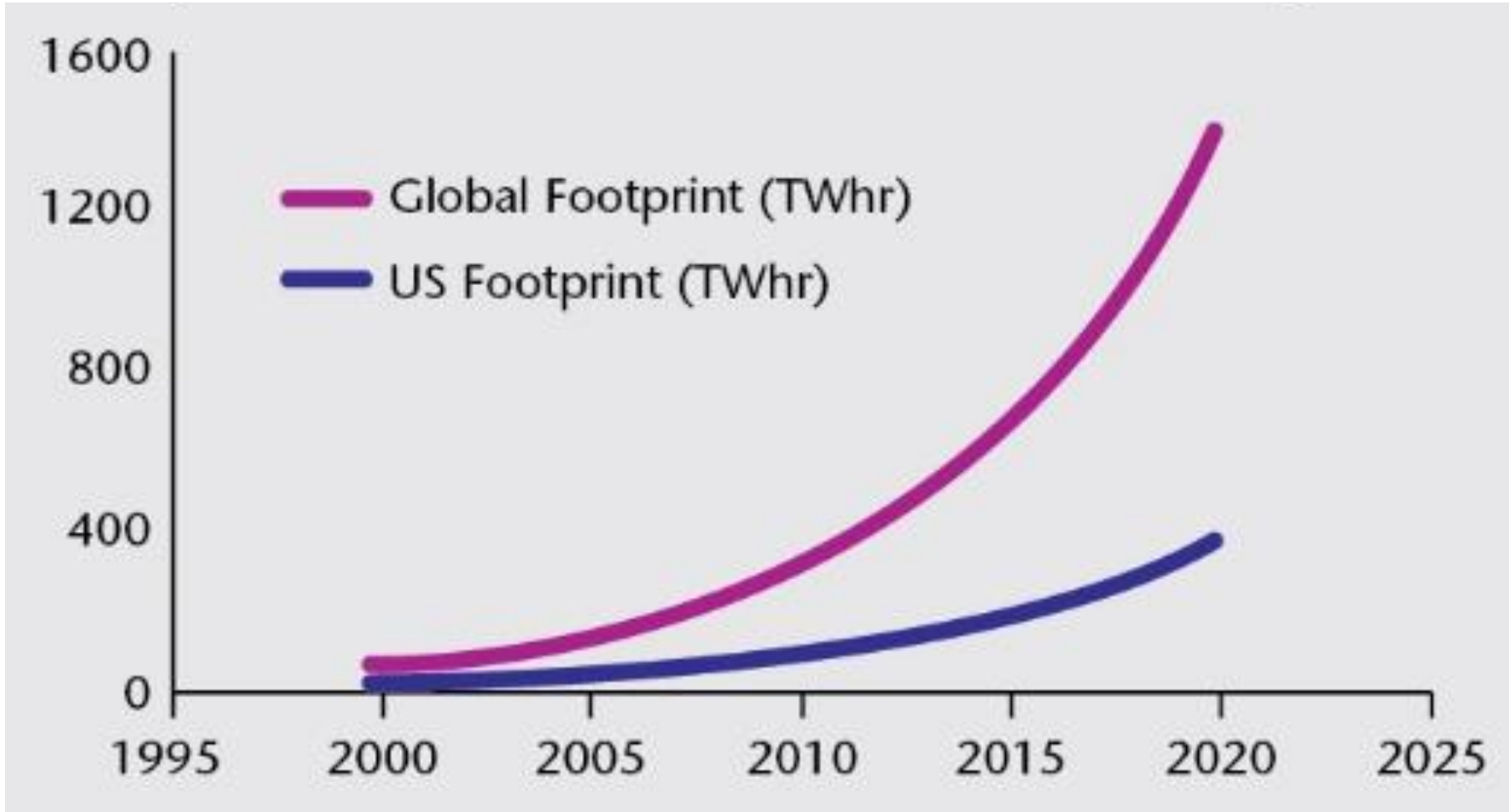


# PowerStic/Exodus Savings Per Year

(Google Class Datacenters—1 Million Servers Worldwide)



# Datacenter Power-Use Projection (Growing PowerStic/Exodus Need and Market)





10753326\_2.hobo\_meetup2

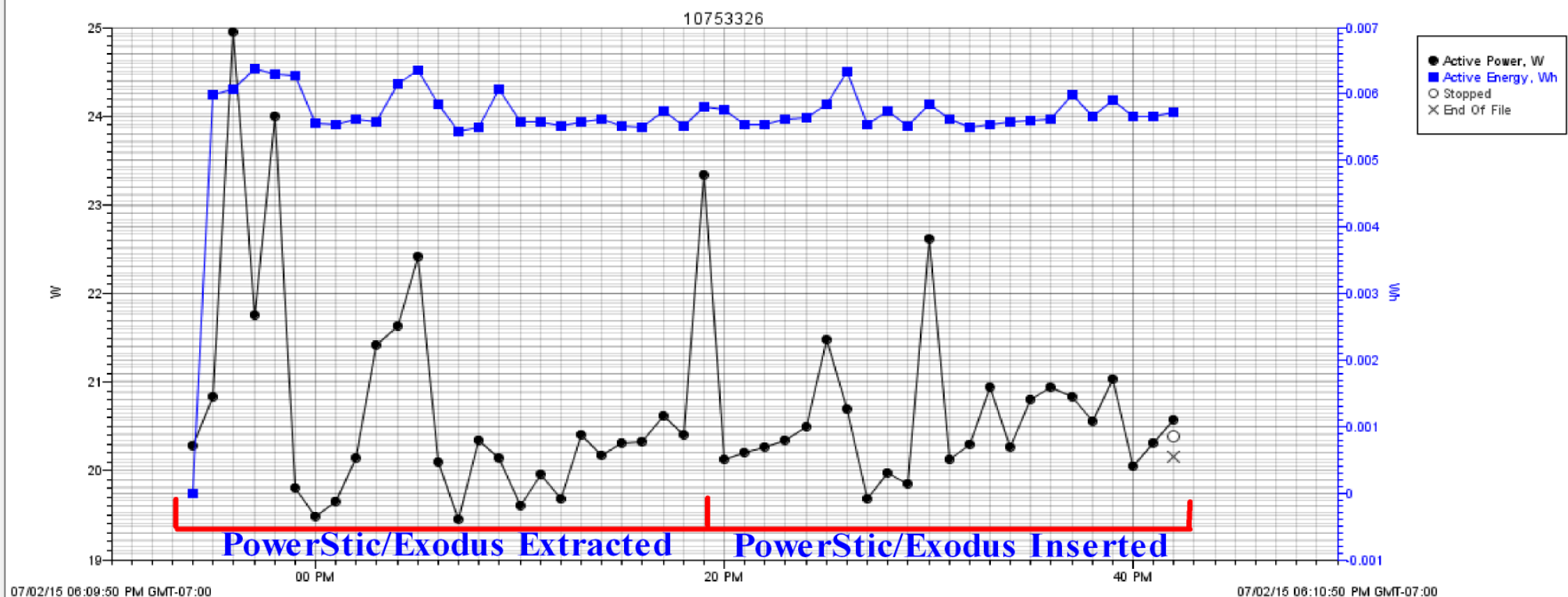
#	Time, GMT-07:00	Active Power, W	Active Energy, Wh	Stopped	End Of File
1	07/02/15 06:09:54 PM	20.28	0.00000000		
2	07/02/15 06:09:55 PM	20.84	0.00598116		
3	07/02/15 06:09:56 PM	24.94	0.00607082		
4	07/02/15 06:09:57 PM	21.75	0.00638460		
5	07/02/15 06:09:58 PM	23.99	0.00629495		
6	07/02/15 06:09:59 PM	19.80	0.00628214		

# Back to Back PowerStic/Exodus Extracted/Inserted *Quick* Test

Expand All Collapse All

Details

- Series: Active Power, W
- Series: Active Energy, Wh
- Event Type: Stopped
- Event Type: End Of File



HP Envy Laptop 4 Slide PowerPoint Loop Test Results  
(5.7% Peak Power Reduction)



Untitled1\* Untitled2\* Untitled3\* Untitled4\* Untitled5\* 10753326\_6.hobo\_apple\_without\_4runs 10753326\_6.hobo\_apple\_with\_4runs 10753326\_6.hobo\_apple\_without\_with\_2runs

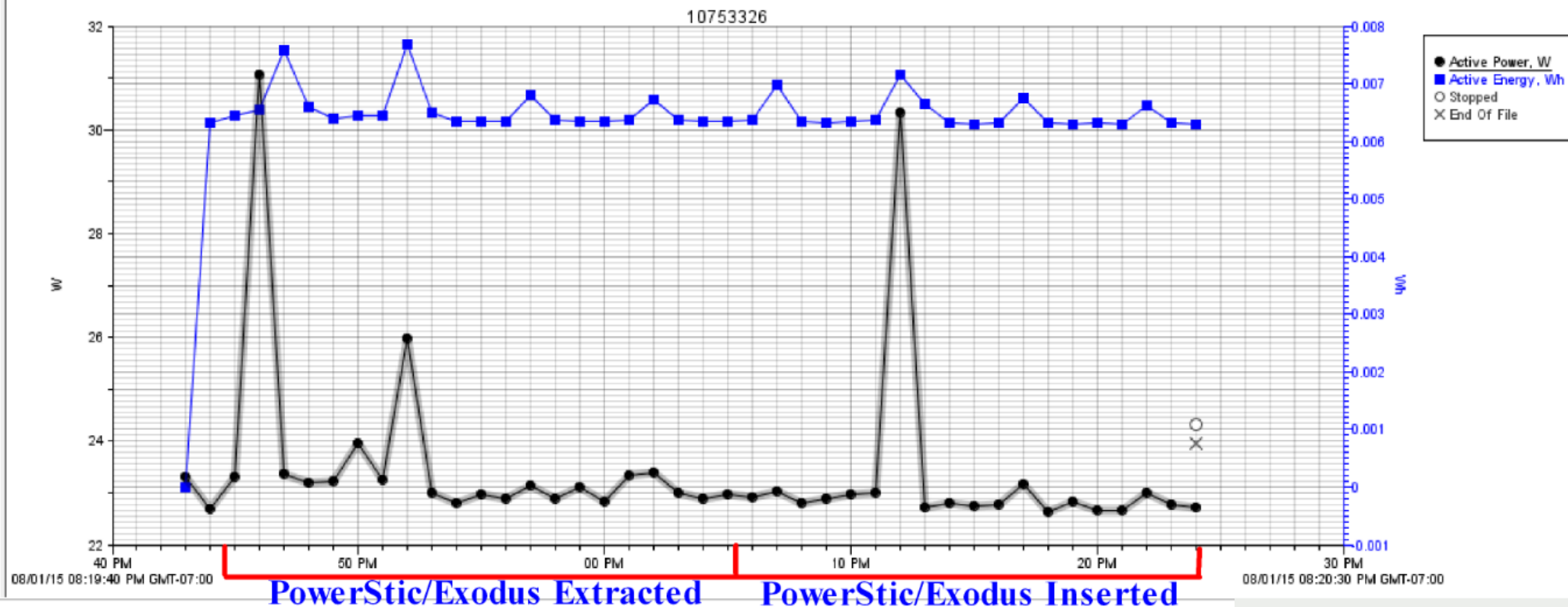
#	Time, GMT-07:00	Active Power, W	Active Energy, Wh	Stopped	End Of File
1	08/01/15 08:19:43 PM	23.32	0.00000000		
2	08/01/15 08:19:44 PM	22.68	0.00632697		
3	08/01/15 08:19:45 PM	23.30	0.00644224		
4	08/01/15 08:19:46 PM	31.05	0.00654470		
5	08/01/15 08:19:47 PM	23.37	0.00758853		
6	08/01/15 08:19:48 PM	23.19	0.00659593		

# Back to Back PowerStic/Exodus Extracted/Inserted *Quick* Test

Expand All Collapse All

Details

- Series: Active Power, W
- Series: Active Energy, Wh
- Event Type: Stopped
- Event Type: End Of File

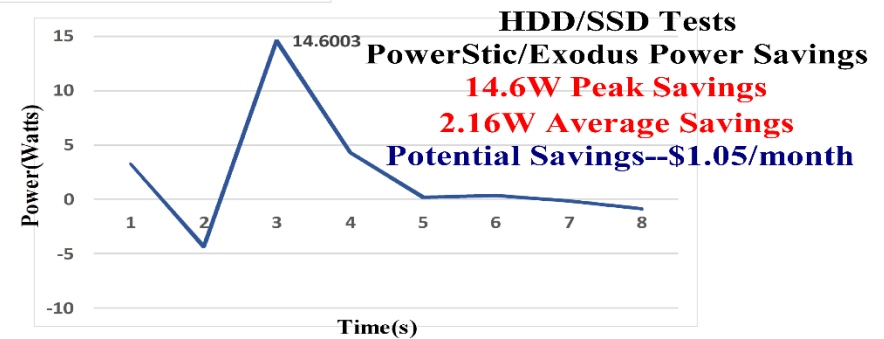
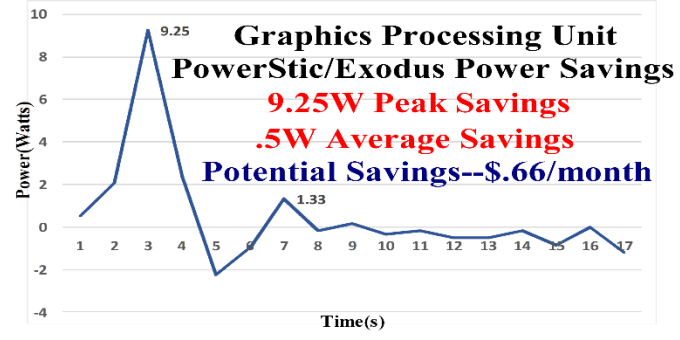
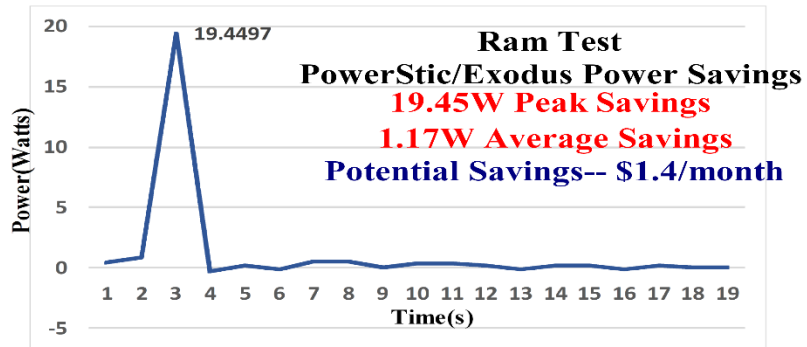
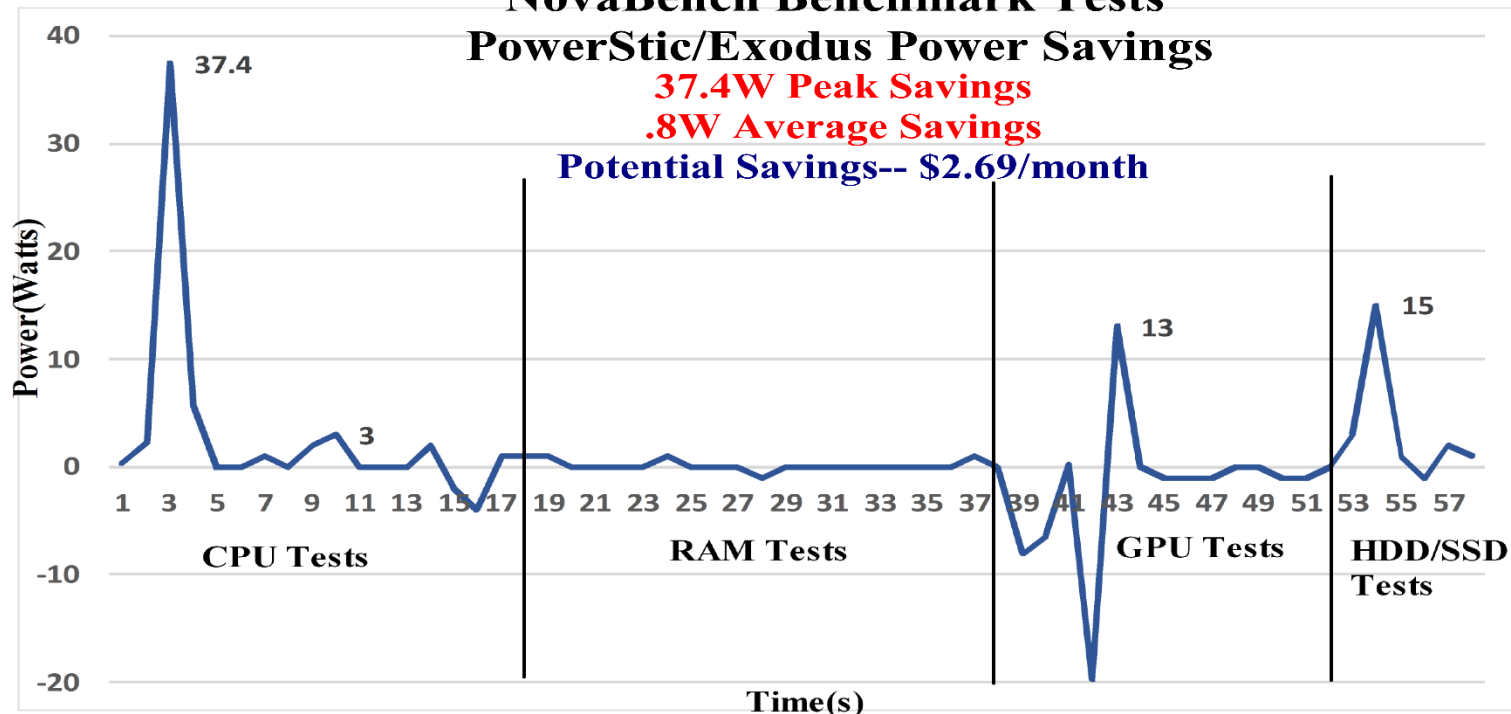


Macbook-Pro Laptop 4 Slide PowerPoint Loop Test Results  
(3.33% Peak Power Reduction)

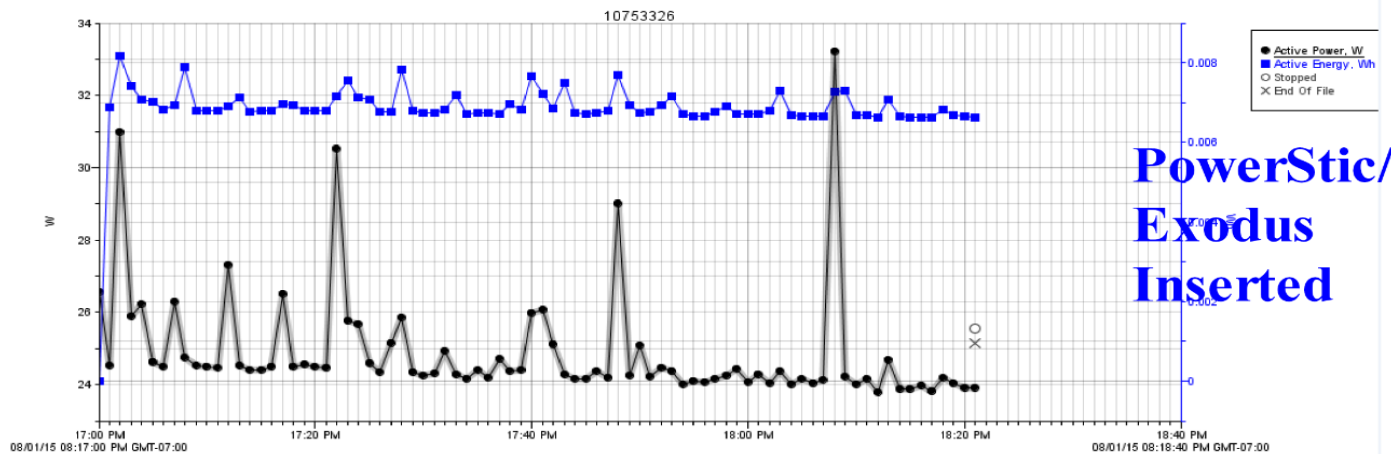
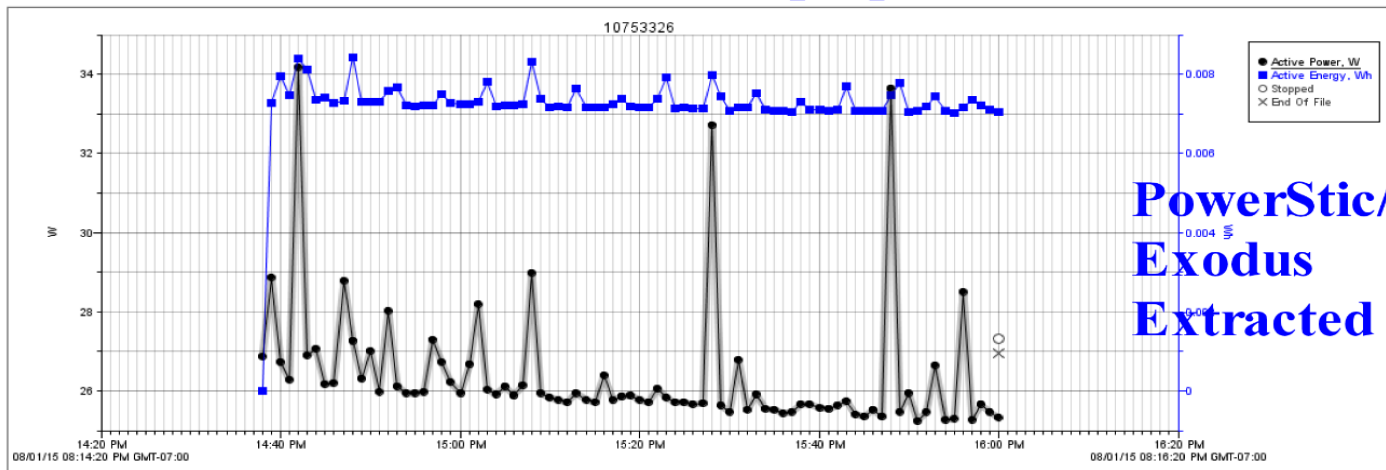


# NovaBench Benchmark Tests

## PowerStic/Exodus Power Savings



# Macbook-Pro Laptop



## 5.6% Power Reduction

Extracted Average = 26.38W sd=1.62W Peak=34W

Inserted Average = 24.90W sd=1.58W Peak=33W

Reduction

1.48W

.04W

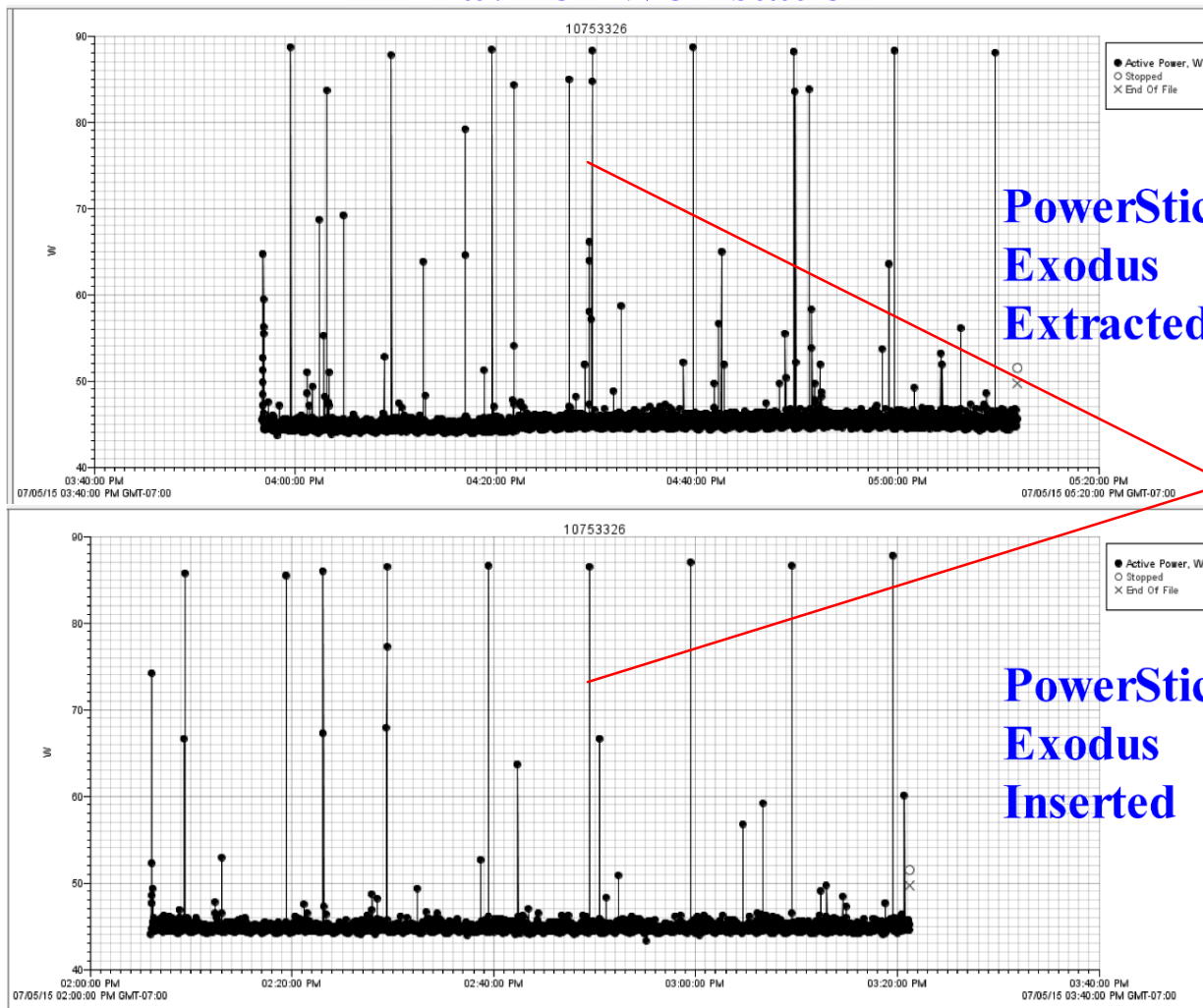
1W

Stimulus: 4 slide PowerPoint Presentation in a continuous loop  
(80 seconds duration)



Current RF

# HP Pavilion Workstation



**Extracted Average = 45.32W sd=2.69W Peak=89W**

**Inserted Average = 44.98W sd=2.17W Peak=87W**

**Reduction**

**.34W**

**.52W**

**2W**

**Stimulus: 4 slide PowerPoint Presentation in a continuous loop  
(1 hr 15 mins duration)**



**Current RF**



10753326\_3.hobo\_110\_without

#	Time, GMT-07:00	Active Power, W	Active Energy, Wh	Stopped	End Of File
1	07/03/15 12:18:27 AM	21.49	0.00000000		
2	07/03/15 12:18:28 AM	19.46	0.00550087		
3	07/03/15 12:18:29 AM	20.19	0.00555851		
4	07/03/15 12:18:30 AM	18.79	0.00554570		
5	07/03/15 12:18:31 AM	23.48	0.00590432		
6	07/03/15 12:18:32 AM	23.14	0.00648707		

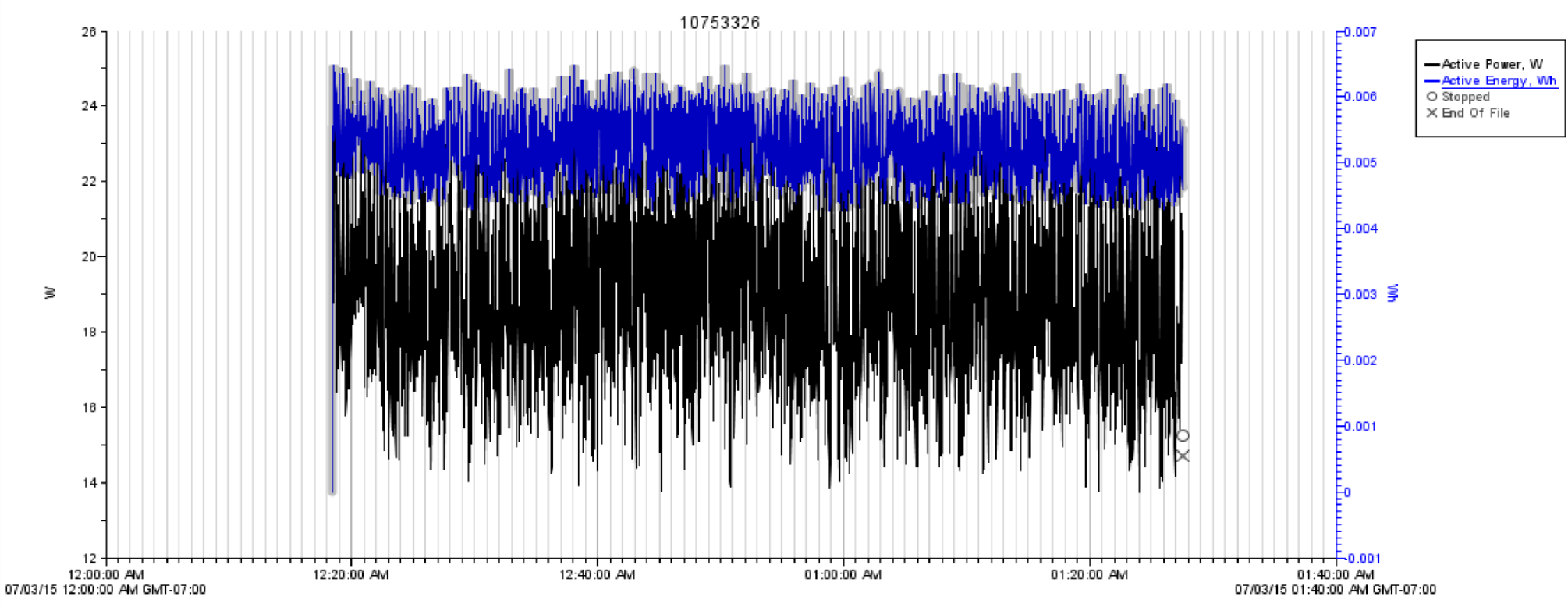
# PowerStic/Exodus Extracted

## Power Average: 18.7W

Expand All Collapse All

Details

- Series: Active Power, W
  - Devices
  - Deployment Info
  - Series Statistics
    - Samples: 4,148
    - Max: 24.36
    - Min: 13.75
    - Avg: 18.70**
    - Std Dev ( $\sigma$ ): 2.12**
    - First Sample Time: 07/03/15 12:18:27 AM
    - Last Sample Time: 07/03/15 01:27:34 AM
- Series: Active Energy, Wh
  - Devices
  - Deployment Info
  - Series Statistics
    - Samples: 4,148
    - Max: 0.00648707
    - Min: 0.00000000
    - Avg: 0.00517132**
    - Std Dev ( $\sigma$ ): 0.00048157**
    - First Sample Time: 07/03/15 12:18:27 AM
    - Last Sample Time: 07/03/15 01:27:34 AM
- Event Type: Stopped
- Event Type: End Of File



HP Envy Laptop 4 slide PowerPoint Loop Presentation Results (~1 hour test)







10753326\_3.hobo\_110\_without 10753326\_3.hobo\_120\_with

#	Time, GMT-07:00	Active Power, W	Active Energy, Wh	Stopped	End Of File
1	07/03/15 01:29:27 AM	19.61	0.00000000		
2	07/03/15 01:29:28 AM	22.11	0.00585949		
3	07/03/15 01:29:29 AM	20.19	0.00573141		
4	07/03/15 01:29:30 AM	23.47	0.00582107		
5	07/03/15 01:29:31 AM	21.00	0.00640381		
6	07/03/15 01:29:32 AM	21.02	0.00512945		

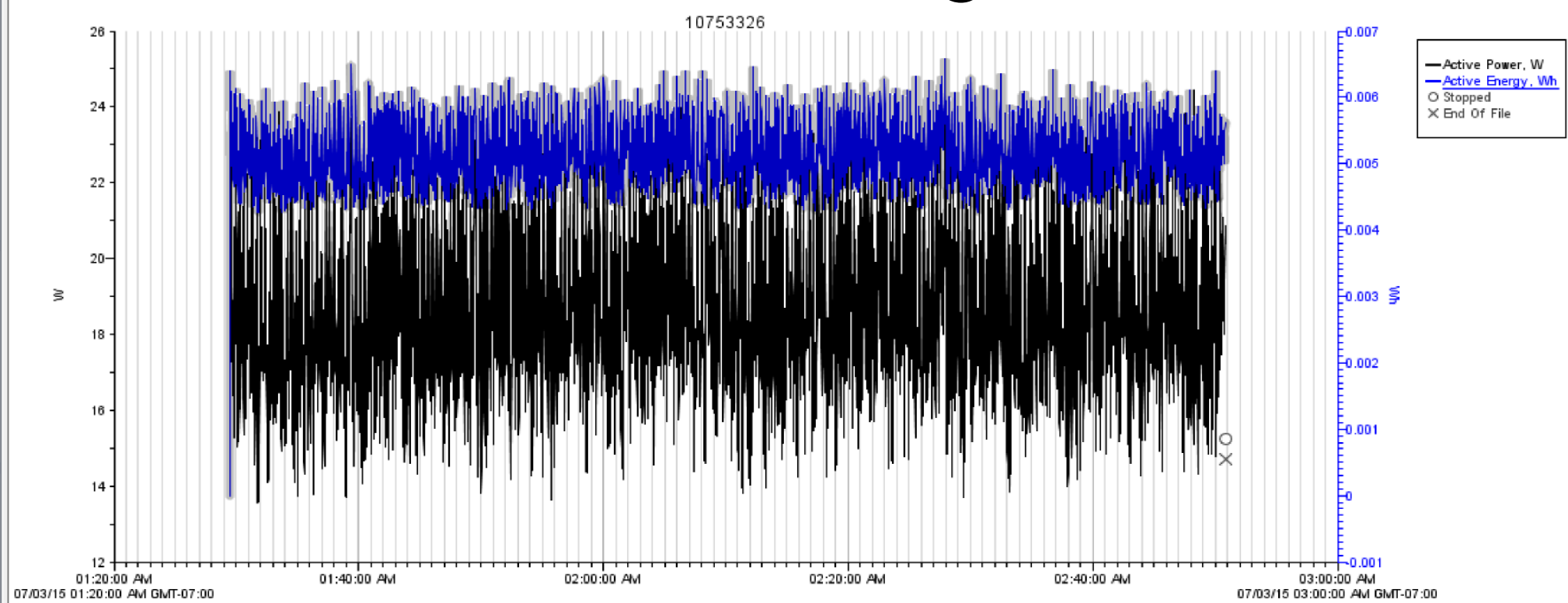
# PowerStic/Exodus Inserted

## Power Average: 18.31W

Expand All Collapse All

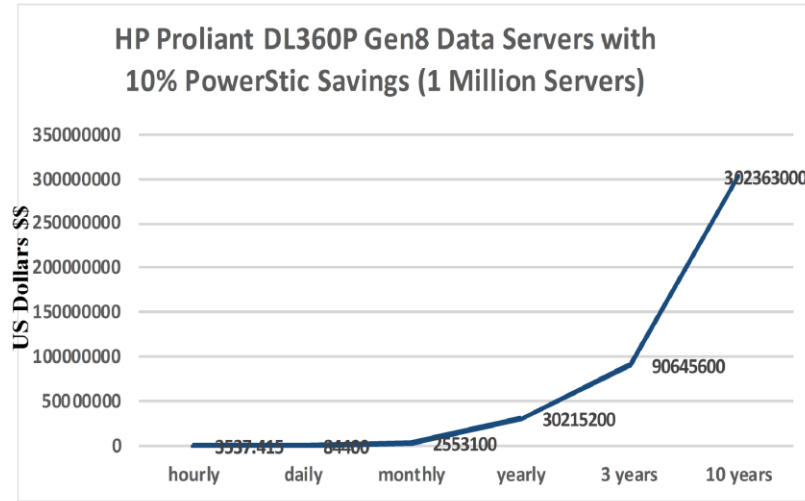
Details

- Series: Active Power, W
  - Devices
  - Deployment Info
  - Series Statistics
    - Samples: 4,885
    - Max: 24.45
    - Min: 13.57
    - Avg: 18.31**
    - Std Dev ( $\sigma$ ): 2.06**
    - First Sample Time: 07/03/15 01:29:27 AM
    - Last Sample Time: 07/03/15 02:50:51 AM
- Series: Active Energy, Wh
  - Devices
  - Deployment Info
  - Series Statistics
    - Samples: 4,885
    - Max: 0.00658953
    - Min: 0.00000000
    - Avg: 0.00505511**
    - Std Dev ( $\sigma$ ): 0.00045333**
    - First Sample Time: 07/03/15 01:29:27 AM
    - Last Sample Time: 07/03/15 02:50:51 AM
  - Event Type: Stopped
  - Event Type: End Of File

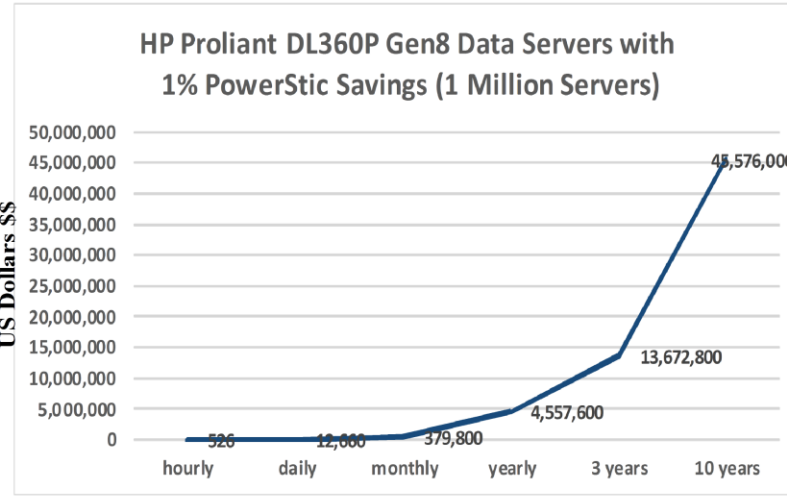


## HP Envy Laptop 4 slide PowerPoint Loop Presentation Results (~1 hour test)

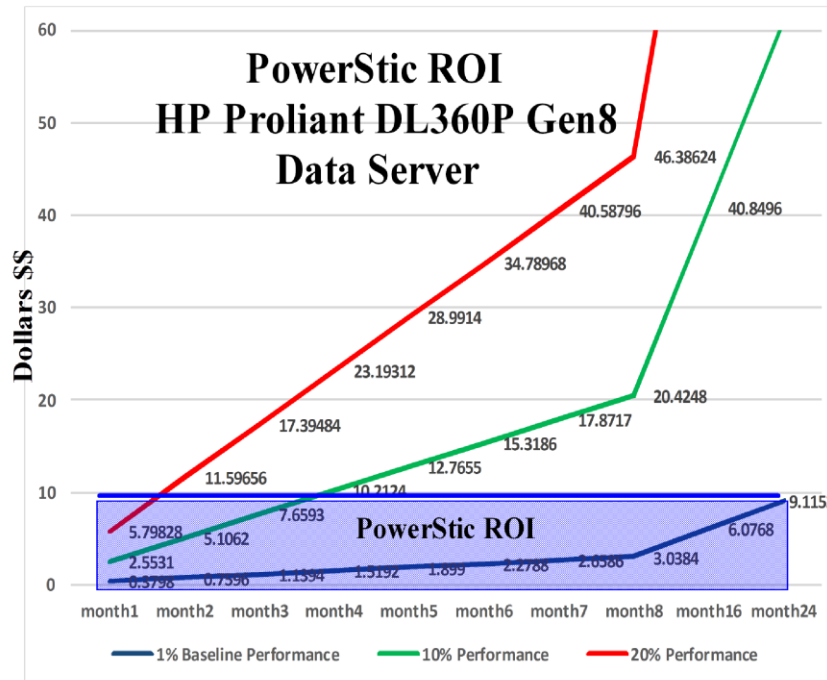
# PowerStic/Exodus DataCenter Physical Savings



All Cost Savings Based on 10.55 Cents per KiloWatt-Hour (2014 US Average Commercial Utility Rates)



All Cost Savings Based on 10.55 Cents per KiloWatt-Hour (2014 US Average Commercial Utility Rates)





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