



Enterprise-wide Computer Power Management

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Computer Power Studies



- The US Department of Energy reports:
 - Average PC wastes up to 400+ kilowatt-hours of electricity per year
 - Up to \$50+ per PC per year depending on energy prices
- Power generation is the leading CO₂ generator
 - 29.5% of CO₂ is created from Power Stations (EDGAR 2000)
- The wasted electricity from 5,000 PCs creates carbon-dioxide emissions equivalent to 190 cars (375 lbs or 170 kg per PC per year)

Power Management Breakdown (per year)



Computer State	Power Used	CO ₂	Cost
Only on for work hours	328 kWh	459 lbs	\$33
Low power mode	502 kWh	702 lbs	\$50
Full power all the time	1,192 kWh	1,589 lbs	\$113

- At the extremes, 10 poorly managed computers can waste
 - \$800
 - 5 tons of CO₂
 - Equivalent of 1 car's worth of emissions
 - 1 acre of trees (needed to offset emissions)

Power Management Complexities



- The problem is in the management of the computers
 - Users chronically disable power management
 - According to the Lawrence Berkeley National Laboratory, over 80% of users disable their PCs power conservation settings within 90 days
 - Computers in low power mode cannot be updated so IT staff are reluctant to enable power management
 - Central management of power settings is difficult

BigFix Enterprise Solutions



Software Asset Mgmt	Patch Management
Remote Control	OS Deployment
Power Management	Configuration Management
Software Distribution	Asset Discovery & Inventory

Systems Lifecycle Management

Network Access Control	Application Control
Endpoint Firewall	Anti-Malware Agent Mgmt.
Data Leak Prevention	Anti-Malware

Endpoint Protection

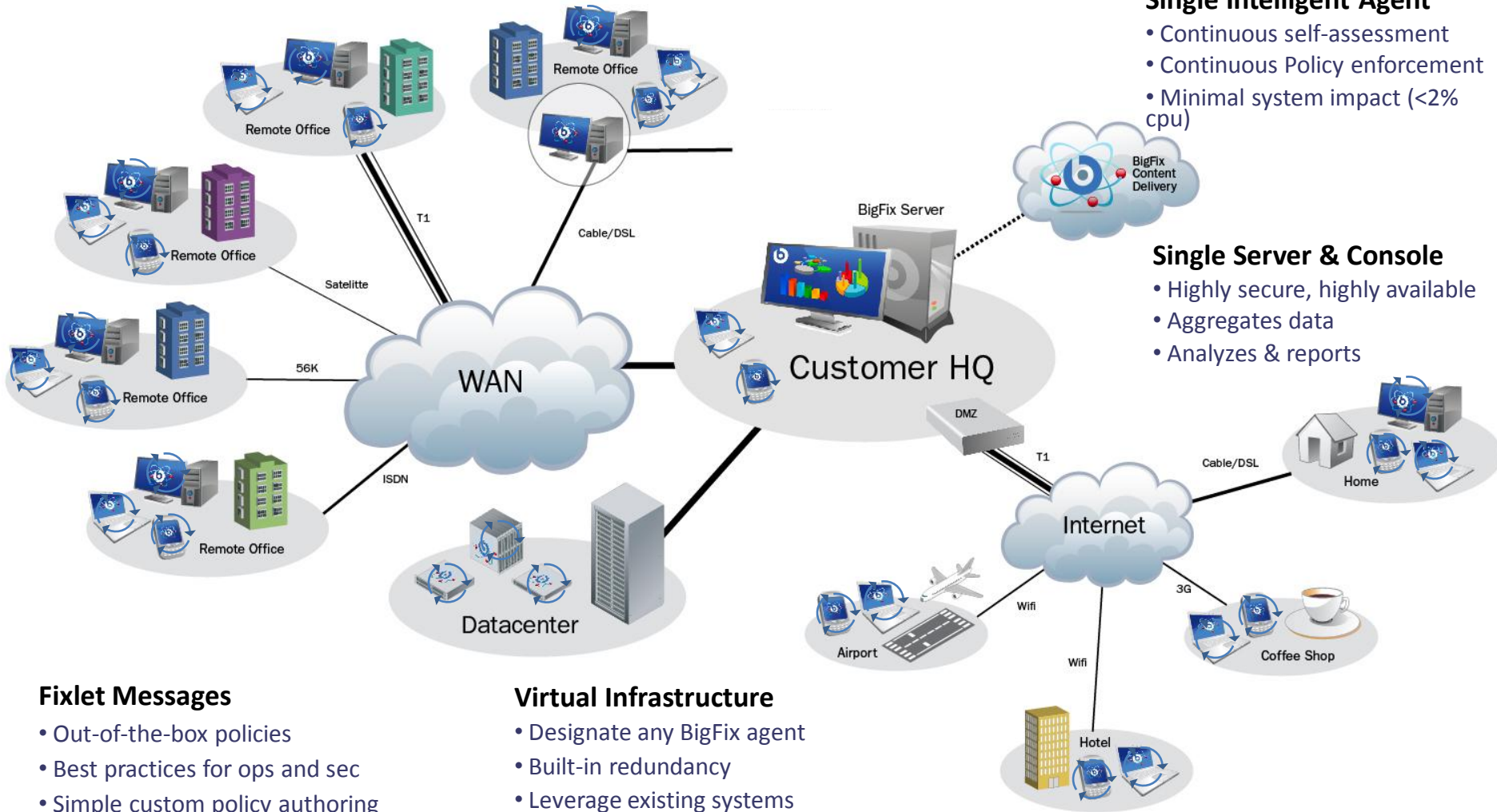
Vulnerability Management
Security Config. Mgmt.
Patch Management
Rogue Device Discovery

Security Configuration & Vulnerability Management

BigFix Unified Management Platform

Single Agent Single Infrastructure Unified Control Console

BigFix: How it Works



BigFix Approach to Power Management



- Fundamental idea is straight-forward
 - Allow companies to apply computer power savings technologies while minimizing end-user impact through an “opt-in” approach
- Manage the IT complexities of power management
 - Granular controls to deal with IT issues
- Simplicity of Reporting
 - Allow companies to measure their power savings potential
 - Give simple metrics about performance
- Results
 - Significant money savings
 - Aligns with green initiatives

BigFix Power Management



- **Multiplatform**
 - Covers both Windows and Mac
- **Works within the culture of the organization to minimize end-user impact**
 - Allow end-users to opt-in to power policies
 - Client-side dashboards to increase buy-in and end-user engagement
 - Save work in applications prior to shut down or restart
- **Granular Control Over Power Profiles and States**
 - Targets: Individuals, groups, buildings, divisions, and more
- **Scales to today's network environment**
 - Manages up to 250,000 devices on one server
 - Excels in highly distributed environments
 - Rapid installation and time-to-value

Overcoming PM Complexities in Practice



- **Cures PC Insomnia**

- By intelligently measuring user idle time, overcomes issue where computers don't enter low-power modes when they should

- **Enables IT Maintenance**

- Scheduled Wake from Standby, Distributed Wake-on-LAN, and Last Man Standing

- **Accounts for Hardware Differences**

- Override power and CO2 assumptions by hardware profile, location, and monitor type for more accurate reporting

- **Adjust Min Sleep States**

- Maximizes power savings by adjusting min sleep state

The screenshot shows a 'Power Assumptions Override Wizard' dialog box. The title bar reads 'Power Assumptions Override Wizard'. The main content area contains the following text: 'This Wizard will enable you to override for targeted computers the power assumptions used in the Power Tracking Information Dashboard.' Below this, it says 'Override assumptions for targeted computers:'. The wizard is divided into several sections, each with a radio button to 'Use dashboard default' and a text input field to 'Set' a specific value:

- Set Cost:** Use dashboard default, Cost per kWh to: \$.08
- Set CO2 Emissions:** Use dashboard default, Set CO2 per kWh to 1.0 Lbs.
- Set Computer's Active Power Draw:** Use dashboard default, Set power draw to 100 Watts
- Set Computer's Power-Managed Power Draw:** Use dashboard default, Set power draw to 10 Watts
- Set Monitor's Active Power Draw:** Use dashboard default, Set power draw to 80 Watts
- Set Monitor's Power-Managed Power Draw:** Use dashboard default, Set power draw to 5 Watts
- Set Hard drive Sleep Power Savings:** Use dashboard default, Set power draw to 8 Watts

At the bottom right, there are 'Finish' and 'Cancel' buttons.

BigFix Power Management Reports

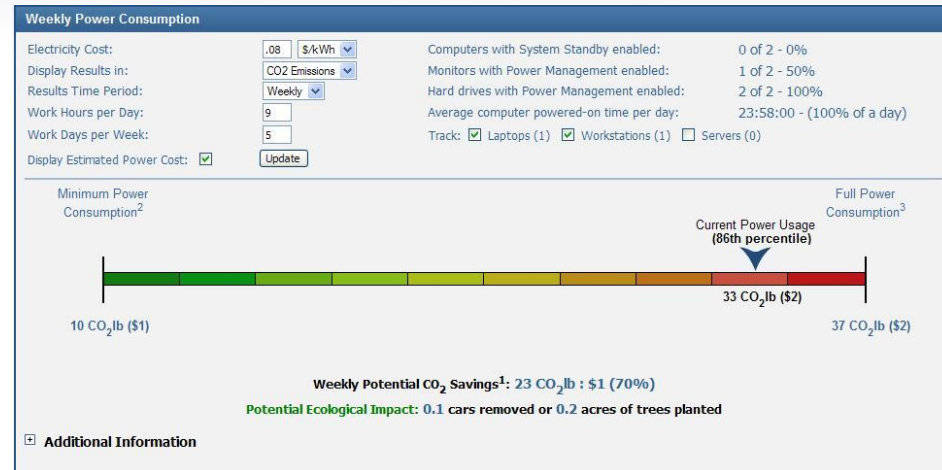


- **Customizable Views**

- Filter workstations, laptops, and/or servers
- Display carbon emissions equivalents: acres of trees planted / cars off the road

- **Store and view historical data**

- Web-accessible reports for stakeholders throughout the organization (Marketing, PR, Facilities)



- **Model “what-if” scenarios**

- Quantify and visualize cost savings
- Reduction in power consumption / CO₂ emissions from changes to configuration settings



Customer Profile: Large Public School System

- 90,000 PCs
- 370 distributed locations - schools and administrative sites
- \$2.6 million estimated annual electricity cost savings using BigFix Power Management

“BigFix Power Management has been easy to install, easy to operate, and very flexible. It’s currently working exactly as we expected from the proof-of- concept.”

– Tom S., Director of Network Systems

School System Power Usage - Before



Monthly Power Consumption

Work hours in a day: Computers with System Standby enabled: 13207 of 89513 - 14%

Electricity Cost: \$/kWh Monitors with Power Management enabled: 74764 of 89513 - 83%

Display estimated power cost: Hard drives with Power Management enabled: 20627 of 89513 - 23%

Display Power Usage Display CO₂ Emissions Average computer powered-on time per day: **20:46:00 - (87% of a day)**

Minimum Power Consumption² Full Power Consumption³

Current Power Usage (35th percentile)
4,616,550 kWh (\$461,655)

2,468,811 kWh (\$246,881) 8,675,091 kWh (\$867,509)

Monthly Potential Power Savings¹: 2,147,739 kWh : \$214,774 (47%)

Aggregate Statistics

Powered-on Computers
(Tue Sep 25 04:00:00 EDT 2007 - Tue Oct 2 04:00:00 EDT 2007)

Powered-on Computers

Computers left on at night and on weekends

School System Power Usage - After



Monthly Power Consumption

Work hours in a day: Computers with System Standby enabled: 13794 of 90497 - 15%

Electricity Cost: \$/kWh Monitors with Power Management enabled: 75833 of 90497 - 83%

Display estimated power cost: Hard drives with Power Management enabled: 21475 of 90497 - 23%

Display Power Usage Display CO₂ Emissions Average computer powered-on time per day: 09:04:00 - (38% of a day)

Minimum Power Consumption²
Current Power Usage (0th percentile)

Realizing Savings of 26 million kWh per year

Full Power Consumption³

2,451,119 kWh (\$245,112)
2,438,714 kWh (\$243,871)

8,812,968 kWh (\$881,297)

Monthly Potential Power Savings¹: 12,405 kWh : \$1,241 (1%)

Additional Information

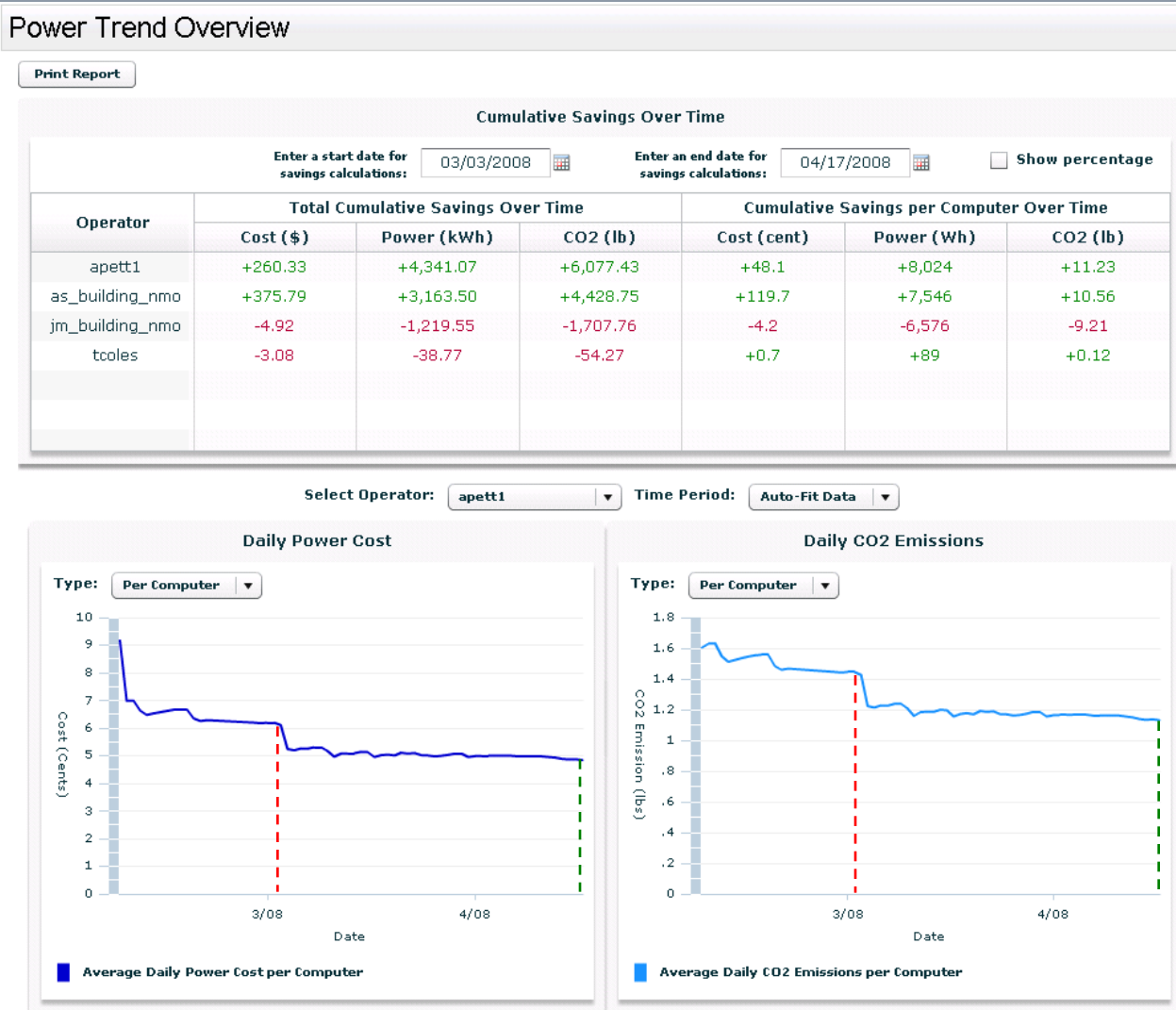
Aggregate Statistics

Powered-on Computers
(Mon Oct 8 20:00:00 EDT 2007 - Wed Nov 7 19:00:00 EST 2007)

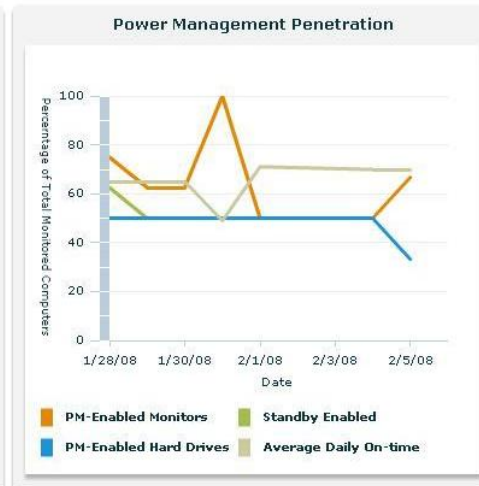
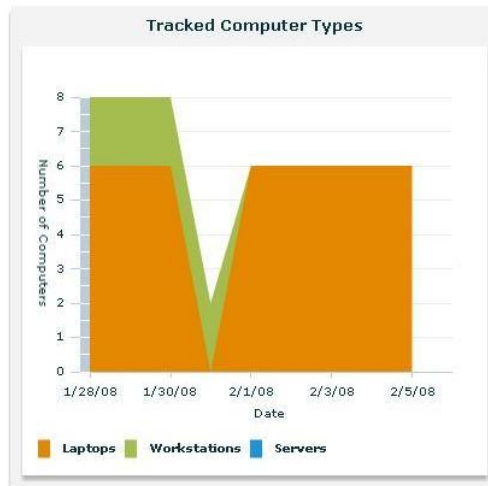
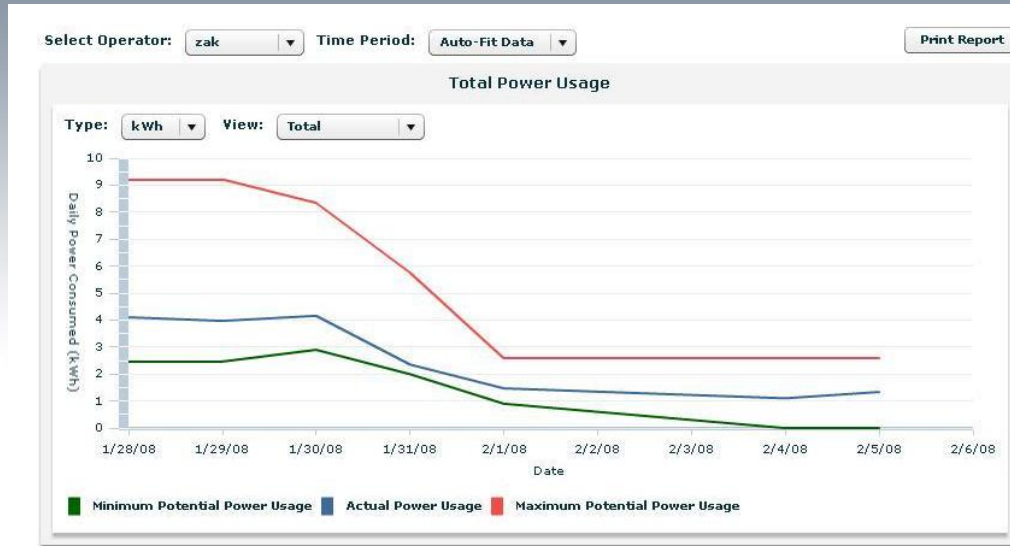
Last 30 Days

Computers powered-off at night and on weekends

Web Reporting: Executive View



Web Reporting: Admin View



Web Reporting: Computer View



Daily Power Statistics by Computer

Select Operator: ▼

[Print Report](#)

Daily Power Statistics by Computer Type						
Type	Total Computers 1 ▼	Average On-time	Total Cost	Total CO2	Cost Per Computer	CO2 Per Computer
Laptop	7	12:15:00 - 51%	\$6.81	10.661 lb	97.3¢	1.523 lb
Workstation	4	13:18:00 - 55%	\$0.36	6.309 lb	9¢	1.577 lb
Server	0	00:00:00 - 0%	\$0	0.000 lb	0¢	0 lb

Daily Power Statistics by Computer							
Computer	Type	Daily Statistics			Power Management Settings		
		Average On-time	Cost	CO2	Monitor	Standby	Hard Drive
OLORIN	Workstation	14:57:00 - 62%	11¢	1.930 lb	X		X
DESKTOP	Workstation	14:14:00 - 59%	11.2¢	1.958 lb	X		
INFINITEBANANAS	Laptop	20:23:00 - 85%	673.8¢	9.433 lb	X	X	X
CATRINA	Laptop	05:21:00 - 22%	0.8¢	0.135 lb	X		X
SASHA	Laptop	12:19:00 - 51%	1.8¢	0.311 lb			
YOUR-LK4RLMSU41	Workstation	21:50:00 - 91%	11.4¢	2.000 lb	X	X	X
YCRCOMPUTER	Laptop	23:39:00 - 99%	1.5¢	0.262 lb	X	X	
HOLLY	Laptop	00:19:00 - 1%	0¢	0.008 lb		X	X
LORIKUS-PC	Laptop	10:59:00 - 46%	1.1¢	0.191 lb		X	X
DON	Workstation	02:10:00 - 9%	2.4¢	0.420 lb	X		
ALLEYDELL	Laptop	12:46:00 - 53%	1.8¢	0.322 lb			

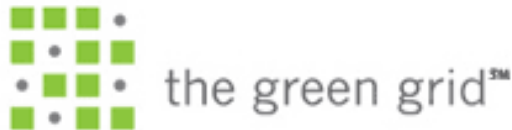
Rebate & Power Savings Are Substantial



- Several energy companies are offering rebates of up to \$15 for every computer managed via BigFix Power Management on top of the potential \$30 per computer electricity cost savings:

# of Computers	Rebate Amount	Power Cost Savings	Total Savings
1,000	\$15,000	\$30,000	\$45,000
5,000	\$75,000	\$150,000	\$225,000
20,000	\$300,000	\$600,000	\$900,000
100,000	\$1,500,000	\$3,000,000	\$4,500,000

BigFix Green Alliances Include:



Questions?



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Roadmap - NDA



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