

# IdleAire Technologies Corporation

## Advanced Travel Center Electrification

For

National Transportation Idle Free Corridors

Boston, MA

April 28, 2004

Carol Doty, Manager Strategic Affairs



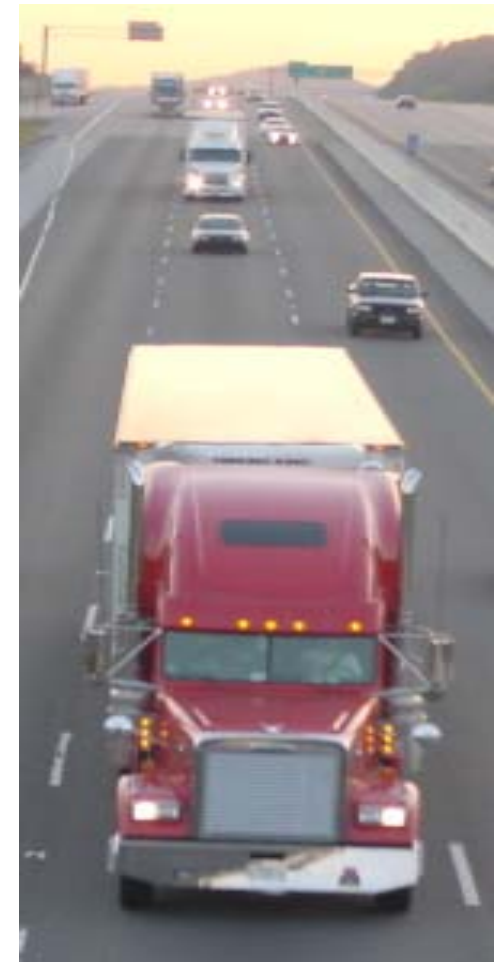
# Trucking Industry Background

- Delivers 87% of all hard goods in U.S.
- Employs 9.9 million Americans
- Operates 2.6 million tractor-trailers

# Background

## Trucking a physically demanding job

- Average 500 miles per day
- Work 26+ days per month
- Idle trucks 40 - 60 % of work time
- Drive 11 hours -- rest at least 10 hours
  - Idle engine for cab comfort
  - May not rest well (noise, vibration)
  - Resting environment may contribute to unsafe drivers



# Background

## Extended Engine Idling Doesn't Please Anyone



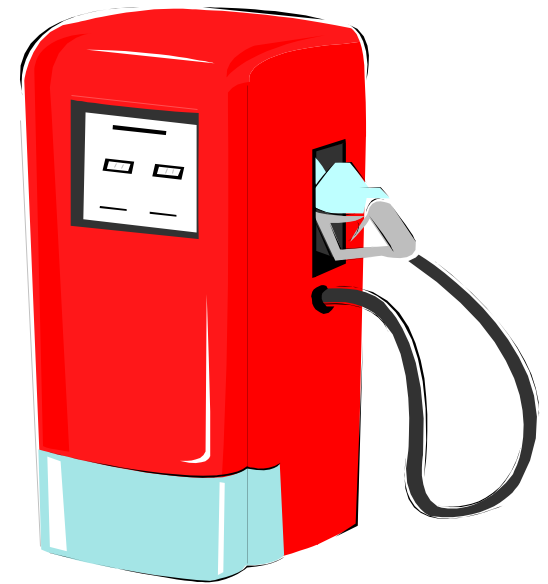
- Elevated RPM (950+ RPM)
- Engine loading 10-30 brake hp
- Extended time periods (30 minutes to over 8 hours)
- Causes additional engine wear (1 hr Idle = 7 mi Road)
- Neighborhood noise
- Air pollution

# Background

## Fuel Consumed in Idling

### Annual Impact:

- 4.4 billion gallons  
(100+ million barrels)\*
- \$6.6 billion cost to truck owners (@\$1.50/gal)
- ~18% of America's Strategic Petroleum Reserves!
- 3.2% of Imported Crude Oil



\*1.0 gal/hour x 3,366 Hours / truck x 1,300,000 trucks

# The Idling Situation

## Idling Creates Emissions & Noise

Emission*	Single Truck (g/hr)	Single Truck (MTons/yr)**	100 Spaces 14.4Hrs/Day (MTons/yr)	1.3 million trucks (MTons/yr)**
NO <sub>x</sub>	135.00	0.46	70.96	590,733
PM	3.68	0.012	1.94	16,103
VOC	6.84	0.023	3.59	29,930
CO	56.14	0.19	29.51	245,657
CO <sub>2</sub>	10,397	34.99	5,464.66	45,495,193
	<b>10,598.66</b>	<b>35.68</b>	<b>5,570.66</b>	<b>46,377,616</b>

# Atlanta Petro ATE



Atlanta -- April 2003



# IdleAire Service Module



# ATE Reduces Emissions

## Layover Emissions--100 Parking Spaces

Emission*	Single Truck (g/hr)	100 Spaces 14.4 Hrs/Day (M tons/yr)	% Emissions Removed **
NO <sub>x</sub>	135.00	71	98.4%
PM	3.68	1.93	99.5%
VOC	6.84	3.6	99.7%
CO	56.14	29.51	99.7%
CO <sub>2</sub>	10,397	5,465	88.7%
	<b>10,598</b>	<b>5,570</b>	<b>97.2%</b>

# Atlanta Petro Emissions Reductions

## Emissions in Metric Tons

	Hours	Total Emissions	NO <sub>x</sub>	VOC	CO	PM	CO <sub>2</sub>
<b>2003</b>	224,666	1,893	30.33	1.54	12.61	0.83	1,847.65
<b>2004</b>	32,340	272	4.37	0.22	1.82	0.12	265.96
<b>Total</b>	257,006	2,165	34.70	1.76	14.43	0.95	2,113.62

63 Parking Spaces  
April - December 2003  
January - February 2004

# ATE Reduces Fuel Use

Spaces	Fuel Saved (Gallons) 1yr	Value (@\$1.50/Gal)
50	262,800	\$394,200
100	525,600	\$788,400
200	1,051,200	\$1,576,800

14.4 hours/day/space, 365 days per year.  
1 gallon fuel use per hour.

# ATE

## Proven Occupancy & Usage

<b>Installation</b>	<b>Spaces</b>	<b>Hours</b>	<b>First Visits</b>	<b>Total Hookups</b>	<b>% Returning</b>
DeWitt Travel Plaza	20	2332.6	107	195	45.10%
Hunts Point	21	1957.2	95	171	44.40%
Petro - Knoxville - Watt Rd.	82	26309.7	684	2058	66.80%
Chittenango Travel Plaza	23	2592.2	143	245	41.60%
Petro - Atlanta	62	29309.9	674	1903	64.60%
Bruces - Bakersfield, CA	51	19470.4	341	984	65.30%
Petro - Los Banos, CA	65	23336.8	702	1343	47.70%
Loves - Ripon, CA	69	28089.7	499	1320	62.20%
Loves - Lost Hills, CA	49	7970.1	335	694	51.70%
Petro - West Memphis	42	25123.2	613	1821	66.30%
TA - Dallas	54	39509.3	811	2203	63.20%
TA - San Antonio, TX	60	35614.5	1153	2256	48.90%
TA - Baytown, TX	51	35360.2	996	1940	48.70%
Petro-Bucksville, AL	81	19952.2	1182	1922	38.50%
El Paso Travel Plaza, TX	51	1679.5	98	153	35.90%
<b>Totals:</b>	<b>781</b>	<b>298607.5</b>	<b>8433</b>	<b>19208</b>	<b>52.72%</b>

IdleAire Members:	70,123 <sup>+</sup>
Total Hours:	1,400,181
Fuel Saved:	1,540,892g <sup>+</sup>
Emissions Saved (Gross/Net):	1,4845/9,494 Metric Tons



# Reporting Format

IdleAire Technologies Corporation  
410 North Cedar Bluff Road, Suite 200  
Knoxville, Tennessee 37923

Tel.865.342.3600  
Fax.865.342.3650  
[www.idleaire.com](http://www.idleaire.com)



## REPORTING FORMAT

**Petro #19- Bucksville, AL**

**Report for the Period: 4-16-04 to 4-19-04**

**Hours of Usage: 1,365.4**

<b>Emissions</b>	<b>Total Reduced in Kilograms<sup>A</sup></b>
Total Sum of CO Reduction	76.65
Total Sum of VOC Reduction	9.33
Total Sum of NO <sub>x</sub> Reduction	184.329
Total Sum of PM Reduction	3.51
Total Sum of CO <sub>2</sub> Reduction	14,196.06

<sup>A</sup> Emission Reductions Calculations shall be calculated using the following emission factors:

Single Truck Hourly Emissions	Carbon Monoxide (CO)*	Volatile Organic Compounds (VOC)*	Nitrogen Oxide (NO <sub>x</sub> )*	Particulate Matter (PM)*	Carbon Dioxide (CO <sub>2</sub> )**
Grams/truck/hr	56.14	6.84	135.00	2.57	10,397.00

\* The emissions factors for CO, PM, VOC, and NO<sub>x</sub> come from EPA's MOBILE6 Emissions Model to estimate the emissions from idling trucks.

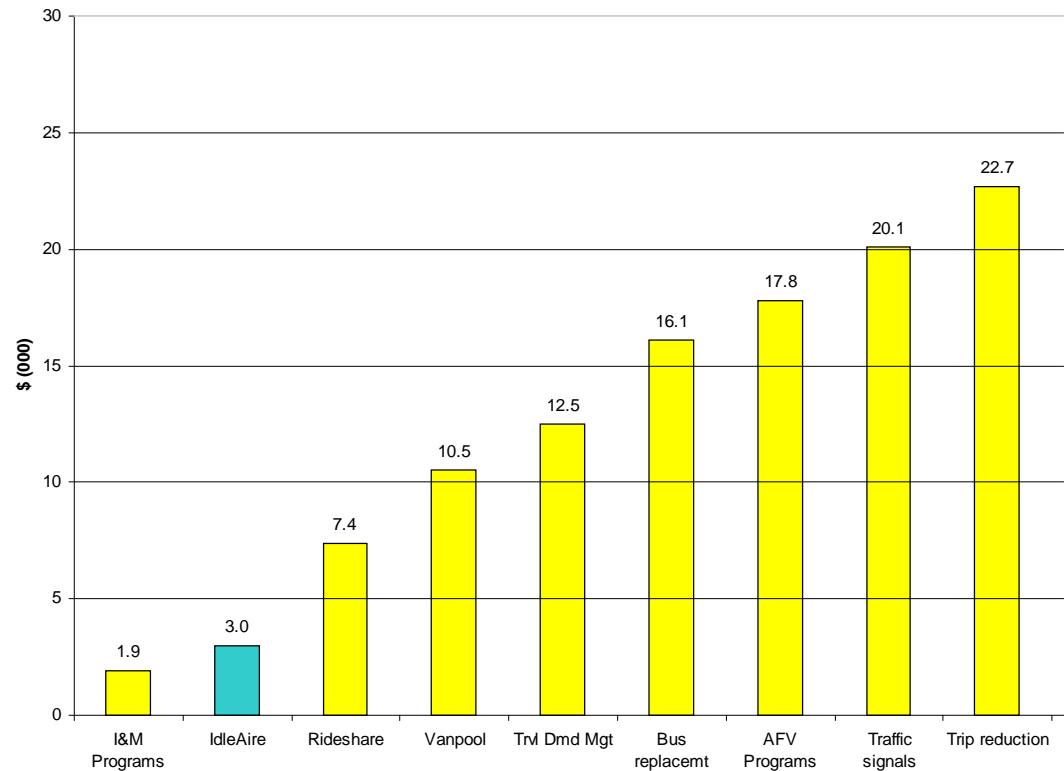
\*\*Since MOBILE6 does not calculate CO<sub>2</sub> emission factors, the calculations come from the GREET model by Argonne National Laboratories, and represents the carbon content of 1.0 gallon of #2 diesel fuel. A fuel consumption rate of 1.0 gallon per hour during extended idling is assumed; this is consistent with real-world testing and Argonne modeling.



# CMAQ Cost Effectiveness Comparison

## Cost-effectiveness per Ton of NO<sub>x</sub> Reduction. IdleAire Versus the Nine Best Technology Categories

- 5 Year NO<sub>x</sub> Rate is \$4,851 / Metric Ton
- 15 Year NO<sub>x</sub> Rate is \$3,010 / Metric Ton
- National CMAQ Median \$66,300



Source: U.S. Department of Transportation's CMAQ Program

# ATE for Today & Tomorrow

## Planning for the Future

- ATE provides truck stop electrification (TSE) today
  - Includes HVAC
  - Includes computer, TV, movies & other services
  - Optional Refrigeration power
- Tomorrow's electric truck can use ATE
  - We'll remove HVAC
  - "Future truck" plugs into shore power
  - Includes Communication & Entertainment

# ATE: Dream to Reality



Chittenango Plaza -- May 2003



Concept Drawing -- August 2000



# Photo Gallery

## Not Just for Trucks!



# Photo gallery

## Drivers Sign Up and Wait

DATE	COMPANY	TRUCK #	Time Requested
7/7	ARCTIC	2874	8:33 P
"	9th Street	13068	8:37 P
"	TVS&W	59001	8:41 P
"	Admiral	94993	8:47 P
"	Benefit	5365	8:51 P
"	EMPIRE	10204	8:53 P
"	MAYFLOWER	590-21	8:58 P
"	R+R Trucking	6011	9:02 P
"	Equipment Express	351	9:06 P
"	PTL	8535	9:15 P

IDLEAIRE WAIT LIST

# Service Selection Screens



# ATE Fleet Services Costs

- Standard services -- \$1.25/hour
  - One hour minimum
  - \$0.02/minute thereafter
  - Electricity (120VAC), HVAC, computer, Satellite TV, Internet access, telephone access, email, 24/7 onsite and telephone support
- In-cab training -- \$15.95/lesson
- Fleet communications -- individual rates

# ATE Economic Impact

## Fleet Benefits

- Quick Return on Investment
  - Window adapter \$10.00
  - First visit free -\$10.00
  - Fuel Savings (@\$1.50/gal) -\$12.00
  - First Day Total Expenses -\$12.00
- Driver retention/acquisition incentives
- Better communication with drivers
- In-cab training services

# ATE Economic Impact

## A Win-Win Scenario

- Truck owners reduce operating costs
  - ~ \$3,200/yr/truck (fuel and maintenance costs)\*
- Travel centers gain new revenue source
- New Employment (18 employees/100 spaces)
- Drivers rest better and are safer on road
- Reduced fuel use (less dependence on foreign oil)
- Significantly reduced emissions
- Neighborhoods quieter

\* = (3,366 gallons\*1.5) - (3,366\*1.25) + \$2,400 Maintenance

# Additional Driver Services

- Ethernet Internet Connection (\$3.00/visit)
- Wireless Internet Access (\$3.00/day)
- Additional Satellite Channels (\$3.00/tier)
- Movies on Demand (\$3.95 - \$9.95)
- Long distance telephone (~\$0.05/minute)

# Relationships with Travel Center Operators

- Commitments 366 travel centers, 84% of the corporate travel centers or 46% of the Travel Center industry
- Typical 15 – 25 year Contracts

Association	Centers	Parking Spaces	Avg Spaces	Contracts	Conditional	Committed
TravelCenters of America	151	26,241	9.6%	174	1,770	26,241
Pilot TravelCenters LLC	260	26,321	9.7%	101	26,321	26,321
Flying J	155	22,691	8.3%	146	0	0
Petro Stopping Centers	61	14,783	5.4%	242	1,241	14,783
Love's	67	2,553	0.9%	38	435	2,553
PTP	153	15,089	5.5%	99	3,186	15,089
AMBEST	114	18,169	6.7%	159	1,188	18,169
NATSN	109	13,124	4.8%	120	1,924	13,124
G&S Interstate Truck Stop	70	5,291	1.9%	76	590	5,291
Independents	<u>3,260</u>	<u>127,738</u>	<u>47.0%</u>	<u>39</u>	<u>2,104</u>	<u>2,104</u>
<b>Totals</b>	<b>4,400</b>	<b>272,000</b>		<b>62</b>	<b>38,759</b>	<b>123,675</b>
					14.2%	45.5%

Conditional Spaces: The Company signed initial agreements with Petro Stopping Centers, TravelCenters of America and Love's to install 3-5 initial sites for each operator with the mutual understanding that they will sign national contracts thereafter.



# Truck Fleet Relationships

**LANDSTAR**

**SMX**

**DART**

**QC**

**Robert Motor Express, Inc.**

## Truck Fleet Commitment Summary (Effective 12/31/03)

Size	Long Haul Market		Avg. Fleet Tractors	Commitments	
	Fleets	Tractors		Fleets	Tractors
1,000 - 15,000	116	329,525	19.7%	2,841	24 78,877
101 - 999	1,891	514,884	30.7%	272	66 18,717
21 - 100	9,598	454,423	27.1%	47	94 4,847
20 or less	73,880	377,331	22.5%	5	71 446
<b>Totals</b>	<b>85,485</b>	<b>1,676,163</b>		<b>20</b>	<b>255 102,887</b>

**SWIFT**

**AGT**

**GW**

**NFI National Freight**  
How Business is Done

**AVERITTE EXPRESS**

**J.B. HUNT**

**FedEx**  
Custom Critical

**BOYD BROS**  
Transportation, Inc.

**KENNESAW**  
TRANSPORTATION, INC.

**UNITED**  
Van Lines

**MDS**

**Celaton**  
Trucking Services, Inc.

**TRANSPORT AMERICA**

**CORNHUSKER**  
MOTOR LINES

**The Jones Motor Group**

**MORGAN**  
SOUTHERN, INC.

**PILES**

**Continental Express**  
Inc.

**England**

**GT**  
T. GROENDYKE  
TRANSPORT

**MERCER**  
Transportation Company

**Sitton Motor Lines**

**XTL Transport Inc.**

**Anderson**  
**ATS**  
Trucking Service

**THE WAGGONERS**  
TRUCKING

**NASTC**

**Wynne**  
TRANSPORT SERVICE

**PANTHER II**  
TRANSPORTATION, INC.

**IdleAire**  
Technologies  
Corporation

**Camell Futura Logistics Corporation**



# Strategic Partners



**Intelligent Trusses, Electrical Power Distribution**

**IT, WAN Monitoring, NOC Call Centers**

**LCD Displays**

**Touch screens**



**WAN Equipment & Wireless**



**Telecom: WAN, Wireless, Long Distance**



**Environmental Protection Agency**



**Digital Movie Content**

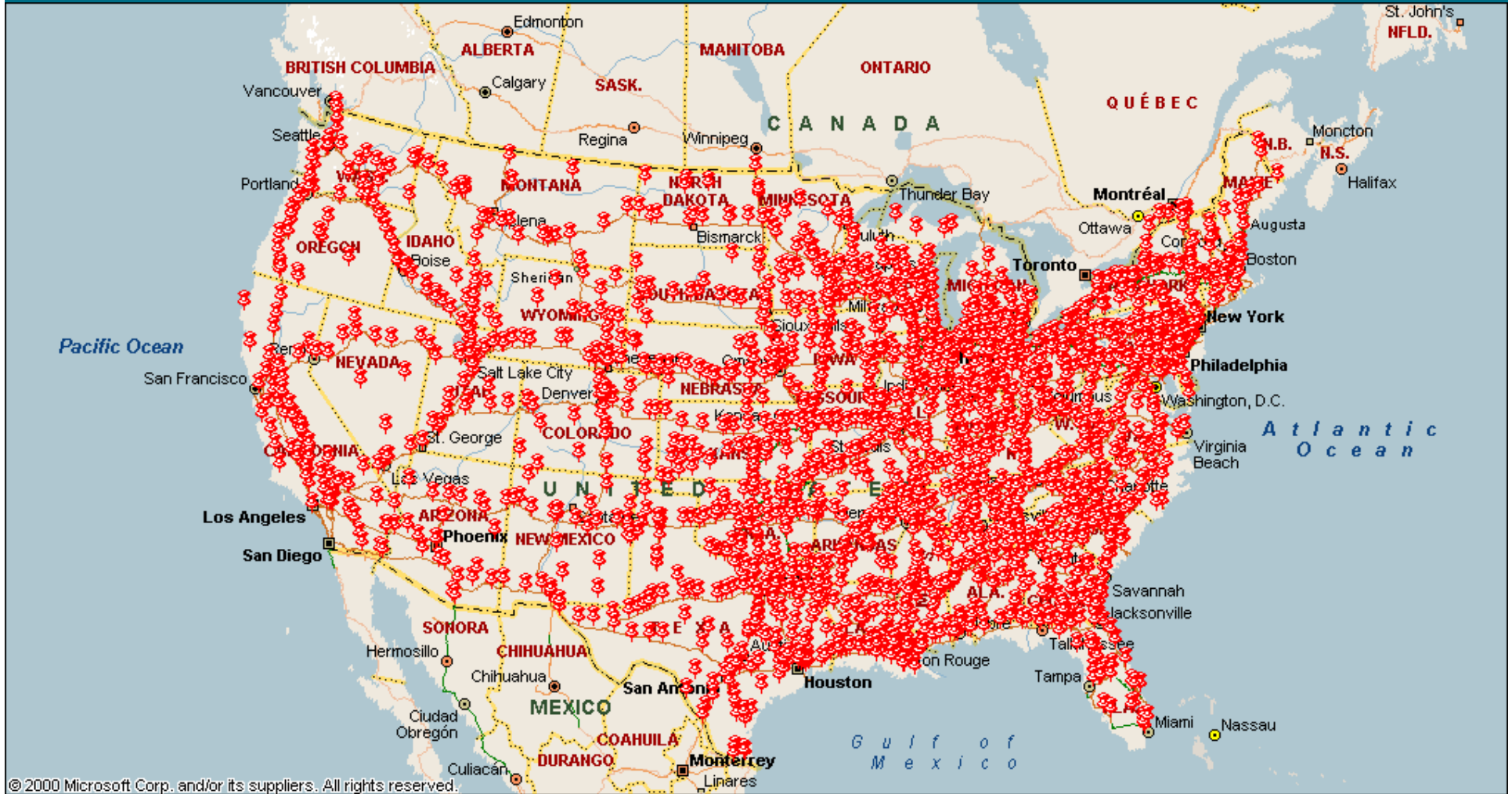


**Driver Training & Fleet Risk Management**



QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

# Travel Center Market





**IdleAire**  
Technologies  
Corporation

Truck Stop Electrification for the 21<sup>st</sup> Century

410 North Cedar Bluff Road  
Suite 200  
Knoxville, Tennessee 37923

Tele: 865-342-3600  
Fax: 865-342-3650  
[www.idleaire.com](http://www.idleaire.com)