

# Charting a Course to Energy Independence

Providence, RI  
August 9-12, 2009





# Oak Ridge National Laboratory Sustainable Campus Initiative

- Achieve Benchmark Sustainability
  - in campus operation and
  - in the research, development and deployment of key technologies
- Time frame – Ten Years but with Heavy Front-end Loading
- Sponsored and advocated by Executive Leadership



# Sustainable Campus Initiative

## 2. Transportation

## 3. Employees

## 1. Facilities

## 4. Waste

## 5. Transformational



# ORNL East Campus Today



- 1 million ft<sup>2</sup> LEED-certified campus
- We have added 33% more area with only a 5% increase in utilities
- A first for DOE and Tennessee





# UT-Battelle Widely Recognized for Environmental Leadership and Sustainable Practices

- Resource conservation
- Environmental stewardship
- Pollution prevention
- Green transportation





# Recognized for Our Leadership in Green Transportation – White House Closing the Circle Award, Best -in-Class, DOE P2 Star



## ORNL vehicle fleet:

- 18% reduction in fleet size, average age to 10 year
- Exceeds DOE's 94% utilization rate
- Increased to 65% flex fuel (E-85 & B-20 biodiesel)
- Increased to 28% biodiesel (all diesel vehicles and heavy equipment)
- Receiving 15 hybrids from the ARRA
- Petroleum use decreased by ~30,000 gallons
- E-85 & biodiesel use increased by ~45,000 gallons





# Action Plan for Benchmark Sustainability

For each sustainability category:

- Compared the current condition to the desired future state
- Determined actions needed for closing the gaps
- Created roadmaps for each category



# Sustainable Campus Initiative Roadmaps

Transformational Technologies

Sharing Successes

**Sustainability in the ORNL Vehicle Fleet**

**Plug-in Vehicles**

**Solar Covered Parking with PHEV**

**Sustainability in Employee Transportation – Clean Commute & Mobility**

Energy Storage and Peak Power Management

Grid Efficiency/Smart Grid

Energy Wall

Information Technology Sustainability

Renewable Energy Sources

Zero-Energy Buildings

Sustainability in New Construction, Renovation, and Existing Buildings

Energy Efficiency for Existing Facilities

Zero Process Water Discharge

Recycle and Reuse

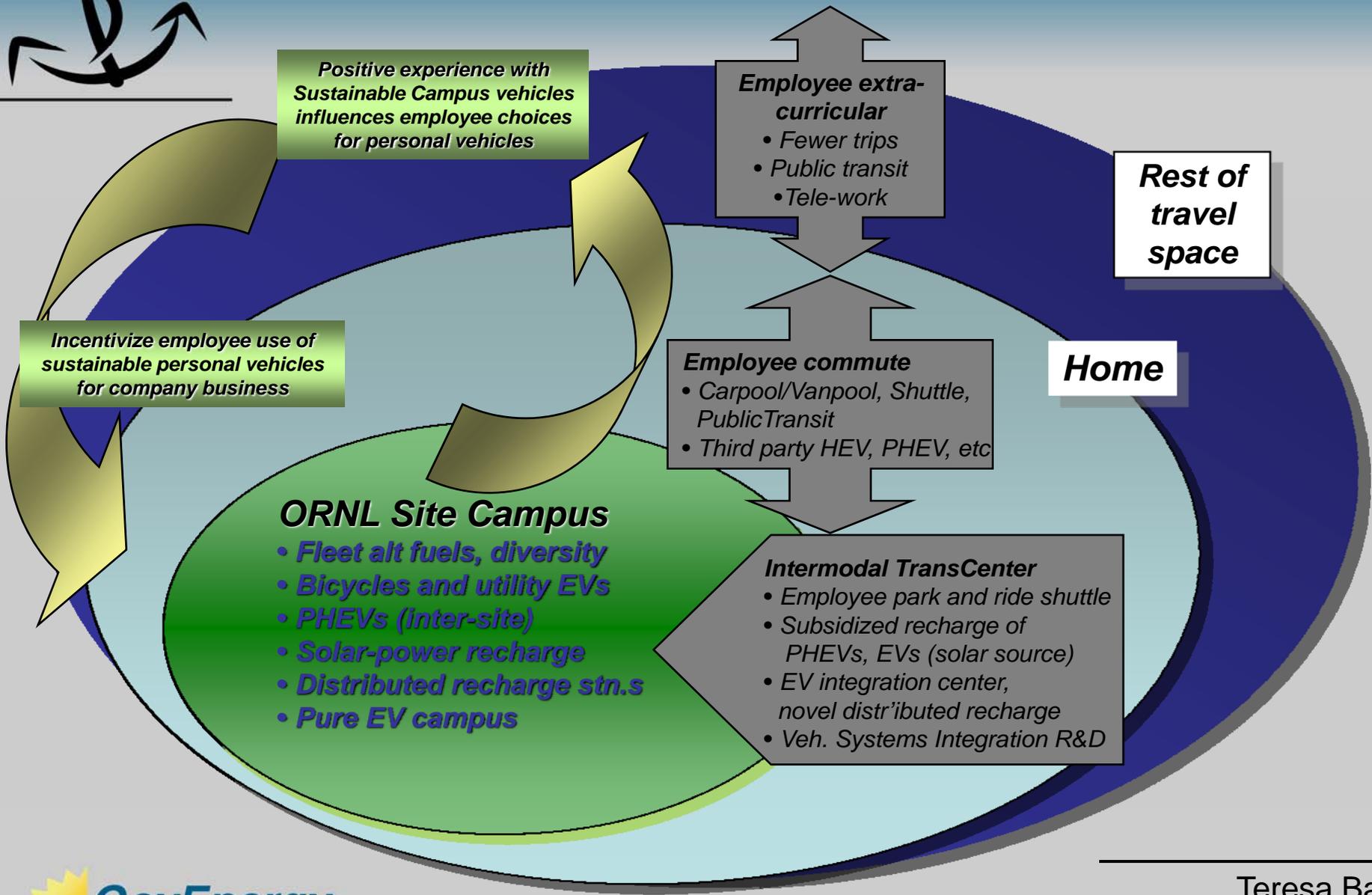
Employee Wellness

Employee, Family, and Community Engagement

Carbon Footprint



# Tiered Approach to Sustainable Transportation





# Sustainable Campus Initiative for Transportation

## Transportation



- Bicycles
- Solar Parking
- Electric Vehicles
- Plug-in Hybrid Electric Vehicles
- Intermodal Transit
- Fleet Management

Fleet Management

PHEV

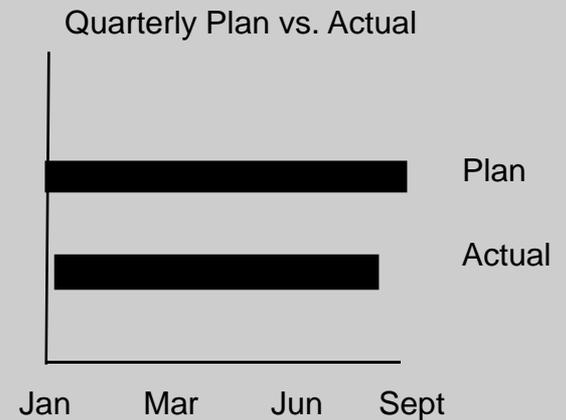
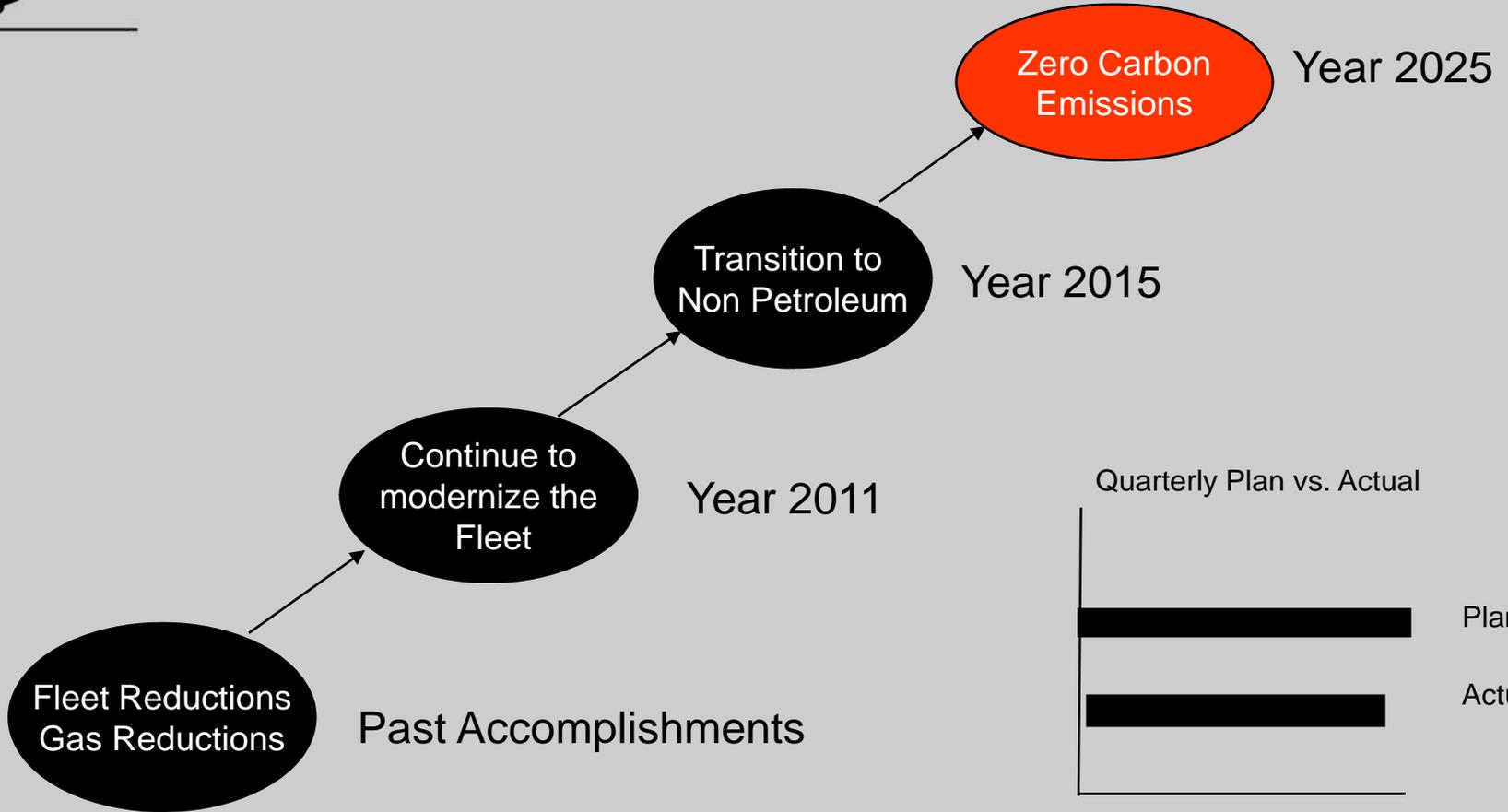
Inter-modal

Commute to Campus

Solar Parking



# Sustainability in the ORNL Vehicle Fleet





# ORNL Fleet - A Model for Implementation of Alternative Fuels & Advanced Vehicle Technology

The ORNL fleet uses bio-fuels, fuel efficient engines, and advanced vehicle technologies such as hybrid electric power trains to reduce emissions, total energy consumption, and the amount of energy coming from petroleum.

Continued improvements through FY10 evaluation and recommendations for fleet adjustments to reduce the green house gas inventory and provide logistics guidance.

Develop a report outlining the availability and probability of second generation bio-fuels to help guide the future of the fleet.

Analyze the viability of introducing CNG into the ORNL fleet.

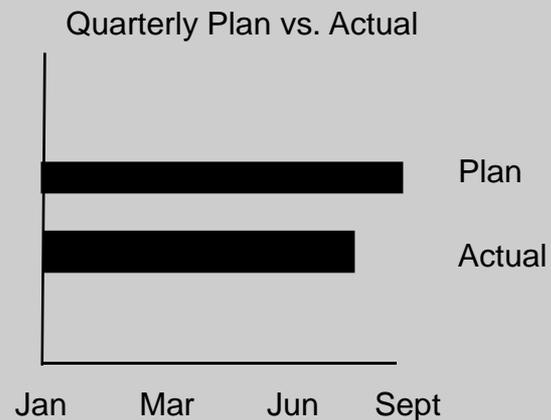
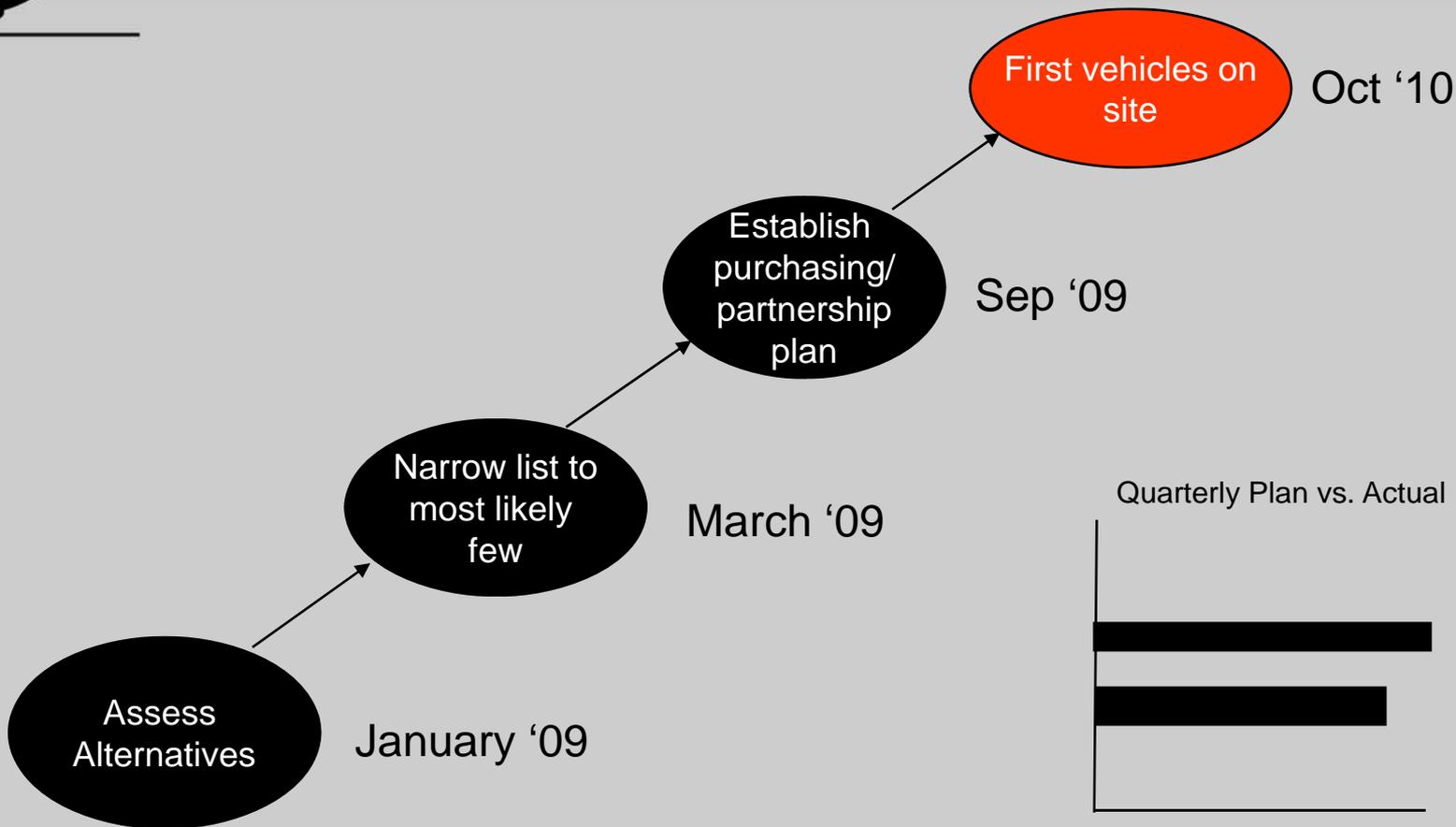
The current availability of biodiesel and ethanol will also be addressed



ORNL Fleet Manager and new hybrid vehicles

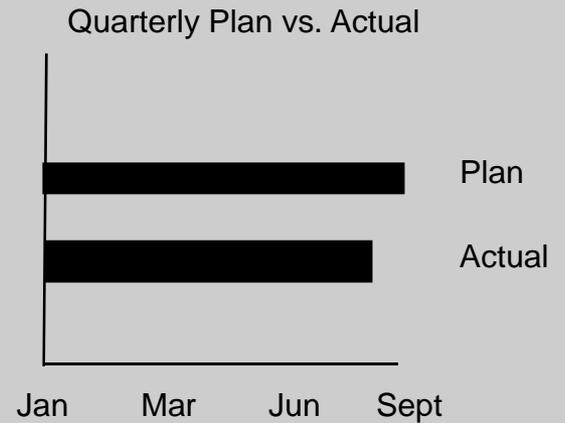
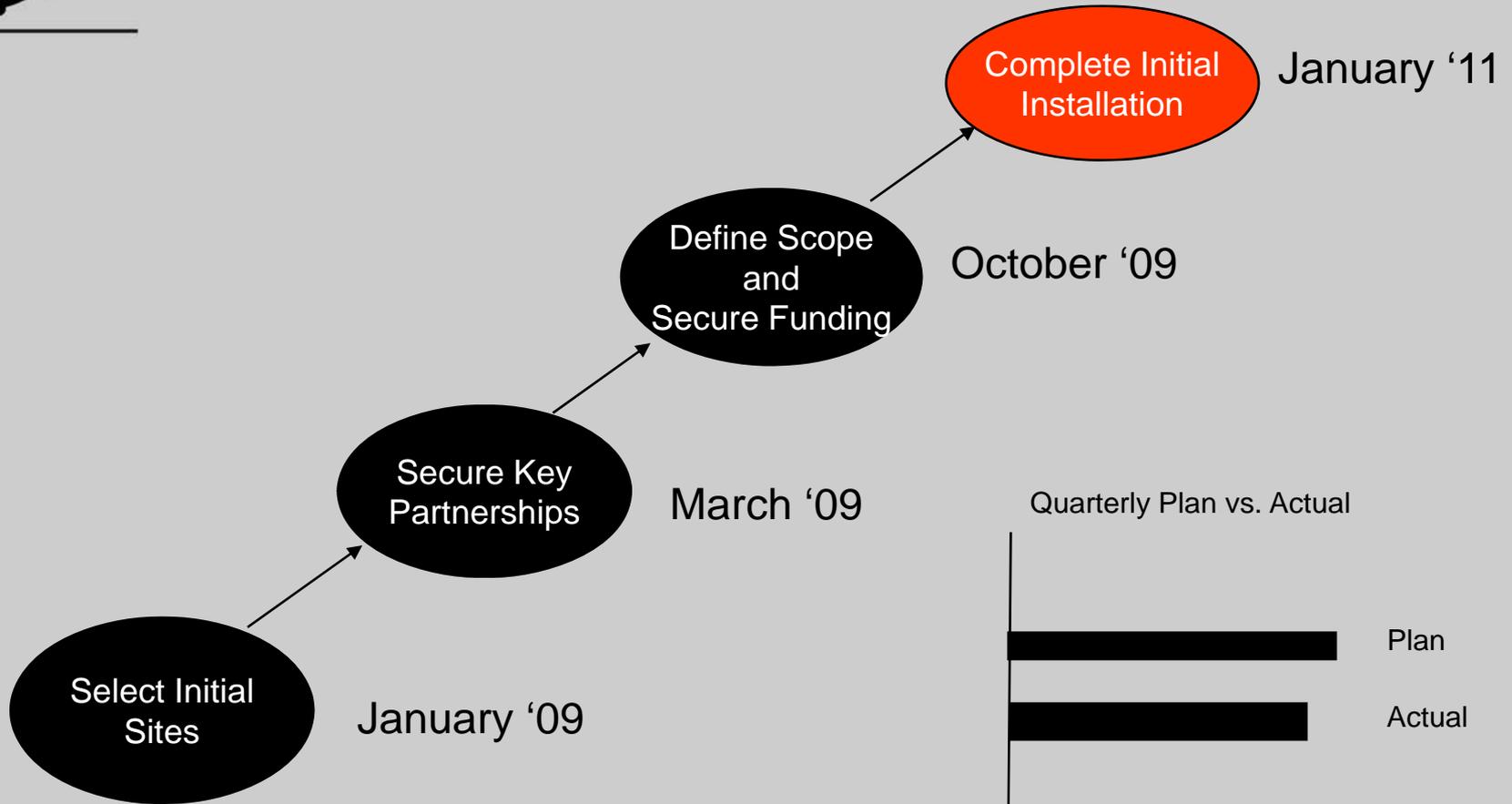


# Plug-In Vehicles





# Solar Covered Parking

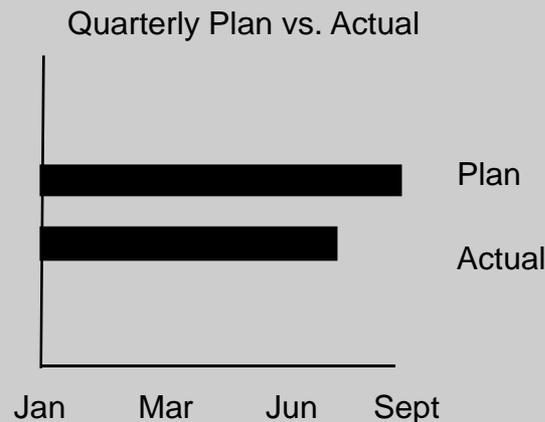
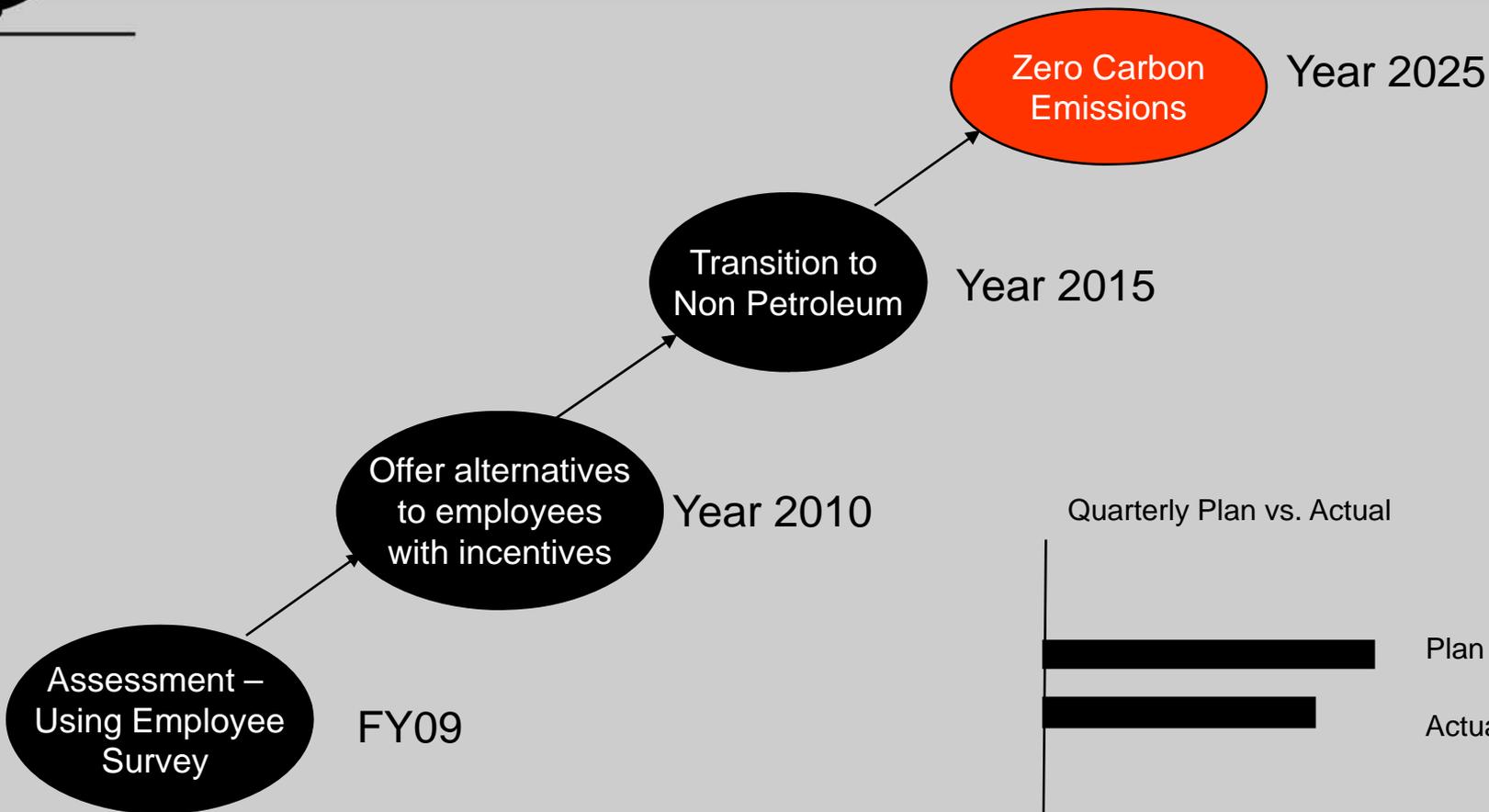




OAK RIDGE NATIONAL LABORATORY  
SUSTAINABLE CAMPUS INITIATIVE

# Sustainability in Employee Transportation

## Clean Commute and Mobility





# Sustainability in Employee Transportation – Clean Commute and Mobility

Second Quarter	Third Quarter	Fourth Quarter	FY2010
<input checked="" type="checkbox"/> Develop high-level alternatives for employee transportation to campus	<input checked="" type="checkbox"/> Appoint leader for Sustainability in Employee Transportation	<input type="checkbox"/> Finalize employee survey	<input type="checkbox"/> Develop implementation plan for approved alternatives (Q1)
<input type="checkbox"/>	<input checked="" type="checkbox"/> Develop partnership with SmarTrips for technical assistance	<input type="checkbox"/> Conduct employee survey	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Review and publish findings of survey	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Develop Transportation Alternative Plan (TAP) with survey input	<input type="checkbox"/>



View All Site Content

**Lists**

- Winners of Earth Day Contests

**Home****About Sustainable Campus Initiative****Lessons Learned****Questions, Comments, Ideas**

- Information Exchange
- Questions

**Resources****Contacts****Webmaster****Disclaimer**

## Sustainability at Oak Ridge National Laboratory



The Sustainable Campus for the Year 2018 Initiative is an Oak Ridge National Laboratory-wide effort. It builds upon ORNL's strength as a premier science and technology organization in integrating energy efficiency, robust and cutting-edge technologies, operational and business processes, and behavior to achieve sustainability. A recent [presentation](#) describes the goals and components of this ORNL initiative.

Sustainability embodies how we make choices in business practices; environmental stewardship, safety, and health; and employee, family, and community engagement. These choices run the gamut from using cutting-edge technologies to such simple actions as turning lights off when leaving a room, participating in work and community recycling programs, and buying [environmentally friendly products](#). Making these choices in a sustainable way increases our options for the future while meeting our needs today.

ORNL strives to be a sustainability leader by embracing sustainable practices and using our enormous expertise to help interested individuals, communities, commercial and industrial facilities, and the nation. Everyone at ORNL can participate in achieving this goal. By doing so, we also can benefit personally and improve our communities.

**R&D Initiatives**

ORNL is leading the way in sustainability research and development in several key areas...

**Campus Facilities & Operations**

Information on campus sustainability progress throughout ORNL's facilities and operations...

**Your Sustainability**

Information to help you obtain sustainability at work, at home, and in your community...

**Learn about sustainability and win up to \$2500! Details at right.**

**Education**

Details [here](#) on how to win gift cards by completing SEEC sustainability learning modules. **The seventh module, Reinventing the Wheels — about environmental transportation options, is now available.** Click [here](#) to access all modules.

**Moving Toward Sustainability**

Staff working in Building 1509 (shown above) recently piloted a new ORNL recycling program for offices.

Read about [recycling](#) at ORNL, including details about what can and what cannot be fed to the ORNL paper recycling bins. Then check [this report](#) on a "dumpster dive" undertaken to see if ORNL's recycling programs are effective.

**Winners of \$ 50 SEEC gift cards announced!**

Click [here](#) to see the list of 80 ORNL staff members who had completed the first four SEEC modules by May 31 and had their names drawn to win \$ 50 gift cards. Eighty individuals who have completed modules 1-7 by August 31st will win \$75 gift cards in early September. Read the [details](#) about how you, too, can be a winner.

**Information Exchange**

Share and discuss your [Comments, Ideas, & Expertise](#) about working toward sustainability. Let others know about your successes, frustrations, and failures.

**Questions**

Ask [Questions](#) to learn about ORNL's efforts to move toward sustainability.

**Sign in to make comments or ask questions**  
You must be signed in to the site as an ORNL user to post items. Click on "Sign In" at the top right of the page. Use "orn\UID" (note that you must use a backslash) and your UCAMS password.



# For additional informational

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