Presentation
to
City of Palo Alto
for
Energy/Compost Feasibility Study
and
Environmental Impact Initial Study
Management of Food Waste, Yard Waste and Biosolids

Alternative Resources, Inc.

July 1, 2010
Project Team

• Alternative Resources, Concord, soon Los Angeles
  Prime Contractor, Lead Dry AD

• Douglas Environmental, Sacramento
  CEQA

• Ascent Environmental, Sacramento
  Greenhouse Gas Emissions

• Facility Builders & Erectors, Anaheim
  Site Engineering
Summary of Qualifications

• Complimentary and comprehensive resource team

• National experts in conversion technology (CT) – anaerobic digestion (dry, wet)

• Highly experienced in California (companies and staff)
  – CT
  – CEQA
  – Greenhouse gas emissions
  – Solid waste facility engineering
Summary of Qualifications (continued)

• Representative CT experience
  – Palo Alto – Composting Task Force Workshop on AD
  – LA County
  – City & County of Santa Barbara
  – San Diego
  – Orange County
  – SMUD
  – Private utilities in CA
  – Private company – San Francisco

• Synergism and efficiency as part of team selected for Long-Range Facilities Plan to review biosolids options

• Comprehensive CT database – performance, cost, business approach
Summary of Qualifications (continued)

• Recognized by AD companies in Industry as fair, unbiased with ability to get the job done – increased responsiveness to proposed approach

• Not too big, not too small, all resources needed while responsive to your needs
Key Project Participants

• Jim Binder, P.E., Project Manager
• Doug Brown, CEQA
• Austin Kerr, Honey Walters, Greenhouse Gas
• Jerry Gunn, P.E., Site Engineering
Organization Chart

City of Palo Alto

Alternative Resources, Inc.
J. Binder, Principal/Project Manager

Energy/Compost Feasibility
Alternative Resources, Inc.
S. Higgins, Conversion Technologies Specialist
J. Osborn, Energy Consultant
K. Luvisi, Anaerobic Digestion Specialist
D. Mackenzie, Financial Analyst

Greenhouse Gas Analysis
H. Walters, Ascent Environmental
A. Kerr, Ascent Environmental
H. Phillips, Ascent Environmental
L. Santos, ARI

CEQA Review
D. Brown, Douglas Environmental

Site Engineering
J. Gunn, Facility Builders & Erectors
## Representative Staff Experience

<table>
<thead>
<tr>
<th></th>
<th>Palo Alto</th>
<th>LA County</th>
<th>Santa Barbara</th>
<th>SMUD</th>
<th>NYC</th>
<th>Buena Vista</th>
<th>Lake Tahoe</th>
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<td>J. Binder</td>
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<td>S. Higgins</td>
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## Workplan

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<th>Task</th>
<th>Description</th>
<th>Alternative Resources, Inc.</th>
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<th>Ascent Environmental</th>
<th>Facility Builders &amp; Erectors</th>
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<td>Task 1</td>
<td>Development of Detailed Workplan</td>
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<td>Task 2</td>
<td>Community Scoping for Feasibility Study and for Environmental Review</td>
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**NOTE:**
- Alternatives 1, 2, 3
- Suboptions (4-Alternative 1)
Unique Approach for AD Review

• Interactive RFI Approach
  – Identification of key technology providers
  – Issue RFI (qualifications of company/technology; technical and environmental performance, cost, business approach)
  – Review responses/interaction with technology providers
  – Option: visit to reference facilities

• Unique review of ownership/project delivery options and risk allocation based on procurement and implementation experience
Benefits

• Provides comprehensive/Up-to-date information from parties who know technology best
• Establishes initial list of technology providers (for project implementation, if move forward)
• Provides options for consideration for project delivery/risk allocation
Examples of Dry AD Providers
(listed alphabetically)

• BEKON
• Kompogas
• Ecocorp-Linde
• Organic Waste Systems-Dranco
• Orgaworld
• WRSI-Valorga
• Others from past review/contact with City
CEQA/Greenhouse Gas Approach

- Conduct Environmental Analysis of Alternatives
- Use Alternatives Analysis to Focus Project Description
- Integrate GHG Analysis into Environmental Review
- Ensure Public is Integrated into the CEQA Process
- Use Initial Study to Refine Subsequent CEQA Analysis
Greenhouse Gas Analysis

• **Net Change**
  – Information from City’s Compost Task Force
  – Closure of Palo Alto Landfill
  – Contract with Green Waste Management
  – Credit reductions in biogenic as well as anthropogenic emissions
  – Amortize construction-related emissions
Greenhouse Gas Analysis (continued)

• Life-Cycle Analysis
  – Anaerobic decomposition
  – Truck hauling and idling
  – Off-road equipment (loading, grinding)
  – Employee commute trips
  – Water consumption
  – Incineration of biosolids
  – “Starter Fuels”
  – Distribution of finished compost
  – Construction emissions
Greenhouse Gas Analysis
(continued)

• **Working Excel Model**
  - Full disclosure of emission rate sources
  - GHG-efficiency in which energy is produced (MT/Mw-hr)
  - Cost per unit of GHG reduction ($/MT CO2e/year)
Ownership/Project Delivery Options

• Public Model
  – DBB
  – DB
  – DBO

• Private Model

• DBOOT
Creative Financing

• Public Model
  – “Off-Balance Sheet” tax exempt project revenue financing, COPs
  – State or Federal grants

• Private Model
  – Private financing (debt/equity)
  – Private activity bonds (tax, exempt, revenue bonds)
  – ARRA (Grants, Tax Credits)
  – DOE (Grants, Loans)
  – AB118, other grants
  – Combination of above

• Combined Ownership
Compost Marketing Options

• **Responsibility**
  – City
  – Private company/broker
  – If DBO, DBOOT, private model, operator

• **Potential uses of compost**
  – Green waste/food waste:
    Soil amendment, top cover, erosion control, landfill cover (ADC)
  – Biosolids:
    Dependent on quality; landfill cover; public perception
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tr>
<td>Sept. 8, 2010</td>
<td>Community Scoping Meeting (City to lead)</td>
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<tr>
<td>February 2011</td>
<td>Community meetings on Draft Preliminary Financial/Greenhouse Gas Analysis</td>
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<td>March 15, 2011</td>
<td>Final Preliminary Financial/Greenhouse Gas Analysis</td>
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<td>June 15, 2011</td>
<td>Consultant Draft of Feasibility Study and California</td>
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<td>August 2011</td>
<td>Community Meetings</td>
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<td>Final Feasibility Study and Draft Workplan for completion of California Environmental Quality Act documentation</td>
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<td>Oct. 30, 2011</td>
<td>Final Workplan for Completion of California Environmental Quality Act documentation</td>
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AD Facilities
Munich, Germany
BEKON Dry Fermentation Facility
25,000 Metric Tons/Year
Separated Waste and Yard Waste
Operating since 2003,
Expanded 2007
Linde Dry Digestion Facility
Kleinbautzen, Germany
55,000 TPY
Cattle Manure and Rye Wastes
Organic Waste Systems (DRANCO)  
Vitoria, Spain  
330 tpd – Mixed MSW  
(Operating since December 2006)  
Anaerobic Digestion
WRSI/Urbaser (Valorga)  
La Coruna, Spain  
500 tpd – Mixed MSW  
(Operating since 2001)  
Anaerobic Digestion
Plant View – Back Side
ArrowBio – Jacks Gully
Sydney Australia
300 tpd – Mixed MSW
(Commencement July 2008, taking MSW September 2008)
Anaerobic Digestion
Closing Comments

• Uniquely qualified team
• Approach that will lead to successful project
• Will meet schedule demands
• Demonstrated ability to effectively communicate and interact with City/Public
• Ready to go
• Thank you