Beyond Inspiration
Developing the Next Generation of Climate Action Plans

CTG Energetics, Inc.

Chris Pyke
• California has begun a 50 year transition to a low-carbon future that will transform land use planning

• The result will be new generation of goals, plans, and processes to achieve and sustain long-term reductions in greenhouse gas emissions
Hierarchy of Emissions Targets

- National targets
- State targets
- Regional targets
- Local targets
- Project targets

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Comparison of Legislative Climate Change Targets in the 110th Congress, 1990-2050
As of December 8, 2008

- National Targets
- Business as usual
- Historical emissions

For a full discussion of underlying methodology, assumptions and references, please see [http://www.wri.org/usclimatetargets](http://www.wri.org/usclimatetargets). WRI does not endorse any of these bills. This analysis is intended to fairly and accurately compare explicit carbon caps in Congressional climate proposals and uses underlying data that may differ from other analyses. Price caps, circuit breakers and other cost-containment mechanisms contained in some bills may allow emissions to deviate from the pathways depicted in this analysis.
State Targets

Reduction Measures
Reductions from un-capped sectors:
- Total reductions of 27.3 MMT
  - Industrial measures: 1.1 MMT
  - High GWP measures: 20.2 MMT
  - Recycling & waste: 1.0 MMT
  - Sustainable forests: 5.0 MMT

Total Emissions: 422 MMT
- Cap is set at 365 MMT
  - Agriculture
  - High GWP
  - Recycling & waste

Business-as-Usual: 596 MMT
- Total Emissions
  - Agriculture
  - High GWP
  - Recycling & waste
  - Industry
  - Natural gas
  - Electricity
  - Transportation

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Local Targets

AB 32 Scoping Plan recommends that local governments reduce emissions by 15% from current conditions – in line with the state’s overall reduction.
Project Targets

Individual plans and projects will need to include features that support this hierarchy of goals, such as:

<table>
<thead>
<tr>
<th>Type</th>
<th>GHG reduction from BAU</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Community</td>
<td>35%</td>
<td>Energy efficiency + PV + reclaimed water + xeriscape + sequestration</td>
</tr>
<tr>
<td>Mixed use infill</td>
<td>28.8%</td>
<td>Energy efficiency + PV + water</td>
</tr>
<tr>
<td>Mixed use infill</td>
<td>25%</td>
<td>Energy efficiency + PV + water</td>
</tr>
<tr>
<td>Planned Community</td>
<td>22%</td>
<td>Energy efficiency + PV + water</td>
</tr>
</tbody>
</table>
Land-use influences a wide-range of greenhouse gas emissions, including:

- Building Systems
- Materials
- Transport
- Solid Waste
- Water
Land Use as an Emissions Nexus

- Transportation: 32%
- Residential: 21%
- Commercial: 18%
- Industrial: 29%
- US Total: 75%
- Transportation Related: 25%
- Solid Waste: 5%
- Water: 3%
- Building Energy: 55%

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Understanding Emissions

Land Use Layers
- Density
- Housing
- Land cover
- Zoning
- Brownfields
- Parcels
- Planning areas

Public Service Layers
- Fire
- Public health
- Schools
- Community Services
- Public offices
- Recreational facilities

Infrastructure Layers
- Electricity
- Water supply
- Water treatment
- Telecom

Environment Layers
- Parks
- Open space
- Critical habitat
- Rivers
- Water bodies

Energy Layers
- Energy demand
- On-site energy supply
- Utility energy supply

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Local – Business-As-Usual

City Of Irvine - Preliminary Projections (MTCE)

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City Of Irvine - *Preliminary* Projections (MTCE)

- **Water**
- **Traffic Lights (TC-1)**
- **Street Lighting**
- **SolidWaste**
- **Transportation**
- **Employee Commute**
- **Vehicle Fleet**
- **Agriculture and Pumping**
- **Industrial (TOU-GS)**
- **Medium Commercial (GS-2)**
- **Small Commercial (GS-1)**
- **Residential**
- **Public buildings**

- Efficiency Required: 41%
- 15% Below 2006 Baseline
Reduction Strategies

![Graph showing reduction strategies over years from 2006 to 2020. The graph illustrates the impact of Business-as-Usual, State Actions, Existing Programs, Expanded Programs, and New Programs on community-wide GHG emissions. The graph indicates a 41% reduction by 2020.]
Emissions Intensity

Emitting Activities
- SF of buildings
- Miles traveled
- Waste generated
- Water consumed

Emissions per:
- Square Foot
- Employee
- Per Capita
- Per unit activity

Total Emissions
- Metric tonnes of CO2 equivalent per year

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Emissions Intensity

- By Activity
- By Place
- Over Time
Emissions by Activity

ICLEI “sectors”

- Residential
- Commercial
- Transportation
- Agriculture
- Water
- Solid Waste
Emissions by Location

- One community
- 51 Planning Areas
Growth by Planning Area

Each Planning Area
- Residential
- Solid Waste
- Commercial
- Water
- Transport

Number of Dwelling Units by Planning Area

- 2006 Residential
- Growth in DUs

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Emissions per Planning Area

In each PA
- Emitting Activities
  - Activities:
    - Dwelling units
    - Commercial
    - Number of residents
    - Acres of landscaping

For each Activity
- Energy Use
  - Emissions per:
    - Kilowatt hours
    - Therms
    - Gallons of gas
    - Gallons of water
    - Tons of waste

For each PA
- Total Emissions
  - Metric tonnes of CO2 equivalent per year

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Explicit implementation timelines, including:

- Accelerating
- Step-wise
- Instant
- Linear
Policy Options

Integrated consideration of activity, place, and time allow for allocation of emissions reducing policies to:

- Community-wide
- Sector
- Planning Area

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Reduction in Intensity

• Example: Reduce Building Energy Use Intensities
  – Reduce EUI of 100 % of buildings by 35 % by 2014
  – Reduce EUI of 80 % of buildings by 50 % by 2016
  – Reduce EUI of 60 % of buildings to Net Energy Zero Energy by 2020
Example of reduction policy

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Intensity Reduction Achieved: 28%

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Irvine’s Climate Action Plan will reflect:

• Consideration for growth in emissions producing activities for 2006-2020

• Strategies to reduce emission intensity
  – By Sector
  – By Place
  – Over Time

• Resulting in a blend of policies and programs to achieve emissions reduction goals
The City of Irvine’s CAP will include:

✓ Targets
  • Absolute emissions targets to support AB 32

✓ Emissions Intensities
  • Explicit consideration of growth and intensity

✓ Reduction Strategies
  • Policy options that prioritize and allocate reductions across sectors, planning areas, and time
Questions

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