



Review draft – not for circulation

## **NORTH COAST ENERGY INDEPENDENCE & EMISSIONS REDUCTION PROGRAM**

### Background – North Coast IRWMP

The North Coast Integrated Regional Water Management Plan (NCIRWMP) is an innovative, stakeholder-driven collaboration among local government, watershed groups, tribes and interested partners in the North Coast region of California. The *North Coast* comprises seven counties and multiple major watersheds, with a land mass of 19,390 square miles—which represents 12% of the landscape of California. The NCIRWMP integrates long term planning and high quality project implementation in an adaptive management framework—fostering coordination and communication among the diverse stakeholders in the Region. Focus areas for the NCIRWMP include salmonid recovery, enhancement of the beneficial uses of water, and the synchronization of state and federal priorities with local priorities, knowledge, and leadership.

The North Coast IRWMP places a strong emphasis on local autonomy – recognizing that the approaches and priorities of local communities and watersheds vary throughout the region, and that “one size does not fit all”. For example, policy and project priorities for integrated water and energy management in Rohnert Park may be very different than those in Etna, yet both local communities share the common goals of healthy watersheds, healthy communities, energy independence, and viable local economies. The North Coast region is characterized by substantial numbers of economically disadvantaged communities – the North Coast IRWMP therefore emphasizes economic vitality, job creation and local economic development in its planning and implementation process.

Under the direction of the NCIRWMP Policy Review Panel, and with technical input from the NCIRWMP Technical Peer Review Committee, the NCIRWMP has been successful in bringing over \$28 million in funding to the North Coast region to implement projects

focused on public health, watershed vitality and local economic development. Future funds, via Proposition 84, are expected to include at least \$37 million in resources to address additional integrated water management priorities.

### Energy Independence, Climate Change Mitigation and Adaptation

Given the substantial relationship between water and energy, the relationship between local energy generation and local economic development, as well as the nexus between greenhouse gas emissions and watershed management, the North Coast IRWMP is integrating energy independence and emissions reductions elements into its programmatic regional approach.

The North Coast IRWMP has a successful history of synchronizing statewide and national priorities with local knowledge, objectives and effective on-the-ground projects. The North Coast IRWMP framework – which has been successful at equitable, cooperative planning and implementation in an economically disadvantaged region – provides an opportunity to integrate California’s ambitious climate protection goals (via AB32, AB 811, and SB 375, with local priorities.

The relatively undeveloped forestlands and watersheds of the North Coast region provide substantial opportunities for climate mitigation and adaptation, while local communities are very interested in the economic opportunities related to local energy generation. As large, centralized energy grids become increasingly constrained by aging infrastructure, increased demand and vulnerability associated with rising temperatures, there are compelling reasons to plan and implement local, decentralized energy generation projects – especially those that lower greenhouse gas emission levels, and ideally integrate with other local and regional priorities.

In addition to support for energy generation opportunities at the local level, there is substantial concern about the emissions, ecosystem and human health impacts of catastrophic wildfire in the North Coast region. Annual greenhouse gas (GHG) missions from wildfires are summarized in table 1 and table 2, below, from data supplied by the North Coast Unified Air Quality Management District.

**Table 1. Annual GHG Emissions by County and Pollutant, 1994-2003 (in Metric Tons)**

County	Year	Methane	Nitrous Oxide	Carbon Dioxide
Del Norte	1994	58.21	3.20	18919.54
Del Norte	1995	8.28	0.52	2690.28
Del Norte	1998	461.85	25.03	150101.31
Del Norte	1999	0.44	0.03	144.09
Del Norte	2002	4630.92	225.72	1505049.65
Humboldt	1994	18.75	0.91	6092.65
Humboldt	1995	1.75	0.10	569.69
Humboldt	1996	13.17	0.71	4280.89
Humboldt	1997	10.30	0.57	3348.00
Humboldt	1998	2250.06	124.82	731269.93
Humboldt	1999	10911.03	551.30	3546084.88
Humboldt	2000	6.92	0.37	2250.47
Humboldt	2001	6.40	0.32	2079.65
Humboldt	2002	4.67	0.26	1518.84
Humboldt	2003	6524.05	352.75	2120317.62
Trinity	1994	232.03	11.03	75410.71
Trinity	1995	10.36	0.54	3366.04
Trinity	1996	685.55	34.60	222805.08
Trinity	1997	87.42	4.49	28409.98
Trinity	1999	23303.03	1195.13	7573483.60
Trinity	2000	277.32	15.30	90128.49
Trinity	2001	505.85	25.97	164401.70
Trinity	2002	0.33	0.02	108.19
Trinity	2003	1139.17	61.55	370230.35

**Table 2. Annual Total GHG Emissions by County, 1994-2003 (In Metric Tons of CO2 Equivalent)**

Year	Del Norte	Humboldt	Trinity
1994	21133.35	6769.36	83703.53
1995	3024.01	636.03	3749.74
1996	N/A	4778.58	247927.67
1997	N/A	3740.44	31637.75
1998	167560.43	817215.45	N/A
1999	162.32	3946120.93	8433337.03
2000	N/A	2511.86	100694.62
2001	N/A	2312.37	183074.88
2002	1672271.84	1696.91	122.04
2003	N/A	2366675.33	413231.94

In addition to the emissions problems associated with catastrophic wildfires, there are serious, regionalized public health impacts as a result of elevated particulate levels. Additionally, catastrophic wildfires result in type conversion of native habitats, while the response to the fires create great soil disturbance – both of these factors result in profound negative effects on wildlife and watersheds.

The communities in the North Coast region are interested in opportunities to manage forests and watersheds in a way that minimizes the impacts of catastrophic wildfire, reduces emissions, creates local economic opportunity, while conserving sensitive environmental resources.

### Integrating Energy Independence, Climate Change Mitigation and Adaptation into the North Coast IRWMP framework

The North Coast IRWMP places a strong emphasis on cooperative regional planning that incorporates multiple statewide, regional and local objectives – thereby gaining economies of scope and scale. The North Coast IRWMP Policy Review Panel strongly supports innovative projects which address healthy watersheds, public health and viable local economies in an effective, efficient manner. Examples of projects that integrate NCIWMP priorities and energy independence/emission reduction might include the following:

- Water conservation/recycling projects that reduce pumping and retain instream flows for fish
- Investment in agricultural practices that benefit wildlife while reducing GHG emissions and supporting climate adaptation (eg, cover cropping, fertilizer alternatives, riparian buffers, wetland enhancement)
- Local biomass plants that rely upon sustainable forest management principles, reduce the risk of catastrophic wildfire (loss of timber, loss of habitat, significant emissions affecting public health, climate and native flora/fauna)
- Land conservation incentives that retain forests and rangelands as habitat and/or working farms, thereby sequestering carbon, enhancing wildlife populations, protecting drinking water supplies, and addressing adaptation goals
- Wastewater treatment wetlands that sequester carbon and create habitat
- Solar, wind, geo-exchange and wave energy projects that reduce pollution that impacts fisheries and the beneficial uses of water
- Local power generation that supports local autonomy and local economic development
- Methane digesters/biogas generators on dairy farms to produce energy, reduce emissions, reduce NPS runoff into streams
- Algal biofuel plants that reduce required acreage for other fuel crops, and generate local economic development

### Strategies for energy independence & emissions reduction

The North Coast IRWMP has developed the following preliminary list of strategies for addressing energy independence, GHG emission reduction and climate change adaptation. This list was derived from stakeholder meetings in the region, and will be revised and enhanced over time. In keeping with the NCIRWMP focus on local autonomy, the following strategies may be relevant to some counties/sub-regions within the North Coast, and may not be of interest in other parts of the region.

- Biomass/pellet/bio-char
- Forest investment zones
- Network of small biomass plants
- Community choice aggregation
- Solar
- Algal biodiesel
- AB 811 and similar legislative programs
- Hydro-electric
- Wind energy
- Wave energy
- Methane digestion
- Carbon sequestration (afforestation, forest conservation)
- Hydrogen fuel cell
- Geo-exchange
- Water conservation and recycling
- Micro-hydro
- Micro-cogeneration
- Cellulosic ethanol (hydrolysis/gasification)
- Biofuels (algal, recycled, gasification, pyrolysis)
- Franchising/education: replicate throughout region
- Rural electrification (swapping out generators)
- Building standards
- Energy efficiency programs
- Alternative transportation

### Specific Projects: North Coast Region

Following is a preliminary list of energy independence/emission reduction/climate adaptation projects that have been identified conceptually, are planned or underway in each county in the North Coast region. Figure 1 depicts this preliminary list. The list will be refined and expanded as more stakeholders become involved in the planning process.

Del Norte County

*NCIRWMP staff researching*

Trinity County

- Forest management to reduce catastrophic wildfire emissions
- Forest investment zones
- Mobile pelletizing/biomass plants
- Hydropower

Modoc County

*NCIRWMP staff researching*

Siskiyou County

- Forest management to reduce catastrophic wildfire emissions
- Biomass plants
- Wind energy
- Hydropower
- Algal biofuel (Oregon Inst. of Technology)
- Carbon sequestration/cap and trade
- Local communities as energy exporters

Humboldt County

- Food waste digester/co-generation facility
- Municipal water pump upgrades
- Dairy waste digesters
- Redwood Coast Energy Authority (JPA) – AB 811 pilot program
- Research collaborative with Schatz Energy Lab (HSU)
- Wave energy (with PG&E)
- Biomass plants

Mendocino County

- Pellet stove swap program
- Local power authority with a green energy portfolio
- Biomass plants

### Sonoma County

- America's Fund for Integrated Solutions (nationwide collaboration)
- AB 811 program: energy efficiency & alternative energy via property assessment
- Nine cities and county signed onto Community Climate Action Plan
- Sonoma County Water Agency: solar, wave, geo-exchange, methane capture, bio-diesel plant, carbon free water, PHEVs
- Sonoma County Agricultural Preservation and Open Space District: carbon sequestration on agricultural and watershed lands, climate adaptation

### Concerns/Issues to be Addressed

- Transmissions systems as limiting factor
- Lack of localized or mobile pellet/biomass processing
- Lack of public understanding of the emissions and ecosystems impacts of catastrophic wildfire
- CEQA
- Environmental groups fighting biomass plants
- Power companies that do not provide incentives for alternative energy
- CARB diesel regulations *vis a vis* biofuels

### Next Steps

The initial stakeholder group that met in Trinity County in February 2009 supports the following next steps:

- a) use the NCIRWMP website to disseminate information regarding this energy independence, climate mitigation and adaptation initiative
- b) develop a list of projects (conceptual, planned, implementation-ready) and refine over time
- c) reach out to and include stakeholders via the NCIRWMP website and other mechanisms
- d) include projects in a regional application for stimulus funds
- e) develop a suite of demonstration projects that evaluate and model an integrated approach to water, energy, climate objectives, including a strong emphasis on economic evaluation
- f) develop a list of data gaps and proposed research program for the North Coast