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Ms. Cindy Tuck
Assistant Secretary
California Environmental Protection Agency
P.O. Box 2815
Sacramento, CA 95812

Subject: **California Goods Movement Action Plan**
Comments on Ship Cold Ironing to reduce Port Emissions

Dear Cindy:

Dock Watts LLC submits the following comments related to cold ironing as a proven means to improve air quality near California port communities. Dock Watts is a California-based company that specializes in cold ironing and shore power development. We welcome the opportunity to contribute to the **Goods Movement Action Plan** and share our perspective.

Ocean going vessels produce significant volumes of air emissions from on-board auxiliary engines to provide for ship electric needs while in port. According to California Air Resources Board (ARB) data, a typical ship auxiliary engine emits over 30 pounds of NOx per MWh compared to land-based power generation emitting in total less than $1/5^{th}$ of a pound of NOx per MWh (99% reduction). In addition to NOx, particulate matter, and SOx, ship auxiliary engines are estimated to emit 1,520 pounds of CO_2 per MWh. Cold Ironing complements State of California initiatives to reduce greenhouse gas (GHG) emissions.

Cold Ironing provides a unique form of mobile source emissions reduction that when deployed, have characteristics of stationary source emissions reduction that are point specific. While other control measures may reduce emissions, cold ironing virtually eliminates ship emissions while in port.

GOODS MOVEMENT CONSIDERATIONS

- **Emission Concentration:** While studies conclude that port activities result in significant air quality impacts, consideration should be given to emission concentration impacts on health risk. Cold ironing reduces emission concentrations in port communities.

- **Emission Reduction Verification:** Cold Ironing provides verifiable emissions reduction. Metered electric energy delivered from the grid translates directly to pounds of emissions reduction. (MWh = lb/hr emissions reduction).

- **Need for Standards**: Cold Ironing and shore power standards need to be developed to pave the way for general acceptance of cold ironing. Maritime and utility industry forums need to balance respective needs and practices. Unique technical and operating characteristics of individual ships and serving utilities will need to be accommodated. Resources will be required to coordinate stakeholders to develop reasonable standards for universal application of cold ironing. Technology development based on universal standards will drive costs down.

- **Criteria:** Initially, cold ironing may not be economically feasible for all situations. Feasibility boils down to MWh/year and $/MWh, allocating fixed and variable costs. Specific criteria can be developed to screen for best opportunities for cold ironing, including:

  - Electric loads of ships while at berth in a port (Max kW demand, MWh per port call)
  - Frequency of the same ship calling on the same port (port calls per year)
  - Duration of ship port calls (hours per port call)
  - Berth utilization of shore power (hours of year occupied, MWh per year delivered)
  - Ship avoided cost of on-board generation ($/MWh of fuel and engine O&M)
  - Grid cost to deliver shore power ($/kW-month demand and $/MWh energy)

- **Competitive Power Supply:** California's high cost of electricity is viewed as an impediment for cold ironing development. Ships can either generate their own power or cold iron with clean power delivered from the grid. California utilities serving ports should be encouraged to develop electric supply choices that are at or less than ship avoided cost of on-board power generation.

- **Economic Incentives to Promote Cold Ironing**

  Given that cold ironing may not be cost effective for all ships and ports, it is unreasonable to mandate compliance. Initially, cold ironing adaptation will likely remain voluntary until costs become reasonable and a certain market saturation level is achieved. The Goods Movement Action Plan should consider development of cold ironing incentives, including:

  - Certification of emission reduction credits (ERC) to be sold under cap & trade programs
  - State tax credits or other favorable tax treatment
  - Low cost power supply (below ship avoided cost of on-board generation)
  - State sponsored financing and funding opportunities (shore side and ship side facilities)
  - Port fee adjustments for shore power
  - Ship queuing priorities at ports

COLD IRONING SHOULD BE ENCOURGED

Dock Watts believes cold ironing is an optimal means to reduce ship emissions while in port. Cold Ironing provides an integrated solution resulting in verifiable air quality improvement benefiting multiple port communities. California is a technology incubator whose public/private ventures have yielded global benefits. Over time, cold ironing can become the norm for all ports and ships on the west coast and around the world. Early implementation of cold ironing requires well structured incentives, market solutions, and funding support.

Dock Watts appreciates the opportunity to participate in cold ironing policy development as a viable means to improve air quality near port communities.

Sincerely,

Robert D. Hoffman

President

cc: Barry Sedlik, Undersecretary, Business, Transportation & Housing Agency
Catherine Witherspoon, Executive Officer, Air Resources Board