

Innovations in Energy Use and Cost Control for WWTF's

DEP CWPAA Energy Seminar

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Excerpts from

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Edison Electric Institute, Washington DC



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Disciplines to Deliver

Overview

- **Global Economy, Local Impacts**
- **Three Presentation Parts**
 - *Energy Use Management (Upgrades)*
 - *Commodity Purchase, Load management*
 - *DEP Initiatives and Positions*
- **Paying for it All – Innovative Delivery**



Overview

- **EPA Initiative**
- **Four Pillars of Sustainable Infrastructure (2002)**
- **Energy Issues Over-Arch Entire Program**
- **Unlocking Facility Energy Savings in WWTF's will be Required in an Age of Reduced / Eliminated Funding**



Overview

- **3 Percent of Nations' Electrical Load in Used in Water Supply and Wastewater Treatment (Water & Wastes Digest – 3/07)**
- **This Use will Grow by 20% over the Next 15 years (ibid)**
- **Energy Costs range from 20 to 33 (+) percent of Annual Operating Costs**



Overview

- **Energy and Commodities over the past few years – trending upward**
- **Result: Increasing costs of Operation for All WWTF's in the Region**
- **Dilemma of Needing Large Funding Programs to Accomplish Energy Upgrades**
- **Politically charged – Less Money Around**



Other Electricity Cost Drivers

- The electric industry will be making investments in the following areas over the next 20 years:
 - *Generation (traditional and renewable)*
 - *Transmission*
 - *Distribution*
 - *Environmental Controls*
- Must meet needs of a growing economy, population, and to meet federal and state regulations

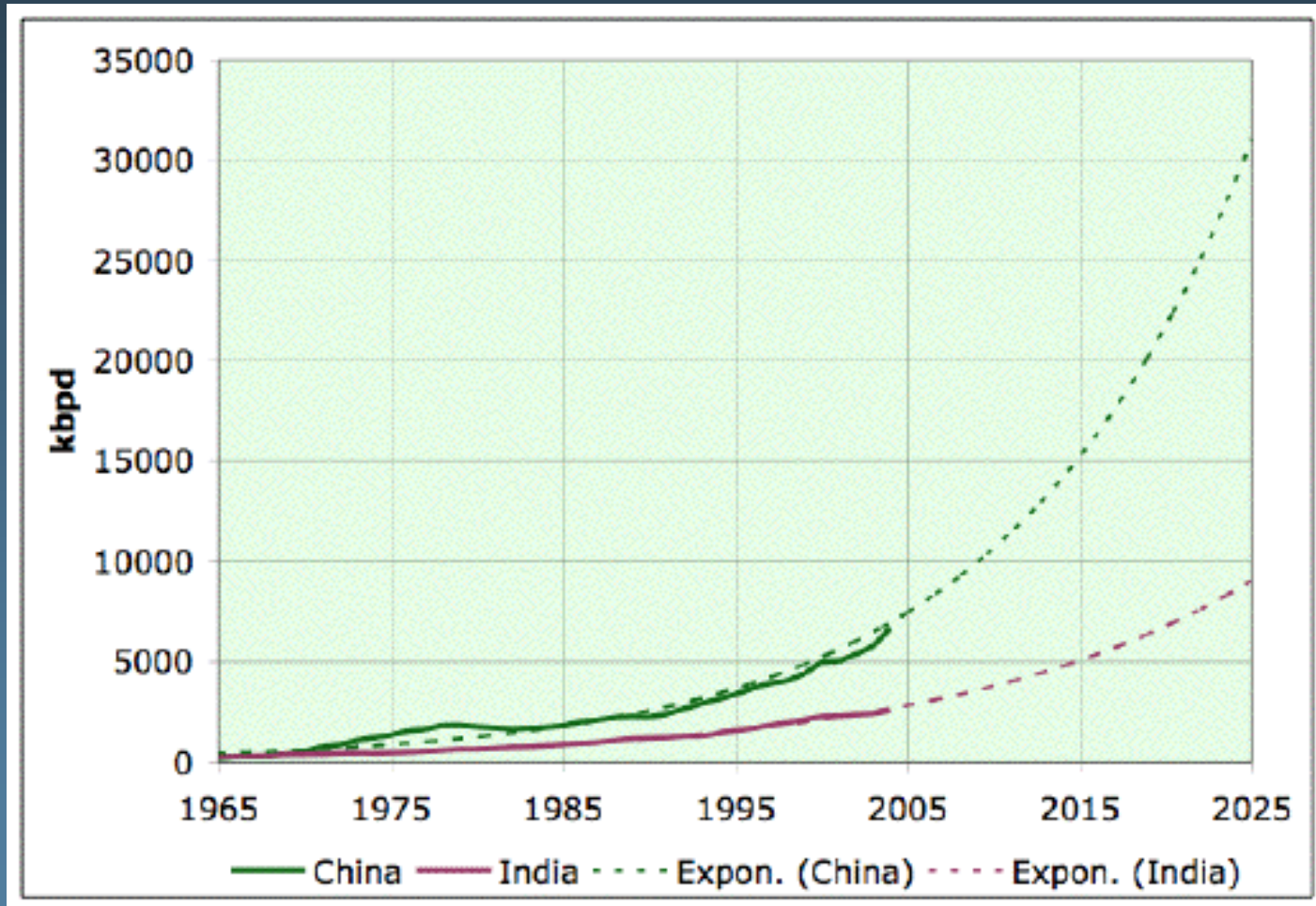


Global Economy, Local Impacts

- What else is happening? The World Economy
- China (~1.3 Billion people), India (~1.1 Billion people)
- Both countries have liberalized their economies
- Both countries have exploding economies
 - *China: 9.9% GDP increase in 2005*
 - *India: 8.4% GDP increase from March 2005 to March 2006 (1st quarter 2006 growth rate of 9.3%)*
 - *(Source: Wall Street Journal 6/1/2006)*



China/India Oil “Exponential Growth



Reaction and Planning

- **WWTF's Feel Every Increase**
- **Energy Costs Can be Lowered While There is Little or no Opportunity to Control Material Prices**
- **Opportunity Abounds in This Fact**
- **To Help Meet Economic Goals, Facilities can attack Energy Costs**



Third Party Power Purchase

- **To Accomplish Upgrades, WWTF's Can Employ Alternate Funding Which Works !!**
- **WWTF's are 'wanted' Customers Due to Favorable Load Profiles and the Obvious non-Transportability of Process**
- **A WWTF in a Certain Municipality will not Move to the South, Mexico or the Far East**



Energy Use Reduction

- **Best Answer – Use Less Power**
- **Numerous Opportunities in Most / Every WWTF**
- **Too Often, Energy – Related upgrades wait for large , funded programs - alternatives exist and will be presented today !!**



ESCO's and BOOM

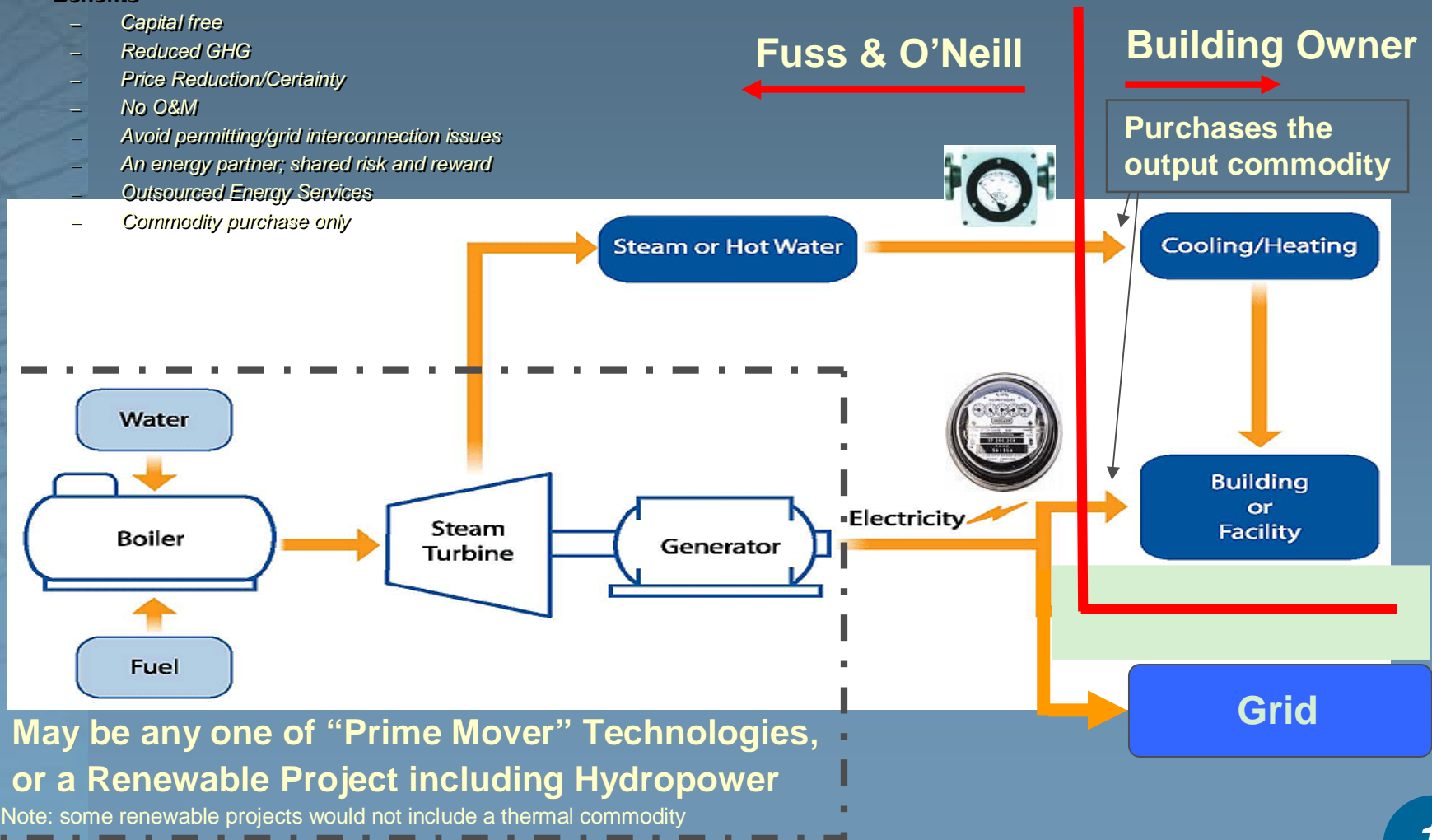
- **Market Direction towards Value – Driven ‘Energy Upgrades’**
- **Performance – Based Components and BOOM (Build, Own, Operate and Maintain)**
- **Eliminate the Barriers of Price-Driven Contracting Services**
- **Kyoto, Sustainability and the Carbon Footprint**



General Structure of BOOM

- **Benefits**

- Capital free
- Reduced GHG
- Price Reduction/Certainty
- No O&M
- Avoid permitting/grid interconnection issues
- An energy partner; shared risk and reward
- Outsourced Energy Services
- Commodity purchase only



May be any one of “Prime Mover” Technologies, or a Renewable Project including Hydropower

Note: some renewable projects would not include a thermal commodity



Conclusion

- **Comprehensive Approach to Addressing Overall Facility Energy Use Management**
- **Numerous Purchase and Program Alternatives which Result in Savings or Income**
- **Non-Traditional Delivery Mechanisms Can Result in Near-Term, Meaningful Energy Savings**



Conclusion

- **Energy Savings not Realized Today represent Money Lost Forever (Bill White – EPA Region 1)**



Thank You

With Heartfelt Gratitude J

CWPAA – Mike Bisi, Arnie Bevins, Carl Almquist

Fuss & O'Neill – Nick DeDominicis

CTDEP – Bill Hogan

Commissioner McCarthy and All presenters



Coming Attractions

- **New England Water Environment Association (NEWEA)**
www.NEWEA.org
- **Annual Conference – January 27-30, 2008 – Copley Marriot, Boston, MA - Energy Session with Key Presentation by Mr. Bob Varvey – EPA – Region 1 Administrator**
- **ENERGY Seminar – Lowell MA - Energy Use Management and Reducing the Carbon Footprint – (likely 4/29/2008)**
- **Water Environment Federation (WEF)** www.WEF.org
- **Sustainability Specialty Conference - June 22 - 25, 2008, Gaylord National on the Potomac National Harbor, Maryland USA**

