

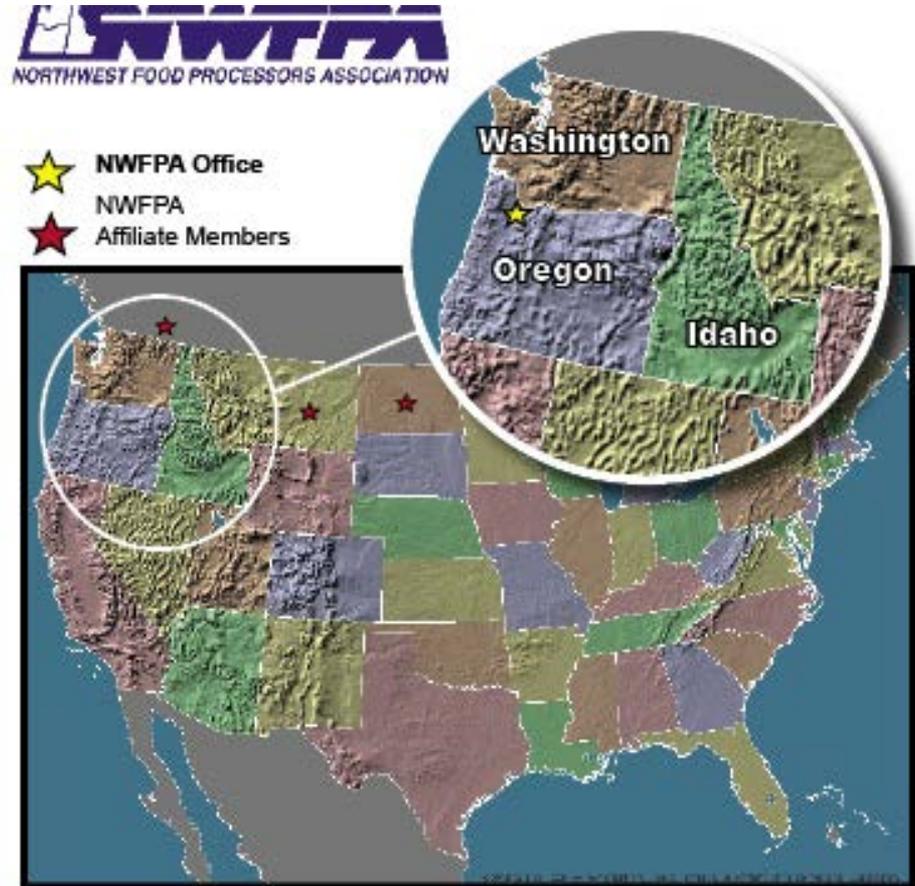
Overview of Energy and Water Issues in Northwest Food Processing

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Northwest Food Processors Association (NWFPA)

- Established in 1914
- 3rd largest northwest manufacturing industry
- 500+ members
- 153 food processors
- >250 facilities
- 13 staff
- 18 board members
- 9 committees



Why Focus on Energy?

- Vital to core business
- Energy prices are increasing
- Directly impacts the bottom-line
- Can be the single-largest uncontrolled expense
- Energy accounts for over 90% of emissions
- Looming legislation penalty on green-house gas emissions
- Customers want “Green” and “Sustainable”
- Marketability (internal & external)
- Utility incentives and other funding available

Why a Goal & Roadmap?

- Focus NWFPA Energy Efforts
- Enhance member competitiveness
- Enhance funding opportunities
- Attract partners
- Public recognition for NWFPA & members
- Influence regulators, legislators & policy-makers

NWFPA Energy Vision

Enhanced
productivity and
competitiveness
through a
sustainable
energy efficiency
plan



NWFPA Energy Goal

Reduce member-wide energy intensity by 25% in 10 years and by 50% in 20 years



Key Points About the Goal

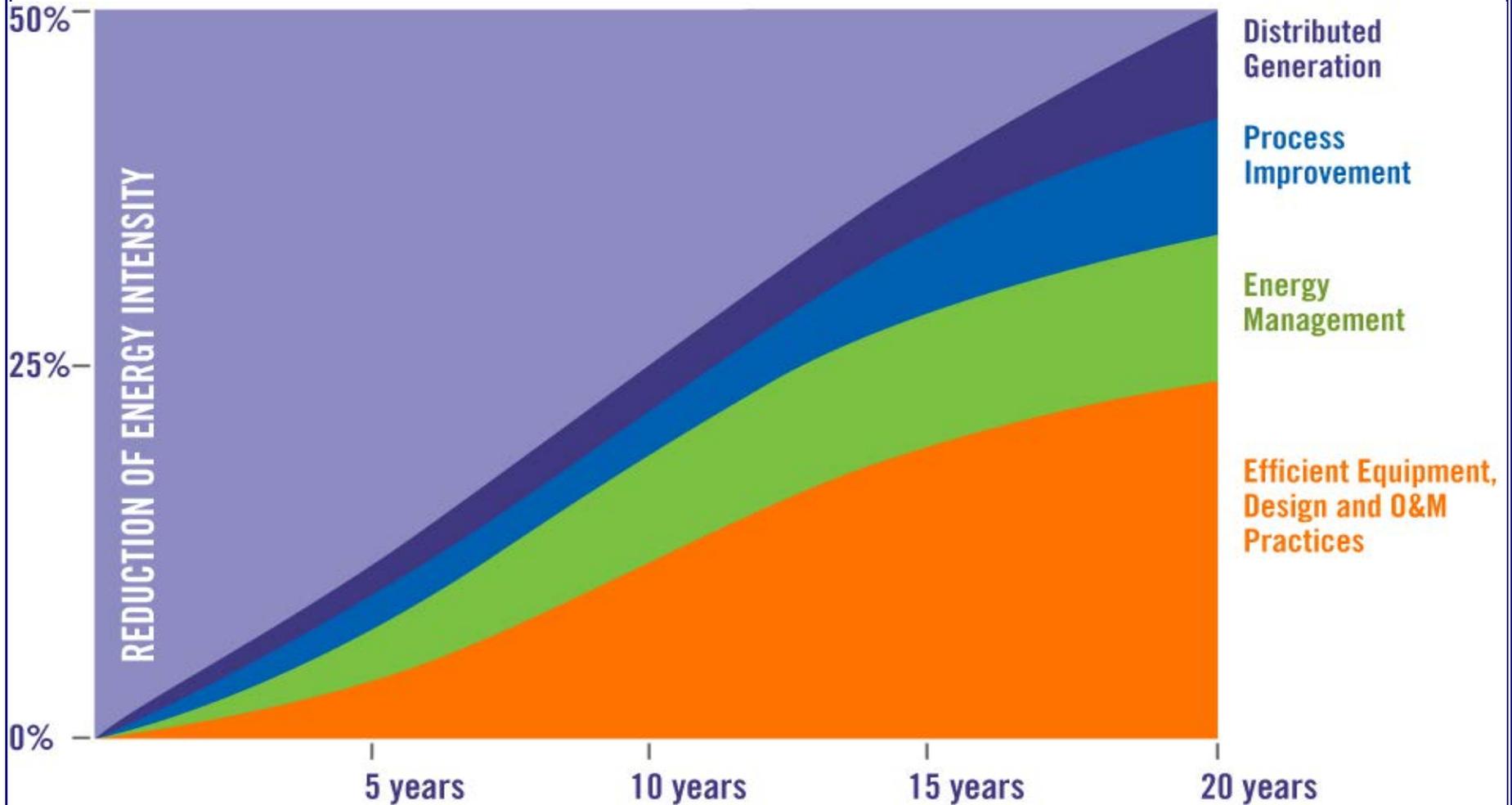
- It is industry-wide not plant-specific
- It is voluntary
- It is a target
- It is energy intensity not absolute energy reductions
- It is based on a best guesstimate
- It was adopted by the NWFPA Board of Directors in January 2009

NWFPA Energy Goals Workshop

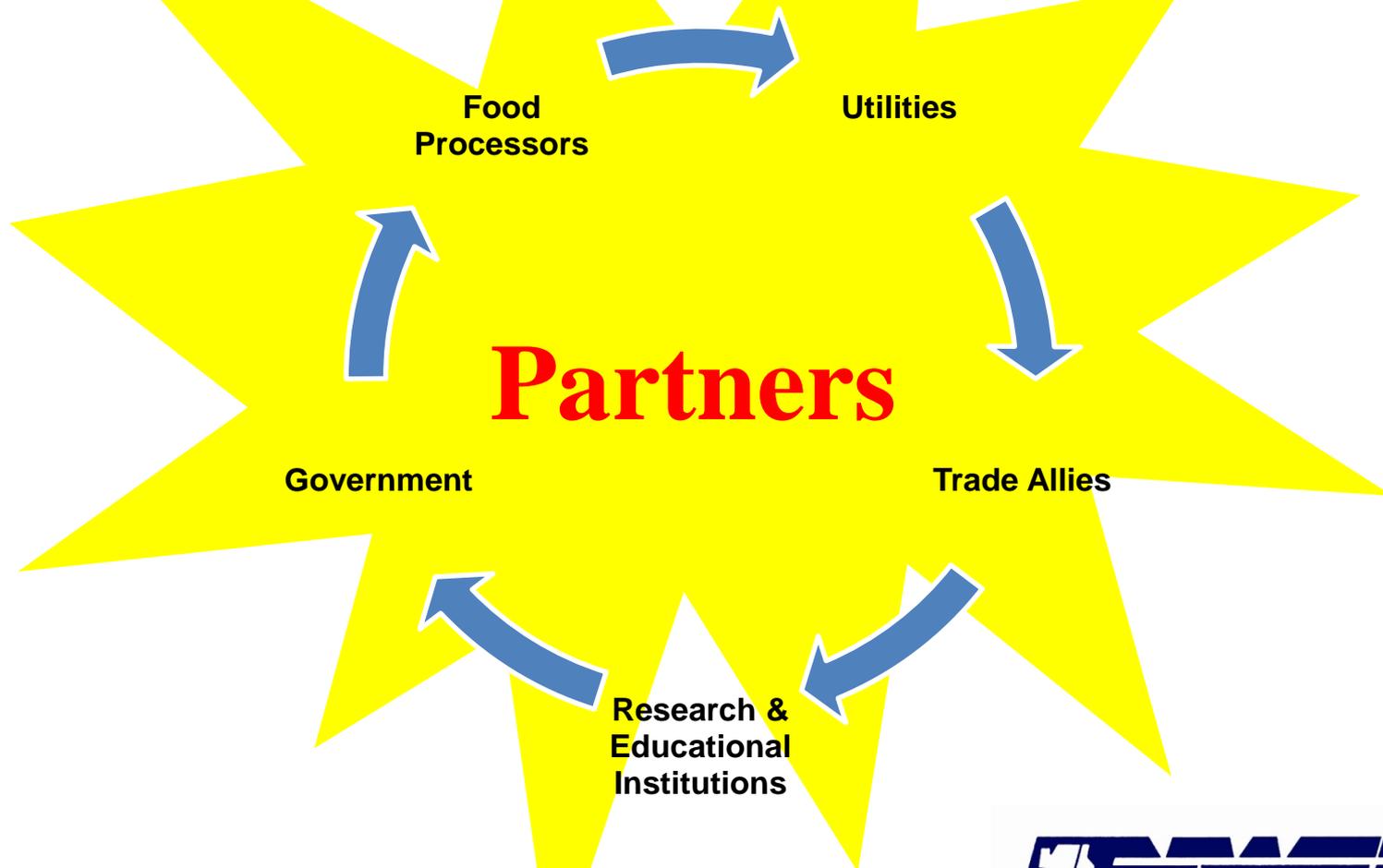
- December 2008
- Over 50 food processors
- Over 30 partners
- Produced 500+ ideas to achieve goals



2029 Savings Potential

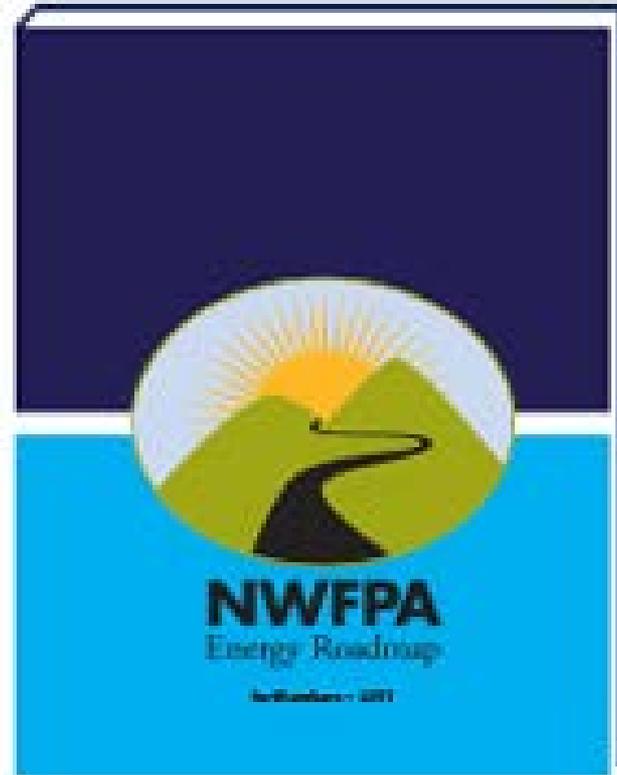


Working Together, Improving Communications, Innovating Solutions



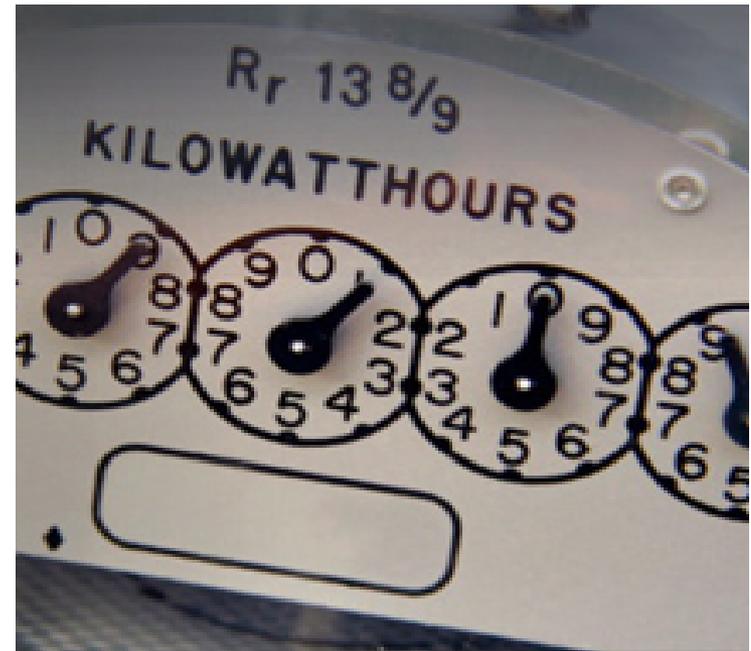
NWFPA Energy Roadmap

- Provides a framework of a Strategic Energy Plan for companies to reduce energy intensity.
- Available for download at <http://www.nwfpa.org/book-download>



Energy Intensity Baseline & Tracking

- Energy Intensity = BTUs per pound of product
- Collect energy use and production data
- Set 2009 as Baseline
- Track goal progress against the Baseline
- 151 food processing facilities participating in 2016



Industry-wide Energy Intensity Performance



107%



105%



101%



100%



100%



97%



91%



90%



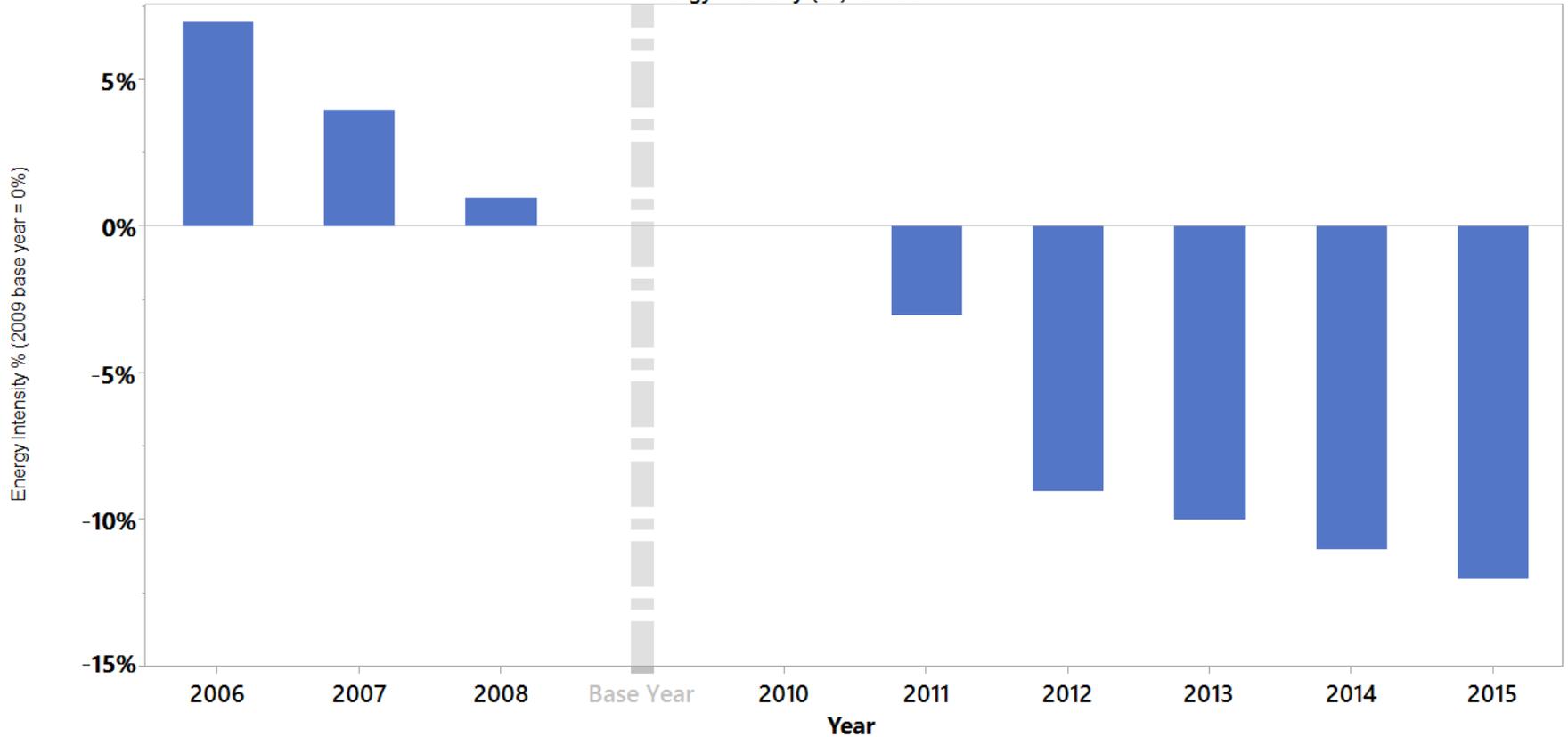
89%



88%

Average Intensity:

Energy Intensity (all) vs. Year



Goal Progress

- Tracking at >2.0% per year over 6 years
- Year-to-year improvement continues, but lower rates than earlier years (data set issues)
- Still on track to meet the goal
- Individual facilities savings of 15%, 17%, 21%, 32%

Changing Landscape

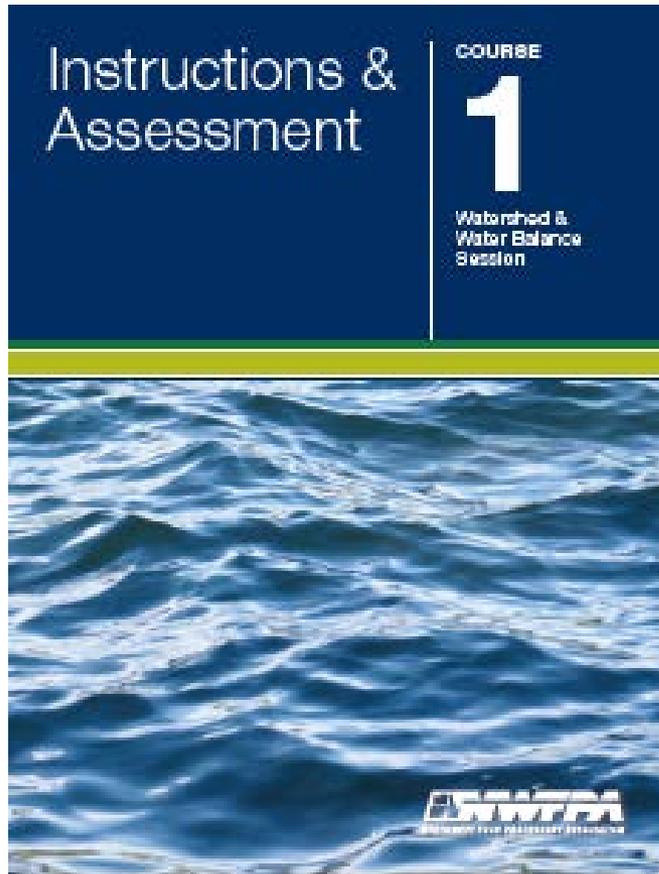
- Water supply and cost are concerns
- More stringent environmental laws and regulations
- Carbon regulations drive up energy costs
- Consumers are demanding green and sustainable food



NWFPA Committee Priorities

- **Sustainability** -- Support members in development and implementation of Sustainability plans and actions: tools, metrics, resources, identify technologies (energy, water, air, waste)
- **Environmental** – identify technologies and strategies for water efficiency and compliance
- **Energy** – facilitate awareness and access to innovations and “new” and emerging technologies

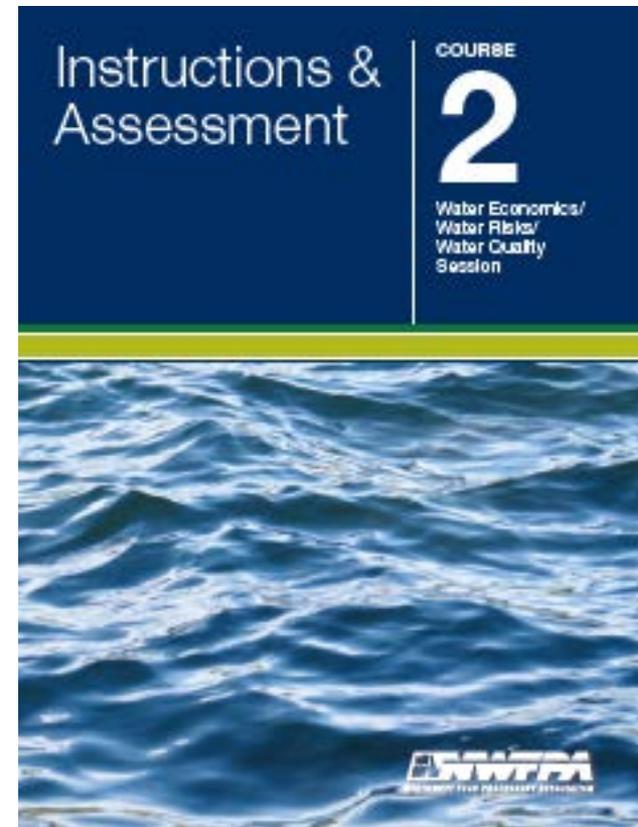
1 – Watershed & Water Balance



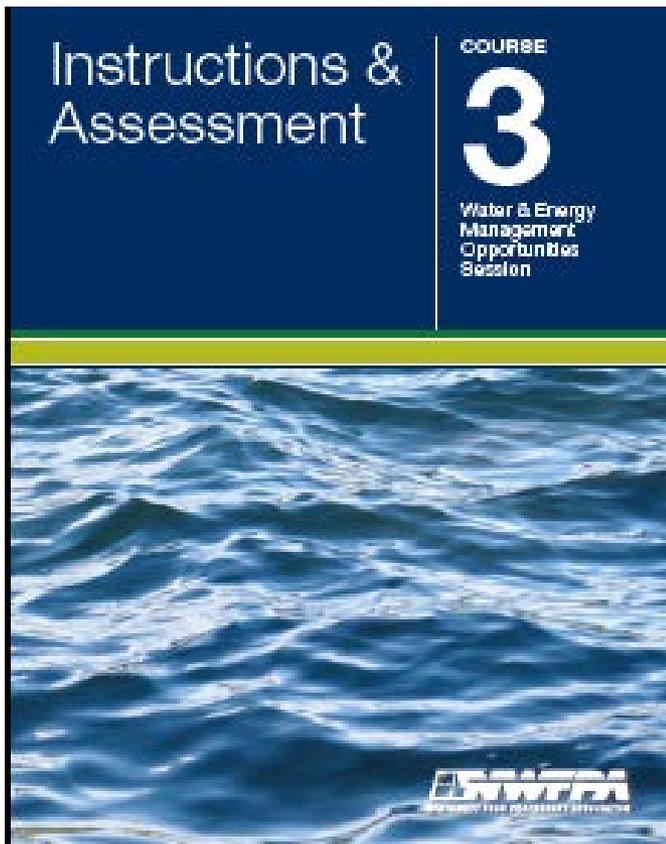
- Source and abundance of your water
- Site use – amount of use, type of use, amount of losses, amount of discharge
- Water Balance Exercise

2 – Water Economics, Risks & Quality

- Water and energy costs and areas of conservation
- Production water needs present & future
- Quality issues, discharges, regulations



3 – Water & Energy Management Opportunities



- Water conservation & efficiencies
- Recycling & reuse
- Quality improvements
- Goal setting & metrics
- Case studies

Technology Transfer Acceleration

- Identify industry challenges
- Identify needs and solutions
- Link food processors with solution providers



Sustainability Workshops

Top 5 Challenges

- Regulations: land application, wastewater, TSS, BOD
- Identifying savings opportunities & technical resources
- Access to energy & water data, data management, interpretation, metrics, tracking
- Water use and efficiency
- Staff resources: time, education/training

Technology Steering Committee Needs & Solutions

- Water & Wastewater
- Biodigesters + scalable for small companies
- Anaerobic digesters/biogas/waste to energy
- Ways to recycle wastewater
- Wastewater treatment alternatives
- Solids/nutrient (N & P) removal technologies
- Tertiary polishing – making potable water out of wastewater

Next Steps

- Establish water intensity goal, tracking and roadmap
- Focus on water-energy nexus
- Partner with organizations to bring training, technical assistance and technologies to food processors



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