



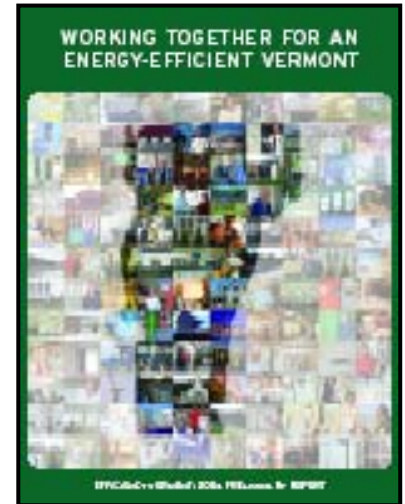
Turbo Blower Breakout Session

CEE Meeting, Boston MA 2009

Presented by: George Lawrence

What Is Efficiency Vermont ?

- ✓ The first energy efficiency utility in the USA
- ✓ Created by order of the Vermont State Legislature in 2000
(Consolidated programs from 22 utilities)
- ✓ An innovative approach to help Vermonters save energy, keep energy costs down, and protect the environment
- ✓ Funded primarily by a charge on everyone's electric bill, but some money for all fuels is coming
- ✓ Two divisions: Business and Residential



Two Ways of Working with Business Energy Services

Prescriptive forms:

- Premium Efficient 3 Phase Motors
- VFDs on fans and heating or cooling circulation loop pumps
- Lighting (including LEDs)
- HVAC
- Refrigeration
- Agriculture/Farms
- Compressed Air (< 40 hp)

Custom Projects

Efficiency Vermont's Water & Wastewater Initiative

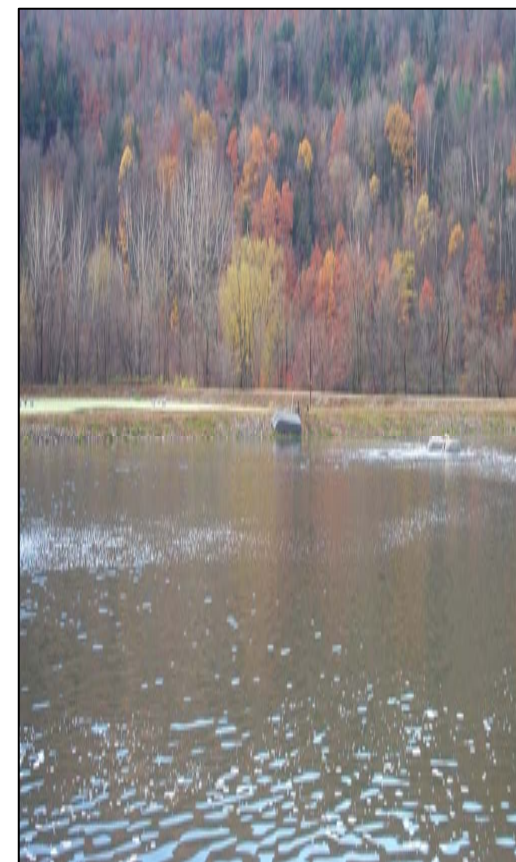
Vermont Market

❖ Municipal Wastewater

- ◆ 90 Plants
- ◆ 76% of plants have average daily flows < 1 MGD
- ◆ 71% of facilities in VT are Aerated Lagoons or small Activated Sludge

❖ Water

- ◆ Total number of VT water systems = 1,357
- ◆ Community water systems = 440



Efficiency Vermont Approach to Market Transformation

Primary Market Barriers

1. Lack of capital for increased first costs
2. Insufficient time or information to evaluate the energy and non-energy benefits of efficiency
3. Risk aversion
4. Regulatory and safety concerns

Efficiency Vermont Approach to Market Transformation

Project Implementation

1. Design incentives (to the engineers) to help identify energy efficiency opportunities
2. Pilot scale projects to reduce the perceived risk
3. Financing options
4. Metering to confirm savings

Greatest Opportunities in Vermont's Water & Wastewater Plants

- ❖ Variable Frequency Drives (VFDs) on aeration equipment (9% quantity, 58% savings, 25% cost)
- ❖ Prem. Efficient Motors (10% quantity, 8% savings, 7% cost)
- ❖ For new construction projects, process changes to newer or more energy-efficient systems (3 projects, 23% total savings, 55% cost)
- ❖ Implementation of methane-fueled co-generation

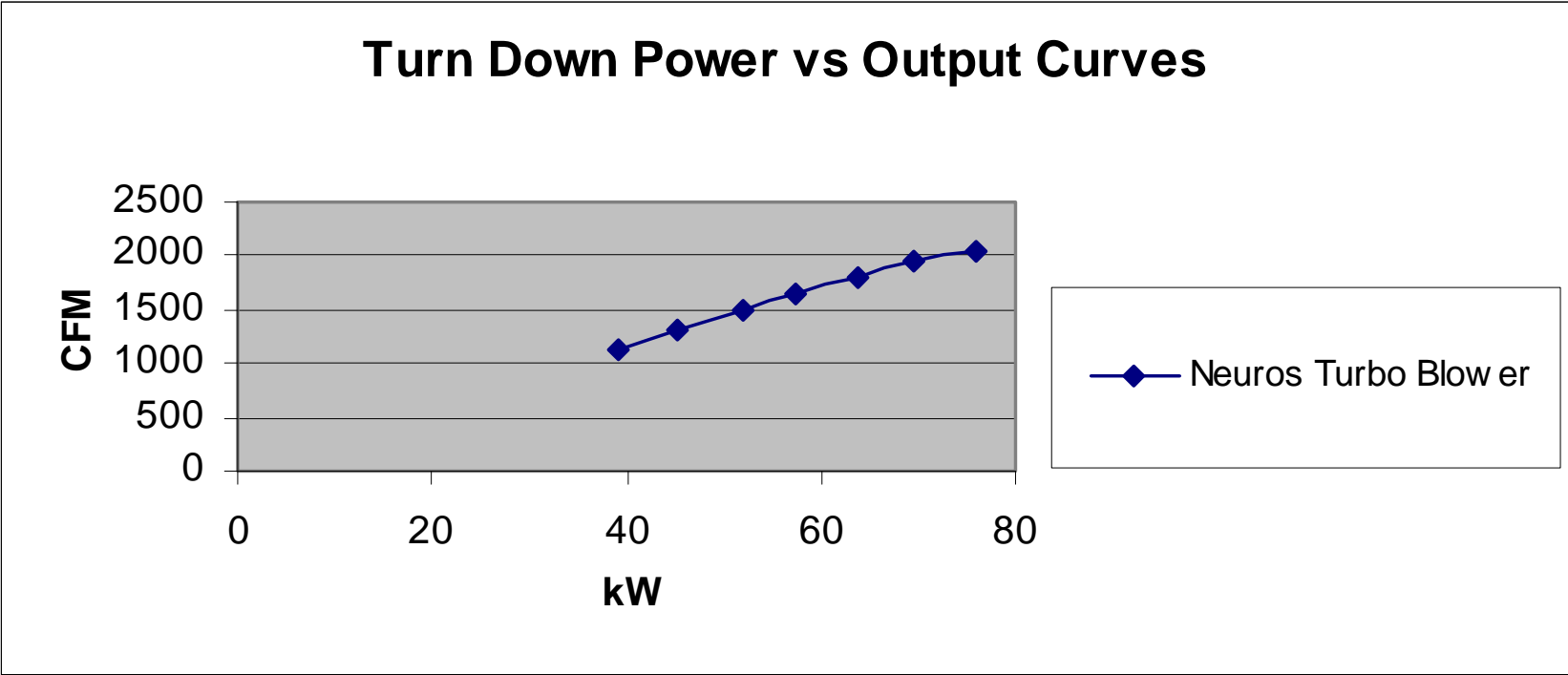
100 hp Neuros Turbo Blower at Essex Junction VT



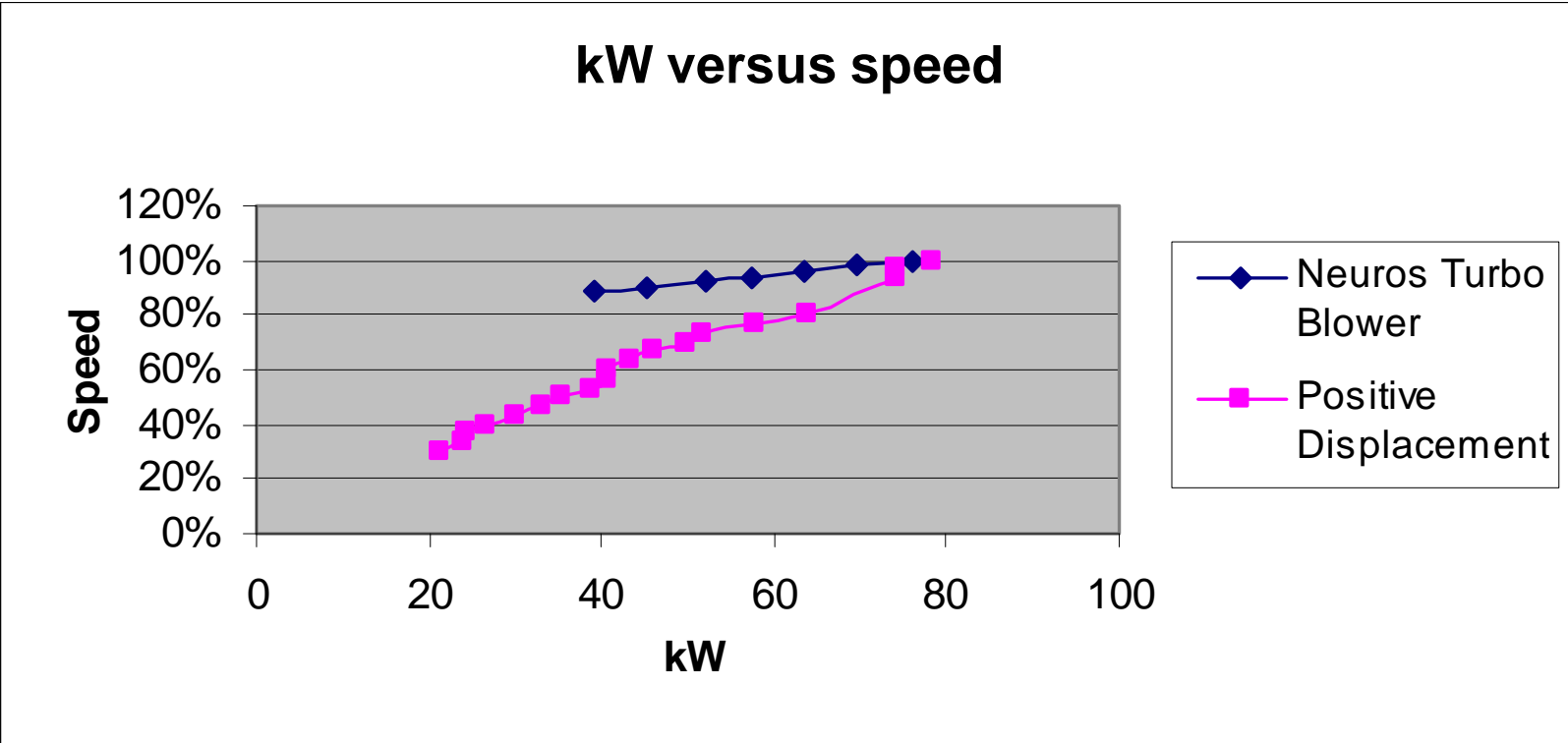
100 hp Neuros Turbo Blower at Essex Junction VT



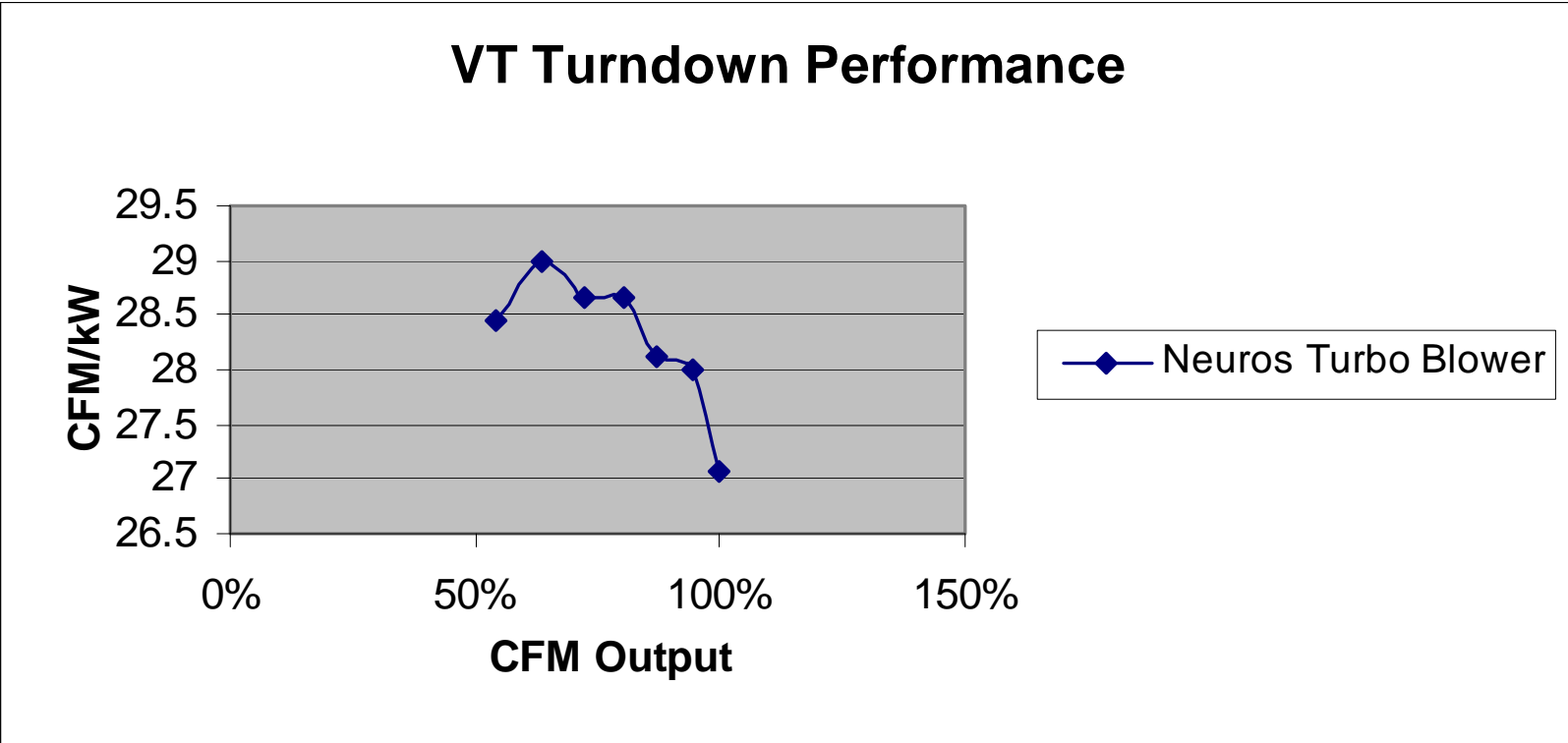
Turbo Blower – Essex Junction VT



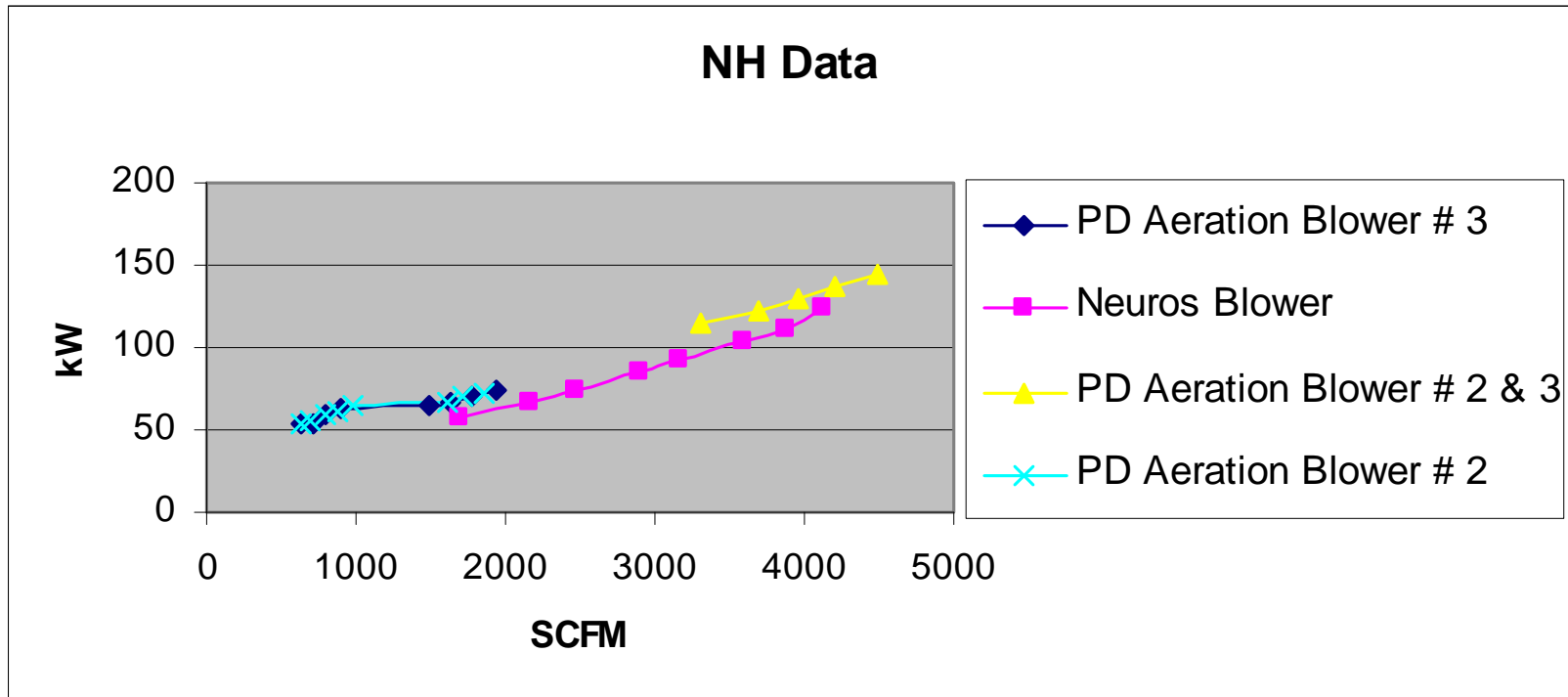
Turbo Blower – Essex Junction VT



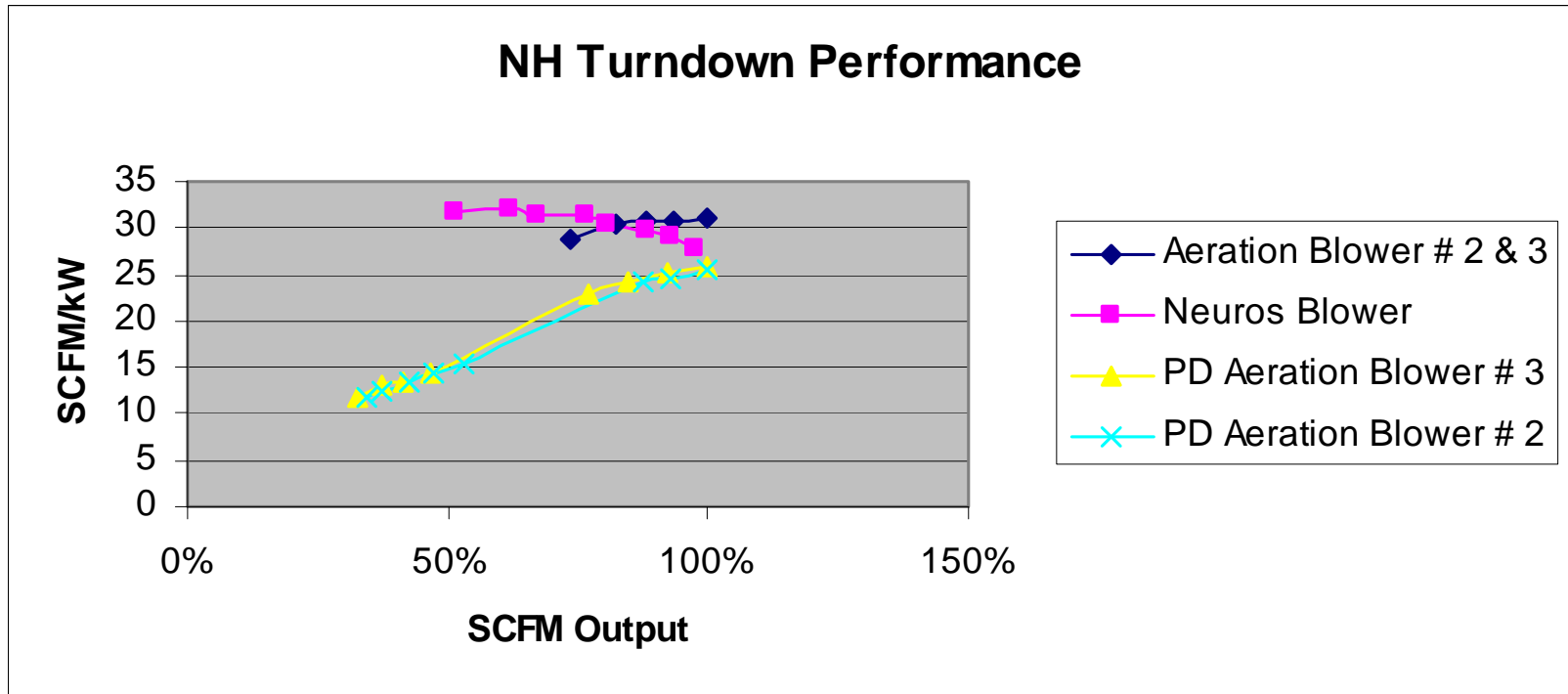
Turbo Blower – Essex Junction VT



Turbo Blower – New Hampshire



Turbo Blower – New Hampshire



Turbo Blower – Quebec (75 hp PD and 75 hp Neuros)



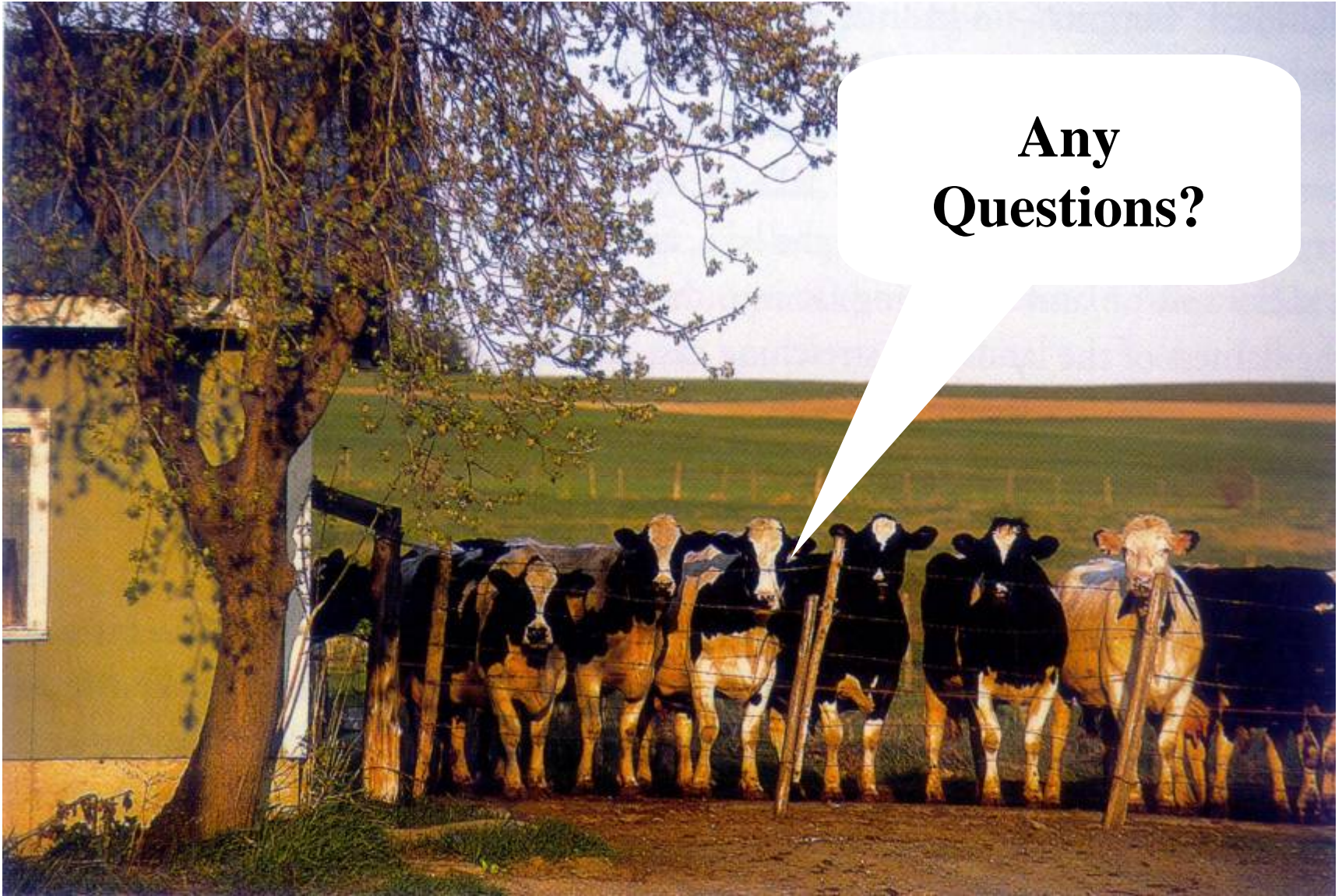
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**Any
Questions?**