

POLICY ANALYSIS OF ENERGY PRICING & SUSTAINABLE DEVELOPMENT IN INDONESIA

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by

Dr. Wesley Foell
Resource Management Associates
Madison, Wisconsin USA
wfoell@rma.com

INDONESIA THE COUNTRY



STRUCTURE OF PRESENTATION

Needs of Energy Policy Analysis in Indonesia

Nexus of Energy Subsidy & Sustainable Development

Institutional & Analytical Challenges

Analytical Structure, Models, and Data

Results & Policy Recommendations

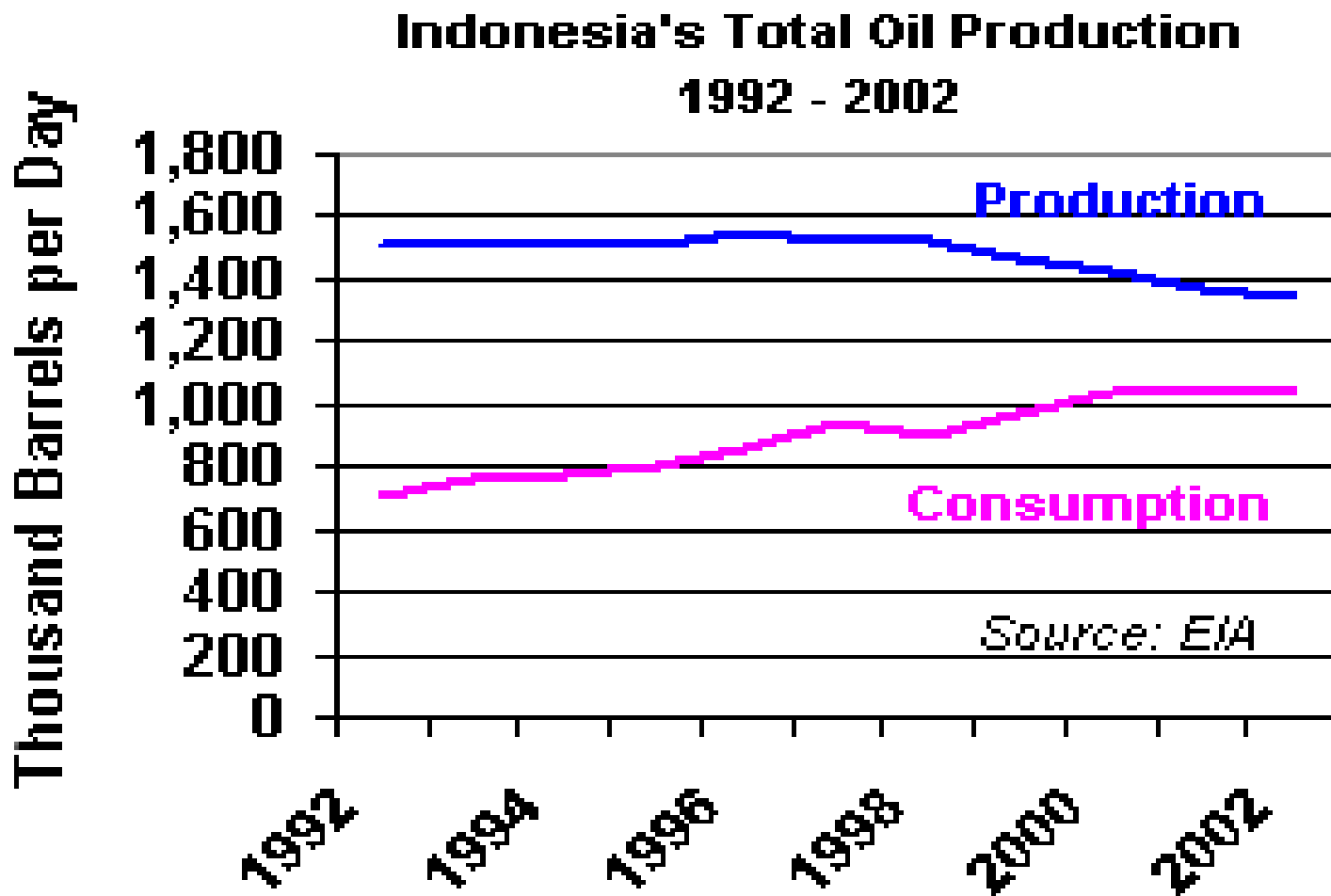
Policy Implementation

Lessons Learned

THE ENERGY SUBSIDY PROBLEM-2001

- FISCAL
 - Low prices, e.g. diesel @ 10 cents/liter
 - Subsidy = 20 % of government budget in 2000
- SOCIAL
 - 80 % of subsidy goes to non-poor
 - Nobody like higher prices
- ECONOMIC EFFICIENCY
 - Hinders improvement of energy efficiency
- SUSTAINABILITY
 - Accelerates resource depletion
 - Prevents development of alternative energy sources

PETROLEUM PRODUCTION AND CONSUMPTION: 1992-2002



THE PRACTICAL CHALLENGE-2001

HOW TO DESIGN A PRICE PATH SATISFYING THE FOLLOWING CRITERIA:

- SUBSIDY REDUCED 30 % IN 2002 & ELIMINATED IN 2005.
- ACCEPTABLE IMPACT ON KEY ECON. PARAMETERS.
- MITIGATED IMPACTS ON THOSE LEAST ABLE TO ABSORB INCREASES, E.G., THE POOR.
- “POLITICALLY ACCEPTABLE” PRICE INCREASES.

THE ANALYTICAL CHALLENGE

- CHOICE OF APPROACH
- ANALYTICAL TEAM & NETWORK

TECHNICAL TOOLS & EXPERTISE IN EXISTING INDONESIAN POLICY ANALYSIS TOOLBOX

- ECONOMETRICS
- MATHEMATICAL PROGRAMMING
- SIMULATION MODELS
- COST/BENEFIT ANALYSIS
- INPUT/OUTPUT
- MULTI-ATTRIBUTE DECISION ANALYSIS
- SYSTEM DYNAMICS
- INTEGRATED ASSESSMENT MODELS
- COMPUTABLE GENERAL EQUILIBRIUM MODEL

THE CHOICE – A COMPUTABLE GENERAL EQUILIBRIUM MODEL (CGE)

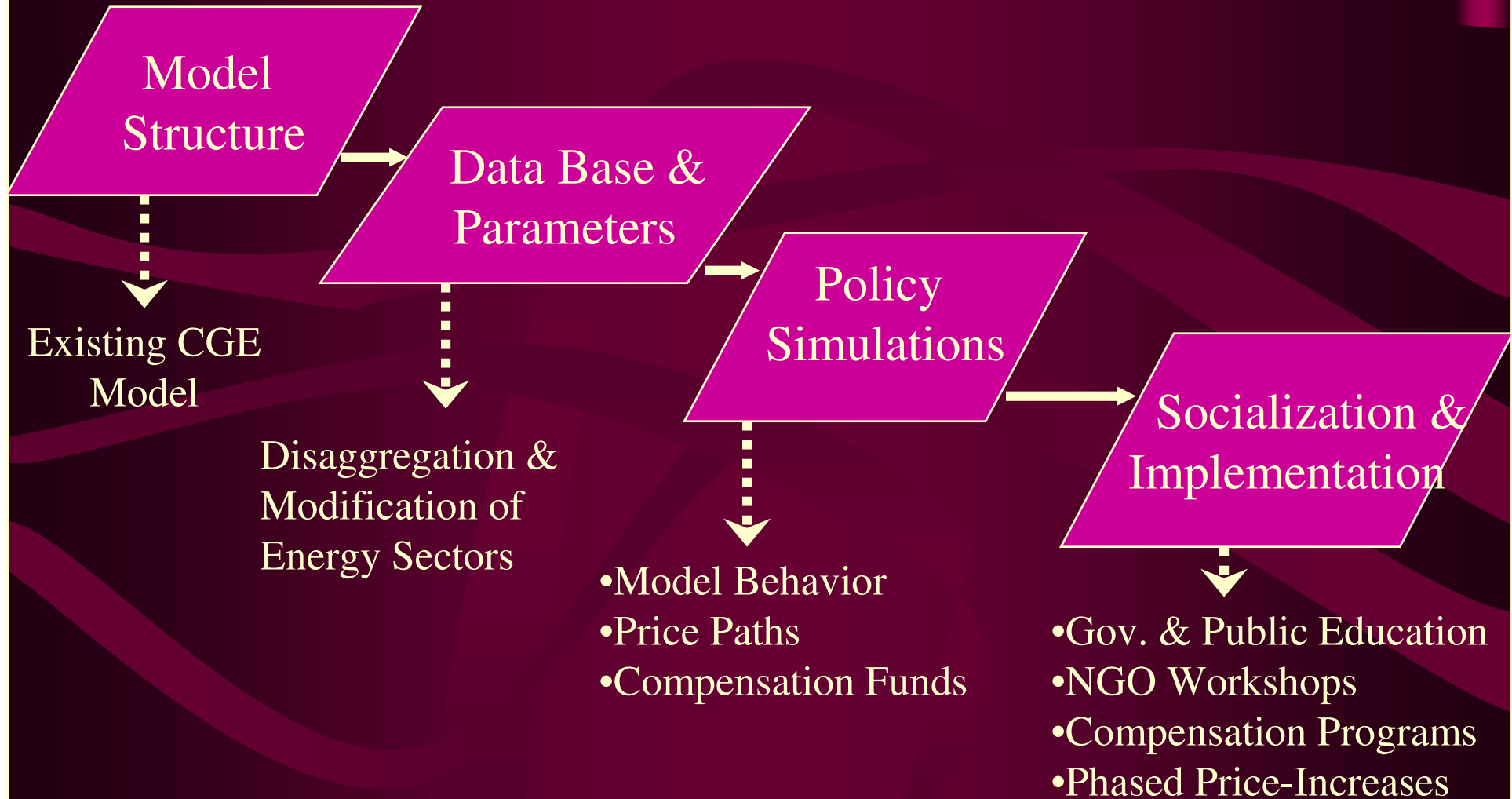
- ADVANTAGES:

- TREATS ECONOMY AS COMPLETE SYSTEM OF INTERDEPENDENT COMPONENTS, E.G., HOUSEHOLDS, INDUSTRIES, GOVERNMENT, ETC.
- INCLUDES SHOCKS OF PRICE INCREASES RIPPLING THROUGH ECONOMY.
- CONSIDERS BOTH CONSUMER & PRODUCER BEHAVIOR.
- CONSIDERS BOTH DIRECT & INDIRECT IMPACTS OF PRICE CHANGES

- DISADVANTAGES

- SIGNIFICANT SKILLS NEEDED TO USE & MAINTAIN MODEL

THE (COMPLEX?) POLICY PROCESS



INDORANI – COMPUTABLE GENERAL EQUILIBRIUM MODEL

- DEVELOPED AT *GADJAH MADA UNIVERSITY* IN INDONESIA.
- BASED ON THE ORANI MODEL OF *MONASH UNIVERSITY* IN AUSTRALIA.
- SPECIFIES BEHAVIOR OF PRODUCERS, CONSUMERS, FOREIGNERS, INVESTORS, AND GOVERNMENT.
- BASED UPON EQUILIBRIUM OF:
 - 1) CAPITAL & LABOR REQUIRED TO PRODUCE GOODS & SERVICES,
AND
 - 2) ECONOMIC COMPONENTS FORMING NATIONAL ECONOMY

DATA BASE & PARAMETERS-I

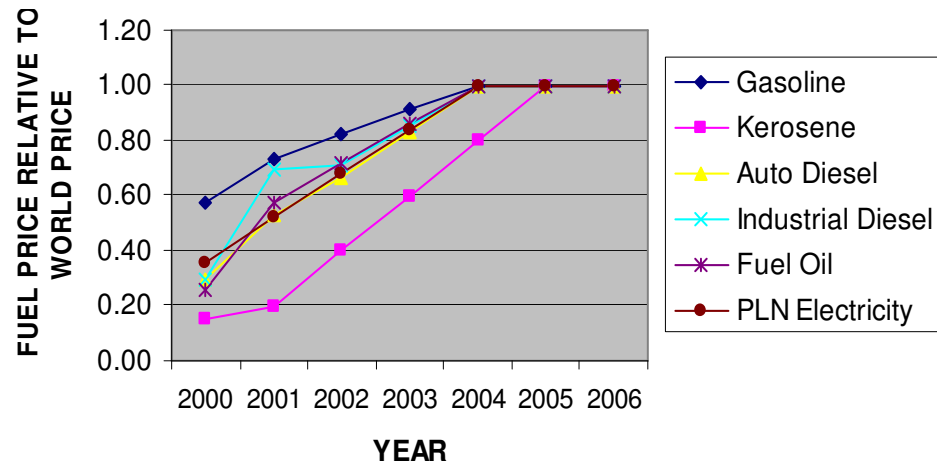
- I/O TABLE ADJUSTED TO YEAR 2000
- HIGHLY DISAGGREGATED FUELS

DATA BASE & PARAMETERS-II

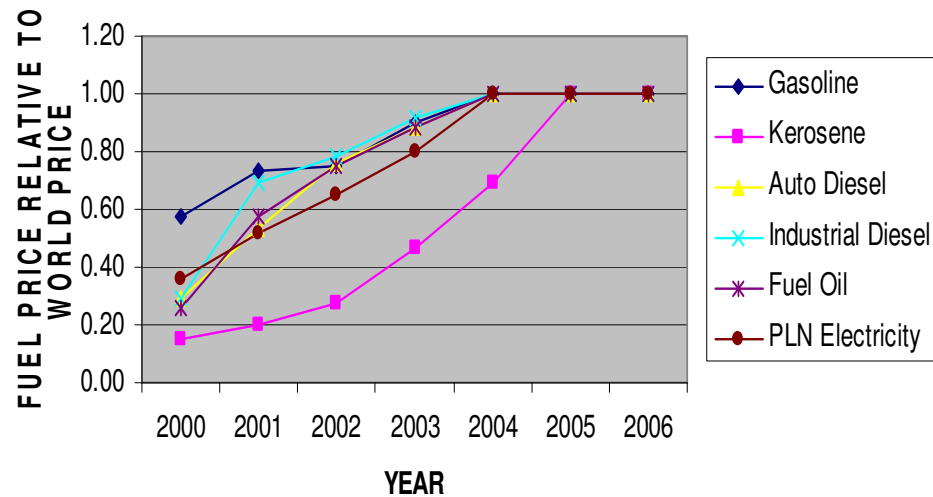
- HIGHLY DISAGGREGATED HOUSEHOLD TYPES
 - LANDLESS
 - POOR PEASANT
 - MIDDLE PEASANT
 - RICH PEASANT
 - RURAL NON-AGRI POOR
 - RURAL NON-AGRI RICH
 - URBAN POOR
 - URBAN RICH
 - URBAN NON-WORKERS
- ELASTICITY PARAMETERS FOR SUBSTITUTION
 - AMONG FUELS
 - BETWEEN PRIMARY FACTORS OF PRODUCTION
 - BETWEEN DOMESTIC PRODUCTS & IMPORTS

SCENARIO PRICE PATHS FOR FUELS

BASELINE FUELS PRICE PATH



"SOFT START" KEROSENE PRICE PATH



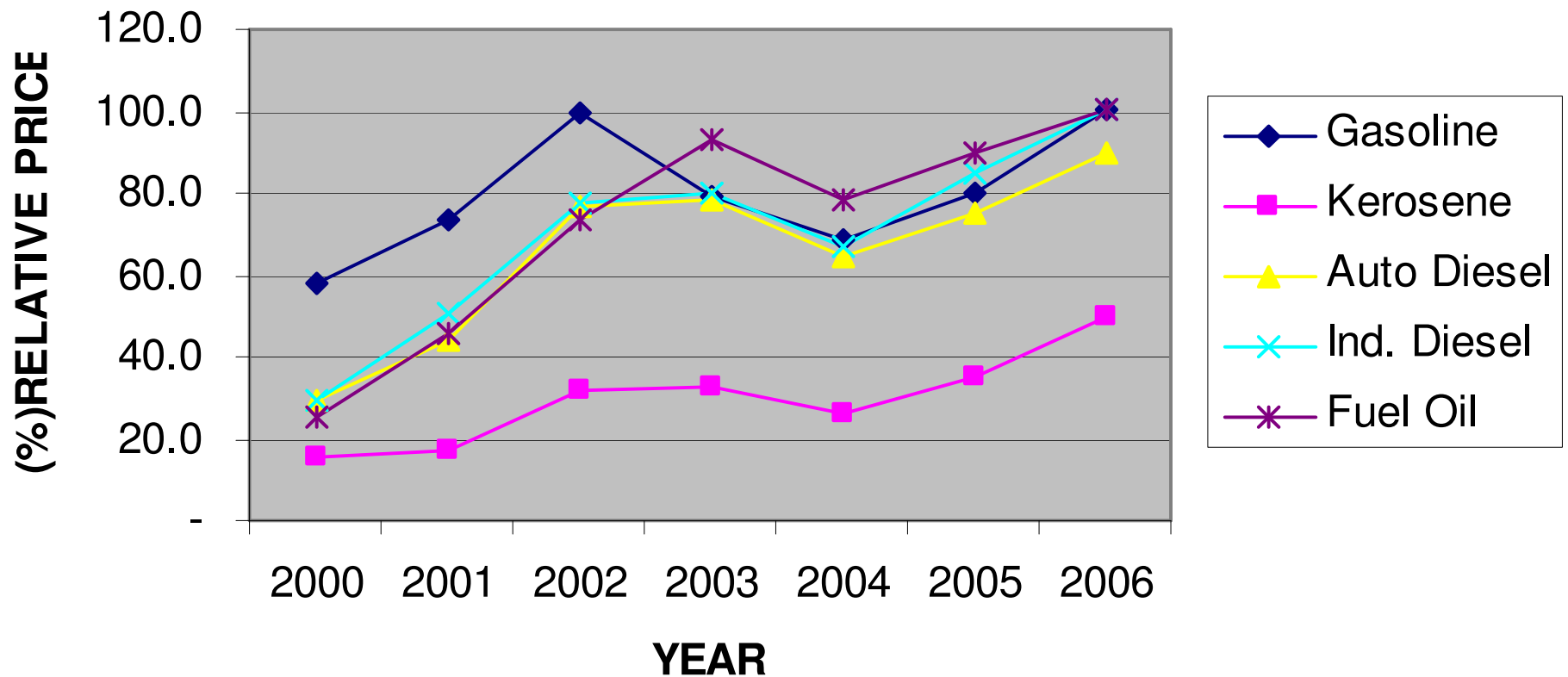
SOCIALIZATION & IMPLEMENTATION

- POOR PEOPLE (INCOME LESS THAN 125 % OF POVERTY LEVEL) FACE INCREASED HOUSEHOLD COSTS OF 15 PERCENT
- ESTABLISH COMPENSATION FOR POOR
 - EDUCATION
 - FOOD
 - HEALTH CARE SERVICES
- EDUCATE KEY ELEMENTS OF SOCIETY TO UNDERSTAND SUBSIDY PROBLEM AND HOW TO ADDRESS IT

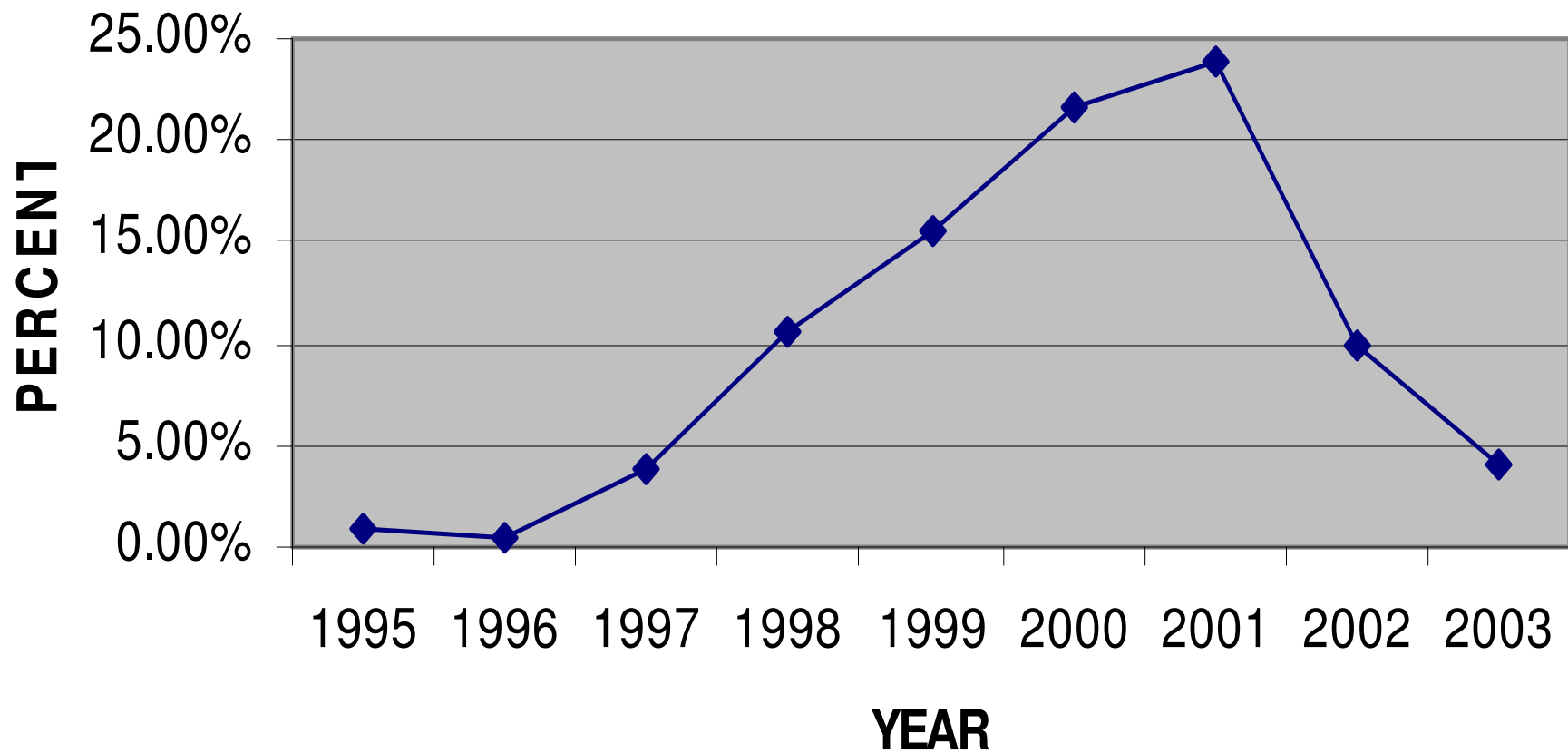
CURRENT FUEL PRICE PATHS

ACTUAL 2000-2004 &
PROJECTED 2005 & 2006

DOMESTIC PRICE RELATIVE TO WORLD PRICE, (%)



PETROLEUM SUBSIDY AS PERCENT OF GOVERNMENT BUDGET



THE SITUATION TODAY -- 2004

- SOME IMPACT COMPENSATION IS PROVIDED TO THE POOR
- SUBSIDY INCREASING ONCE AGAIN AS WORLD PRICE OF OIL REACHES NEW HIGHS
- PEOPLE RESISTING TO ACCEPT RATIONALE OF PRICE INCREASES
- PRICE INCREASES DEFERRED UNTIL AFTER ELECTION (SEPTEMBER 20, 2004)

LESSONS LEARNED

- CGE MODEL WAS APPROPRIATE FOR THE TASK
- TRANSPARENT POLICIES ARE MORE CRUCIAL THAN EVER
- ANALYSTS (SOME) NEED TO BE INVOLVED IN TOTAL IMPLEMENTATION
- GIVE HIGH PRIORITY TO MAINTAINING A CREDIBLE TEAM

IIASA PROVERB FROM 1974

- SUCCESSFUL MODELS:
 - - MUST BE USEFUL!
 - - MUST BE USEABLE!

BUT MOST IMPORTANTLY,

- **MODELS MUST BE USED!!!!!!**



DANKE SCHOEN

FOR YOUR ATTENTION

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