

# Energy Efficiency in Indonesia

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# Outline

- Energy Efficiency
  - The cheapest energy source
  - But ...
- Energy Efficiency in Indonesia
  - Top down view: strong objective
  - Bottom up view: patchy roadmap
- Conclusion

# Efficiency v.s. Conservation

- Energy Efficiency
  - Using less energy to provide the same service.
  - Using the same energy to provide more service.
- Energy Conservation
  - Using LESS energy. PERIOD.
  - Regardless of the level of service

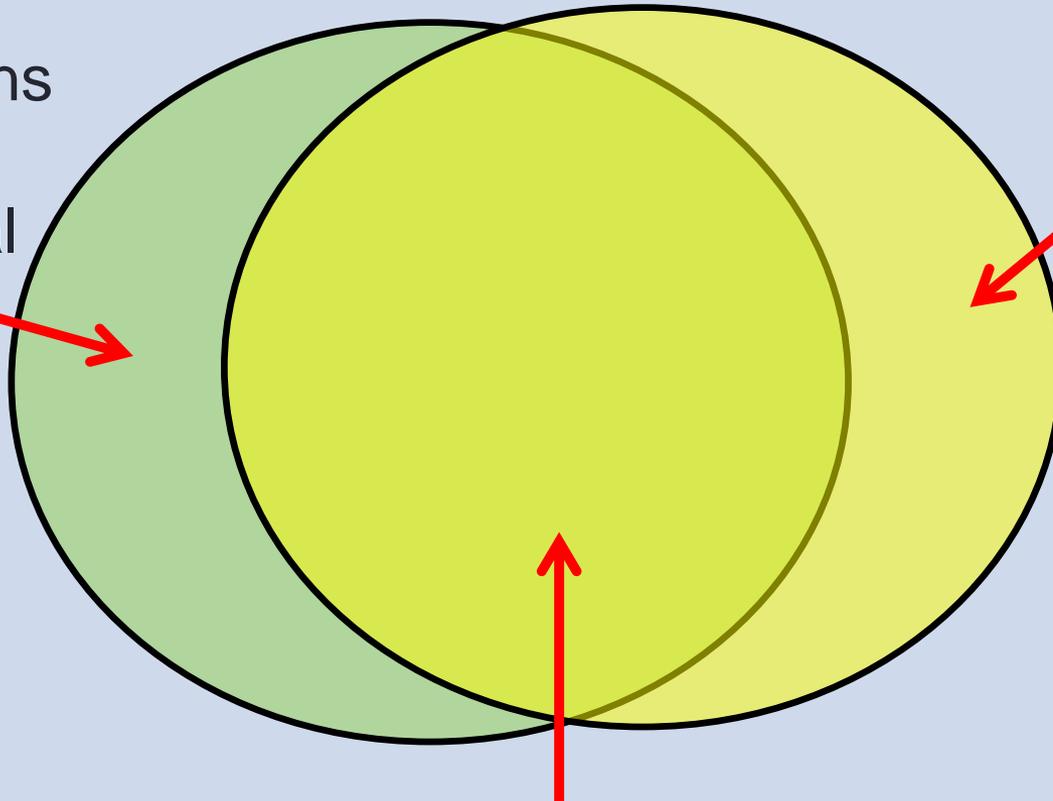
# Efficiency v.s. Conservation

Efficiency

Conservation

If this happens  
make sure it  
adds national  
output

Don't want  
this anyway



Efficiency and Conservation

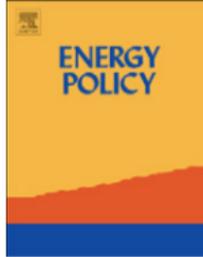
# Cheapest source



Contents lists available at [SciVerse ScienceDirect](#)

## Energy Policy

journal homepage: [www.elsevier.com/locate/enpol](http://www.elsevier.com/locate/enpol)



## Evaluating direct energy savings and market transformation effects: A decade of technical design assistance in the northwestern USA

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### H I G H L I G H T S

- ▶ Estimated direct energy savings of a market transformation program are presented.
- ▶ A methodology to evaluate energy savings from multiple baselines is documented.
- ▶ Level of integrated design can be used to estimate energy savings in new buildings.
- ▶ Quantitative evaluation indicators of efficiency market transformation are provided.
- ▶ Electric energy saved from design assistance costs between \$0.0016 and \$0.0092/kWh.

# Energy Efficiency

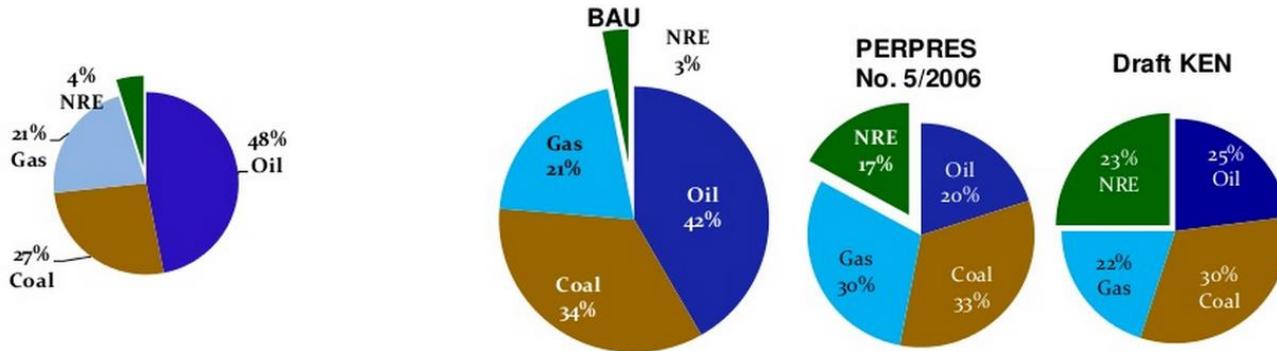
- Sum of all (not so) TRIVIA
  - There is no single MEASURE that will deliver big savings
    - ◆ A lot to handle
  - Yes: it is NOT rocket science
    - ◆ But: it is deceptively not so trivia

# Energy Efficiency

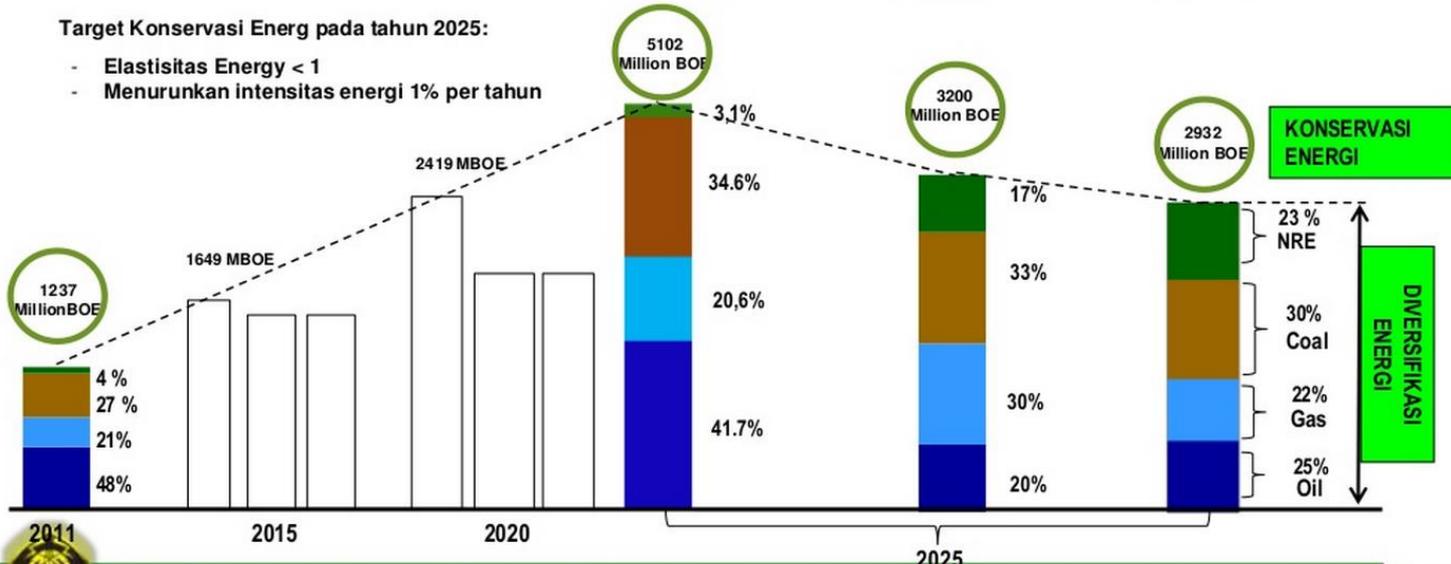
- Multiple stakeholders at various stages
  - Yes: they do not all have to be PhDs
    - ◆ But: need to understand the various technologies involved in the efficiency project
  - Stakeholders have their own priority
    - ◆ Split incentive: who gets the benefit
    - ◆ Who gets the blame if the project fails?

# Top Down: Clear Ambitious Goal

## ARAH KEBIJAKAN ENERGI NASIONAL BERDASARKAN PERPRES No.5/2006 DAN DRAFT KEN

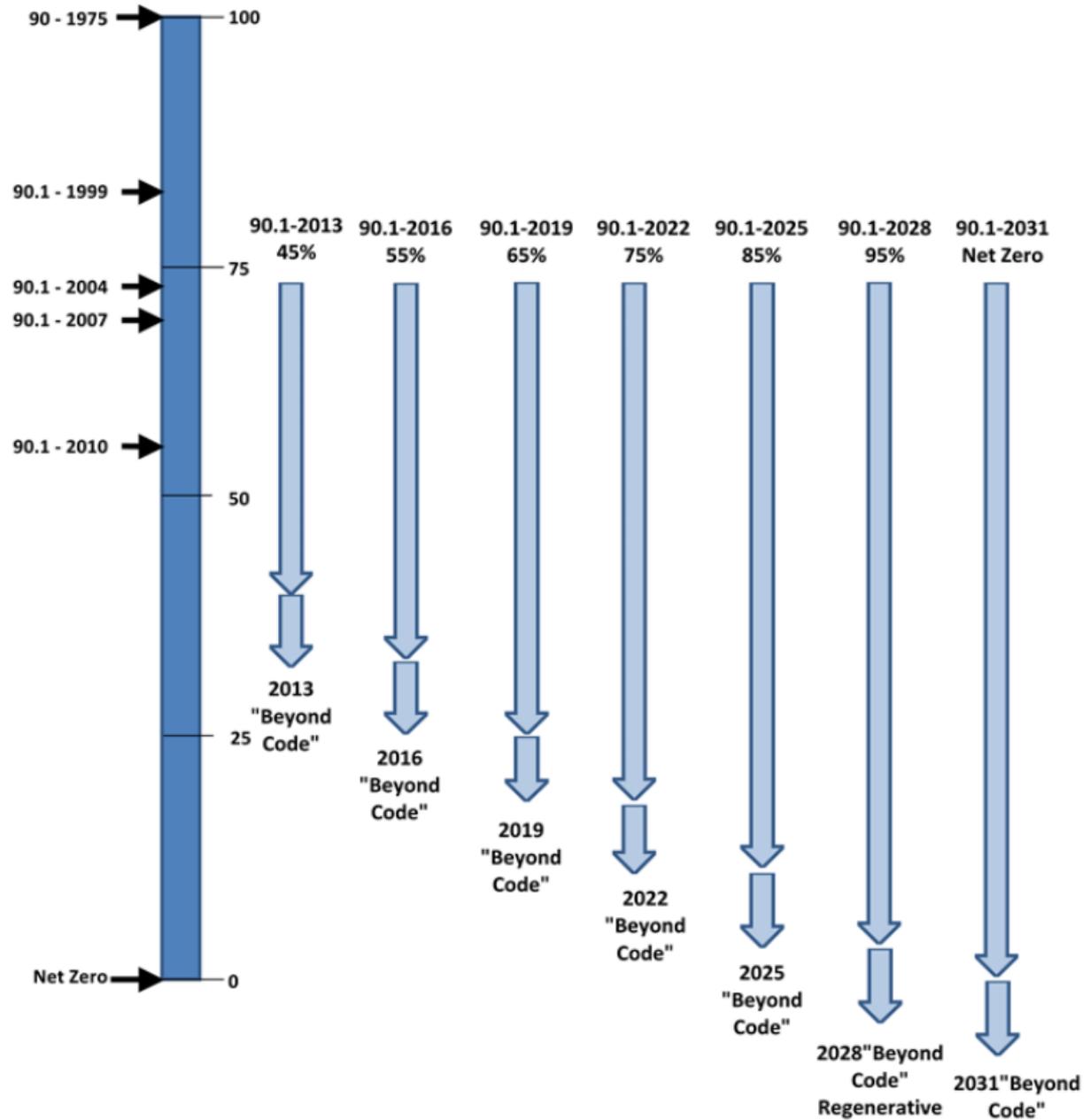


- Target Konservasi Energr pada tahun 2025:
- Elastisitas Energy < 1
  - Menurunkan intensitas energi 1% per tahun



# Bottom Up: Patchy Roadmap

- Example: OTTV update
  - Overall Thermal Transfer Value
  - Updated from 45 to 35 W/m<sup>2</sup>
    - ◆ What does this mean in terms of energy consumption across the building sector?
      - DO NOT KNOW
      - Because we do not know:
        - » No clear roadmap for implementation in building permit process (IMB)
        - » No clear policy on enforcement



# Building Energy Code Roadmap

# Key Successful Project Factors

- Aggregation of individually “trivial” gains
- Considers complex intertwined barriers
- Considers the real problems
- Systems focus - not just hardware myopia
- Barrier removal focus
- Improved energy/peak demand pricing
- Share benefits with all stakeholders
- Independent monitoring & evaluation

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1. ESCO Market Development
2. Energy Efficiency Database Development
3. Energy Efficiency in Building Code
4. Energy Efficiency Street Lighting Scale Up
5. Standards and Labeling Development Support

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## 1. ESCO Market Development

1. Pre-IGA Training Workshop
2. ESCO Regulations Completion Support (workshops)
3. Support for 9 IGAs

## 2. Energy Efficiency Database Development

1. Large Energy Users Reporting
2. High Growth Sectors (airports, malls, data centers)

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## 3. Energy Efficiency in Building Code

1. Technical Update of 3 SNIs

2. EE/Green Building Requirements Roadmap

3. Scoping of Building Energy End Use Studies

## 4. Energy Efficiency Street Lighting Scale Up

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## 5. Standards and Labeling Development Support

- New Product Classes
- Test Laboratory Capacity
- Mutual Recognition of Test Results
- Enforcement
- EE Large Chillers Scoping

# Closing the loop

- Independent monitoring and evaluation
  - Free energy audit: hundreds (thousands?)
    - ◆ What is the total potential savings from ALL of these audits?
    - ◆ How many gets implemented?
    - ◆ How much savings realized?
- Nobody is closing the loop
  - Proven answers:
    - ◆ ISO-50001 energy management systems approach
    - ◆ ISO-50002 energy audit approach
    - ◆ (new) ESCO approach

# Key Points

- Wishful thinking alone will not remove barriers
- Policy / hardware / finance / subsidies / marketing-info-behavior change – are not the solution alone
- Share benefits with all stakeholders
- Amateurish “designed” projects rarely work or last
- Effective approaches are common internationally
- Policies/projects need resources & enforcement

# Thank You – Questions Please



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# Key Oil Demand Driver – Chindia's Middle Classes Dream of Car-Dependent Suburbs



# Hardware – Real Solar Cars (in China) 2007 NOT a demo, real application

