Renewable Energy and Energy Efficiency Policies: Lessons Learned

Toby D. Couture
Founder and Director of Renewable Energy
E3 Analytics: Berlin, Germany

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BRIEF PROFILE:

Toby Couture is Founder and Director of Renewable Energy at E3 Analytics, an international renewable energy consultancy based in Berlin. He has worked with over thirty (30) governments around the world on the economic, financial, and policy aspects of renewable energy deployment, as well as in training and capacity building, in both developed and developing countries.

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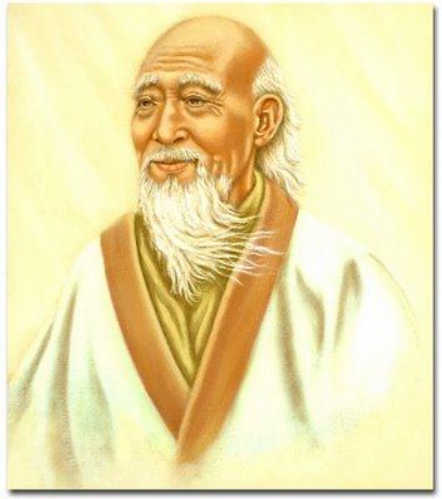
Parable of the Zen Master



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Context

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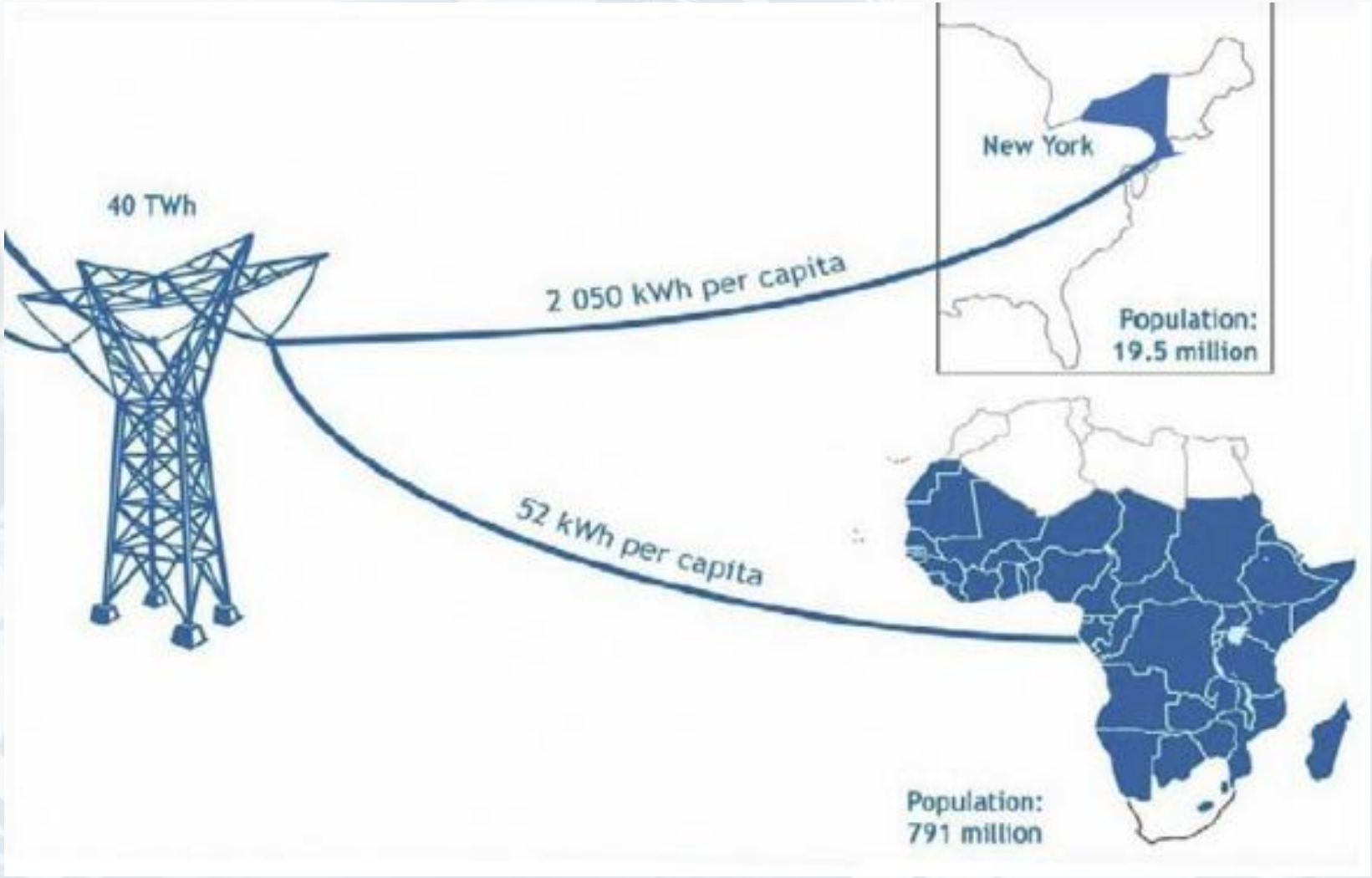

Sub-Saharan Africa (Population 791 Million) consumes as much electricity annual as New York State (Population: 19.5 Million): IEA 2010

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Why Renewables and Efficiency?

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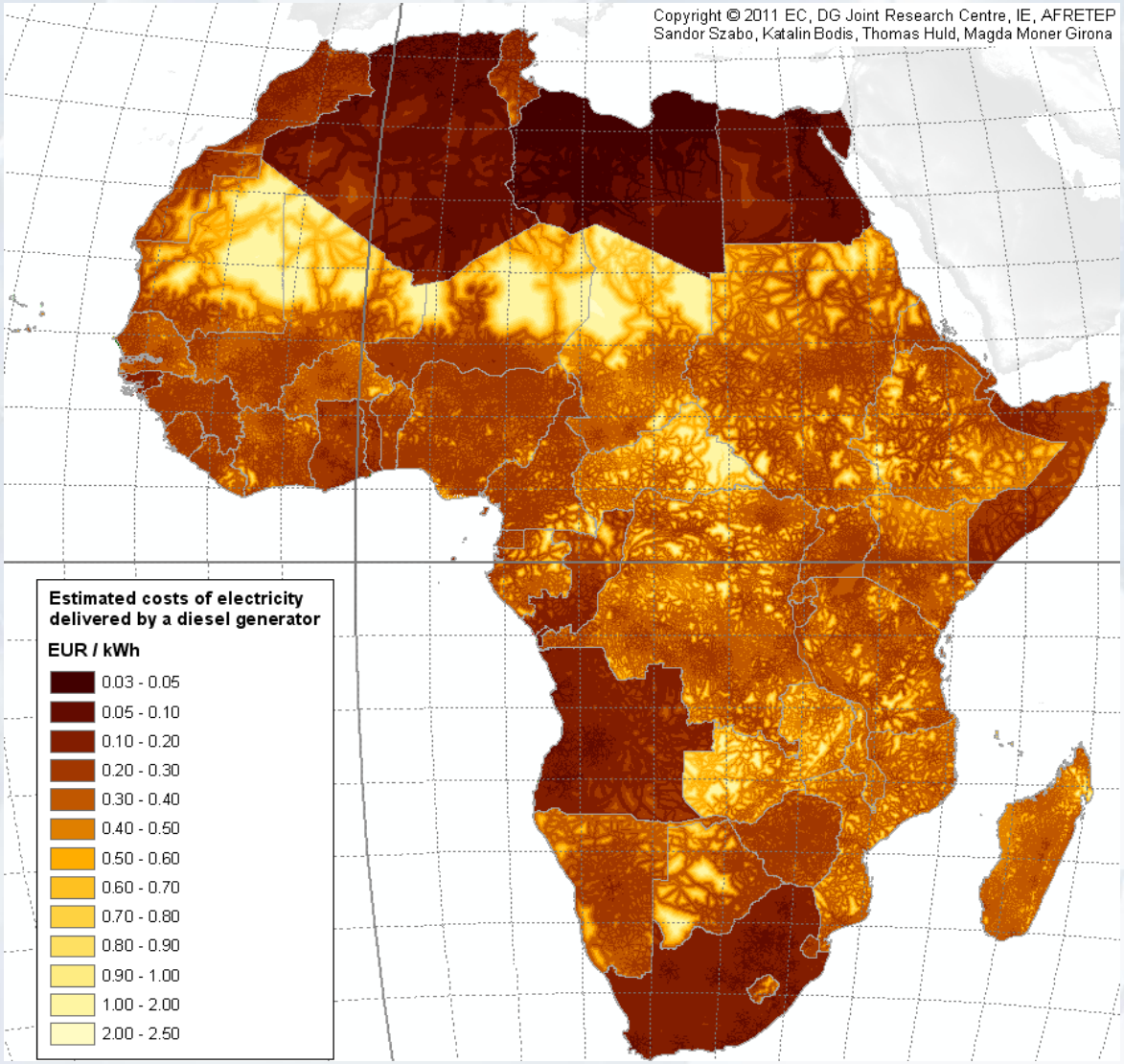
Cost of Diesel Generation in Africa



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Factors Driving Interest in RE in Emerging Countries

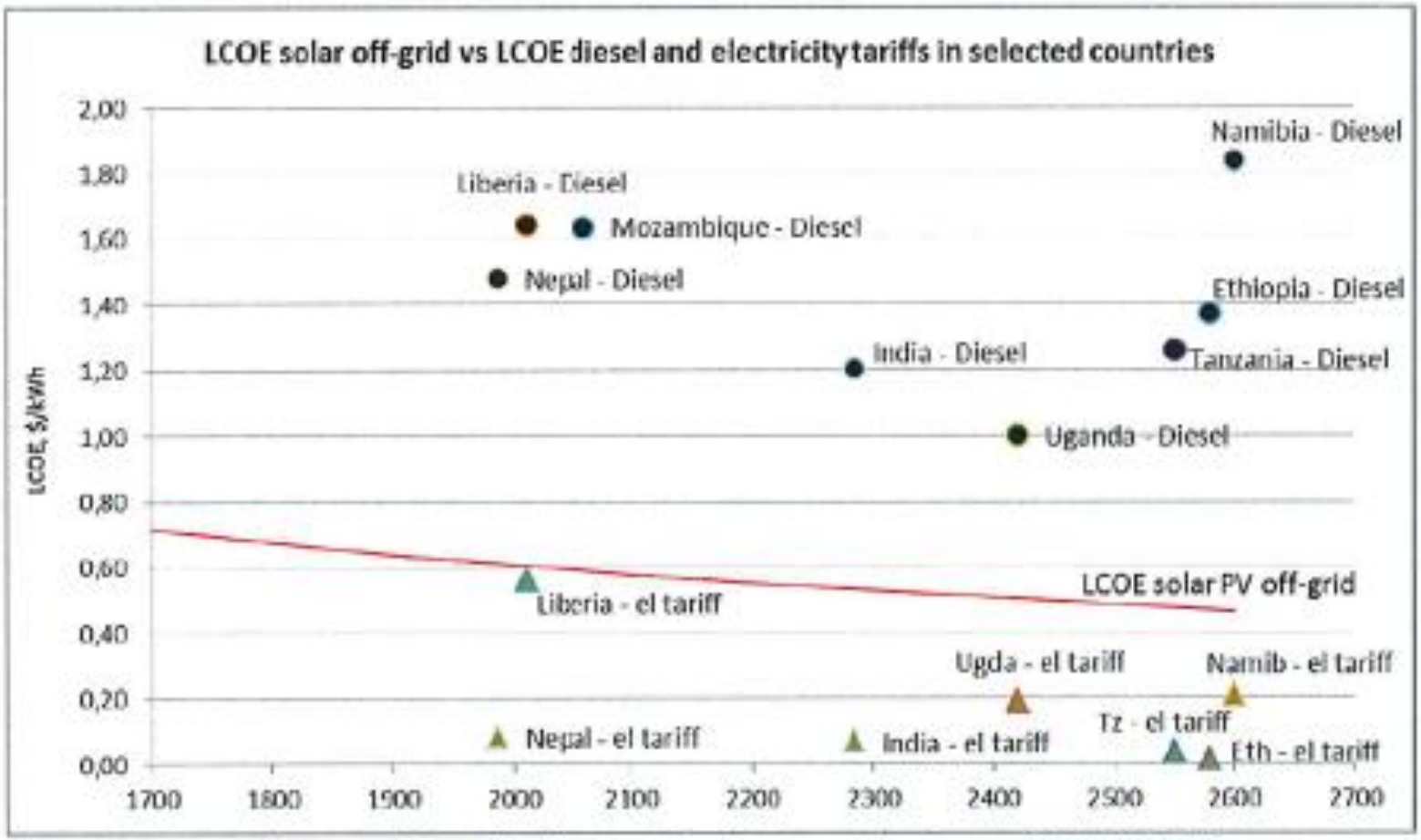

Figure 4: Cost competitiveness of solar off-grid systems in selected countries. Source: NORPLAN, 2012b

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Source: NORPLAN 2013

LCOE of grid-connected solar PV in ECOWAS Region:

USD $0.11/kWh – $0.25/kWh

LCOE of diesel generation:

USD $0.25 - $2.20/kWh

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RE Sources "*are increasingly the most economic solution for new grid-connected capacity where good resources are available.*"

- Adnan Amin, Secretary General of IRENA

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RE Policy Mechanisms: An Overview

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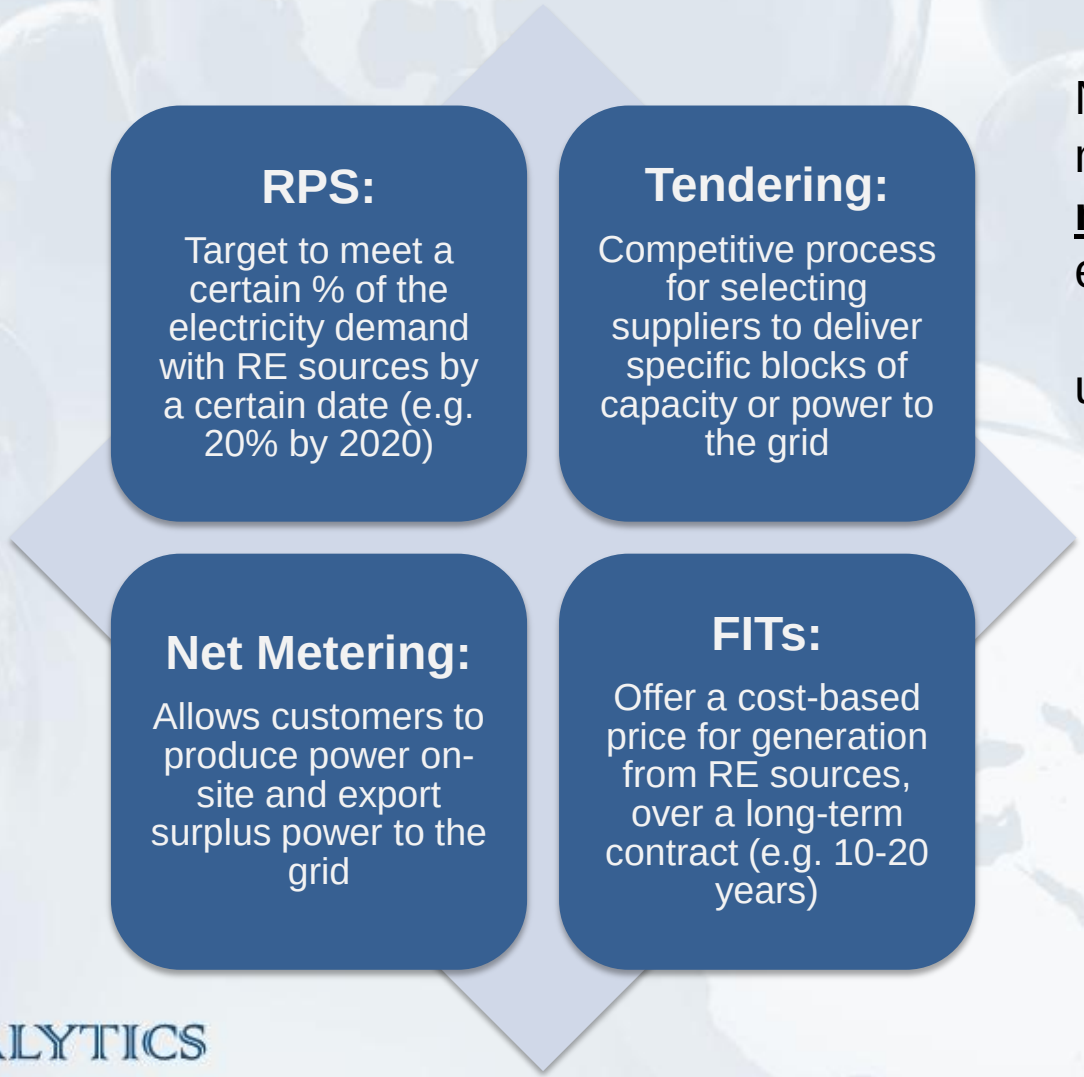
Overview of Energy Policy Mechanisms



Note: These policy mechanisms are **not** mutually exclusive:
→ they can be used together

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- So far, FITs (while not perfect) have proved most effective at driving ***scale***:

- FITs responsible for approximately 50% of global wind power development and over 70% of global solar PV

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Best Practices in RE & EE Policy Design

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Best Practices in RE Policy

- → Binding, Long-Term RE Targets (e.g. 10-20 years)
- → Cost-based PPAs
- → Guaranteed Purchase (Take or Pay)
- → Priority Dispatch of RES-E
- → Streamlined Interconnection
- → Bankable Cost Recovery Mechanism
- → Low-interest loan facility/credit guarantees/risk insurance

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Reducing the Cost of Finance is Critical

- If we are truly entering a "Third Industrial Revolution" powered by low carbon growth, it will be critical for it to be based on abundant, readily-available, low-cost **finance**

- **This requires stable, bankable RE policy frameworks**

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Best Practices in EE Policy Design

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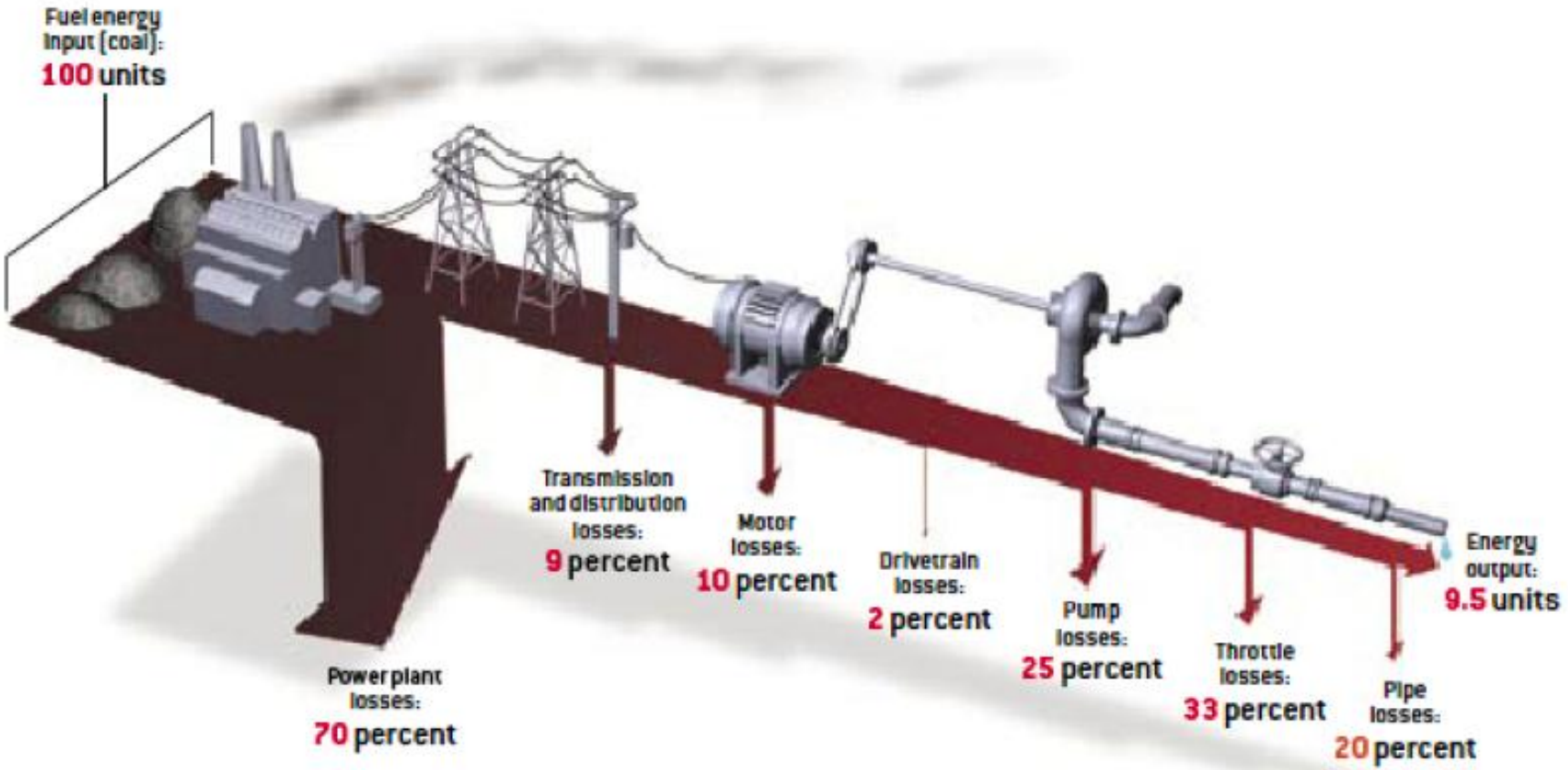
The current system is inefficient.



Source: Lovins 2005, Scientific American

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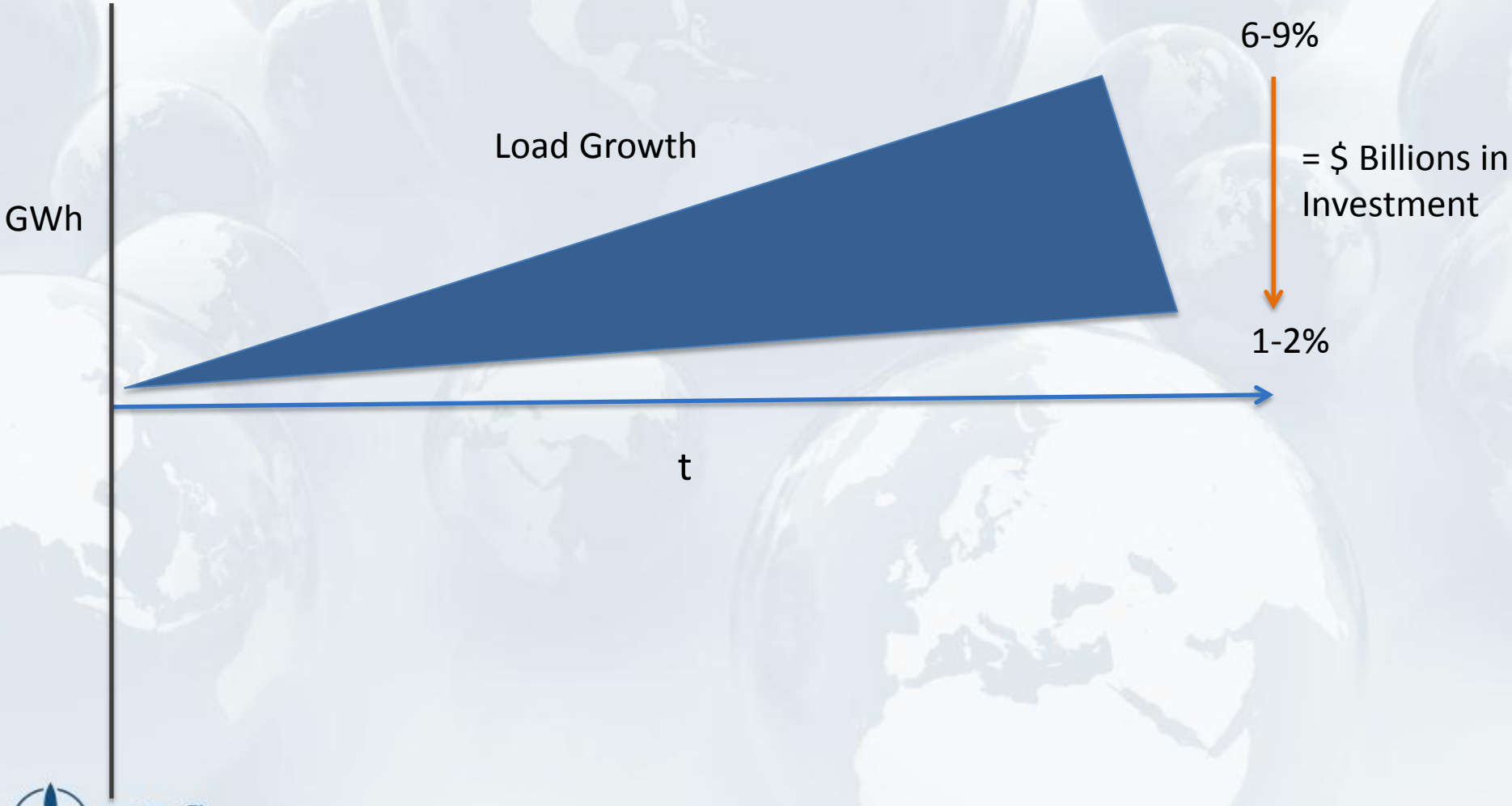
Understanding Energy Efficiency



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Key Points about EE

- **Increasing EE is one of the most abundant, under-tapped, mis-understood, and under-valued energy resources**

- **Experience demonstrates that EE costs on average ½ of supply based options (Coal or Gas or Renewables): USD $0.02 - $0.04/kWh**

→ EE also generates *increasing* returns, as the value of saved energy increases

Key Points about EE

- Energy efficient is different from procuring RE:

→ Driven by thousands of individual decisions and day-to-day choices, and behaviors

→ It is also invisible.

- This makes it much harder to encourage, both from a policy and from a practical perspective

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→The challenge is how to “procure” or scale-up this low-cost resource

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Best Practices in EE: Policy Options

1. **Lead by Example: Government procurement and target setting**

e.g. U.S. FEMP, German Gov't

Advanced Energy Design Guidelines:

www.ashrae.org/aedg: Guidelines for hospitals, schools, administrative buildings, etc.

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Best Practices in EE: Policy Options

2. Phase-out & Substitution Strategies: Phase-out inefficient appliances

E.g. Ghana: refrigerators, lighting, boilers, AC units, etc.

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Best Practices in EE: Policy Options

3. Establish an Energy Efficiency Agency: e.g. Vermont (USA), Nova Scotia (Canada)

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Best Practices in EE: Policy Options

4. Rebates and "Feebates": Incentives to encourage the adoption of EE appliances

e.g. Canada, U.S. EU, India

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Best Practices in EE: Policy Options

5. Energy Efficiency Obligations: Binding % Target to reduce demand by specific amounts (GWh, %, or BTUs) by a specific date:

e.g. NSW in Australia; EU NEEAPs

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Best Practices in EE: Policy Options

6. Integrated Resource Planning (IRP): require utilities to incorporate EE comprehensively in energy master plans

E.g. U.S. States

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Best Practices in EE: Policy Options

7. System Benefit Charges: Surcharge on bills collected to finance EE programs and incentives

E.g. Vermont, USA, Connecticut, Massachusetts, etc.

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Best Practices in EE: Policy Options

8. RFP Model: E.g. for government buildings

E.g. U.S. FEMP

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Best Practices in EE: Policy Options

9. ESCO Model: Private energy services company; profit is based on a share of the energy savings

E.g. NY State, California

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Best Practices in EE Policy

10. Raising awareness is critical

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Best Practices in EE Policy

11. **Monitoring and Evaluation** in EE is also critical:

Rigorously quantifying the energy reductions is also essential to qualify for related benefits (e.g. CO2 credits, CERs, etc.)

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Concluding Remarks

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Concluding Remarks

Policymakers should consider the *risks* and *vulnerabilities* of different energy development pathways.

→ Resilience matters.

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“Do or don’t do.
There is no try.”

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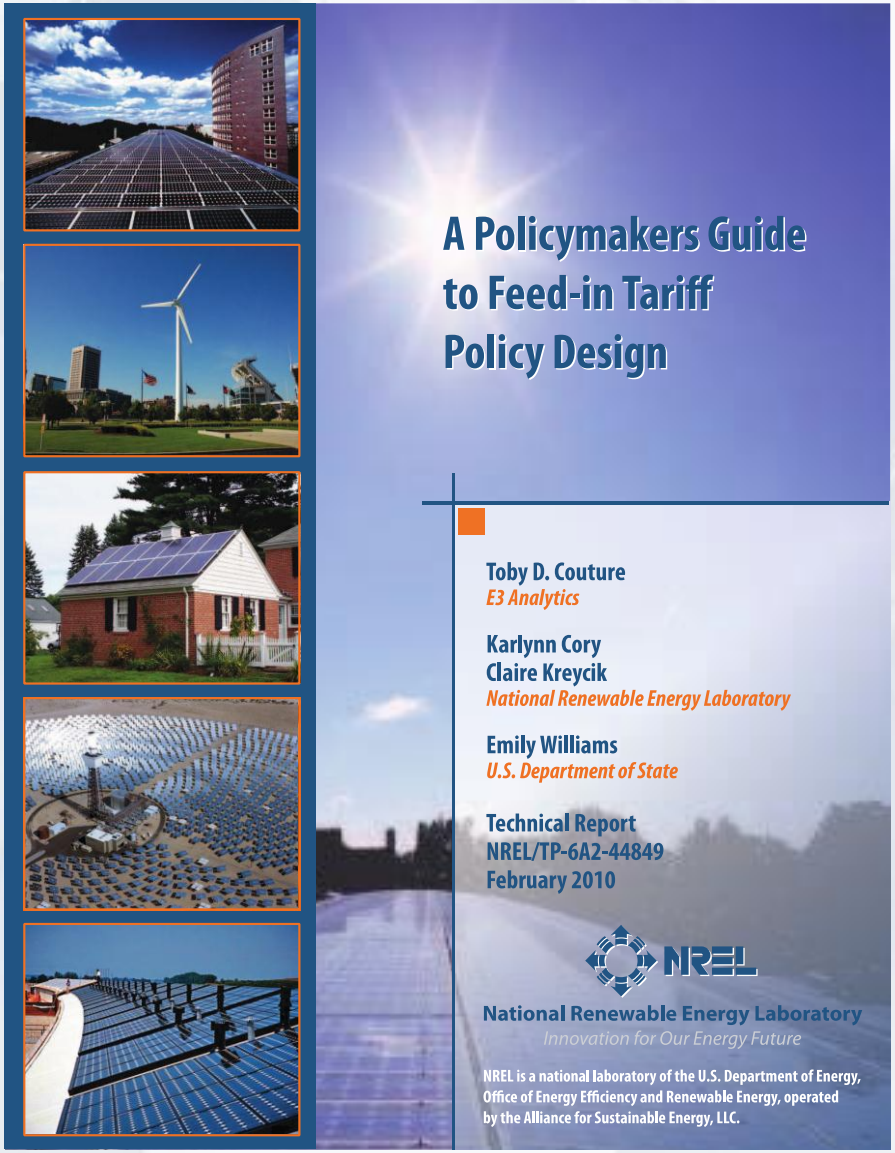

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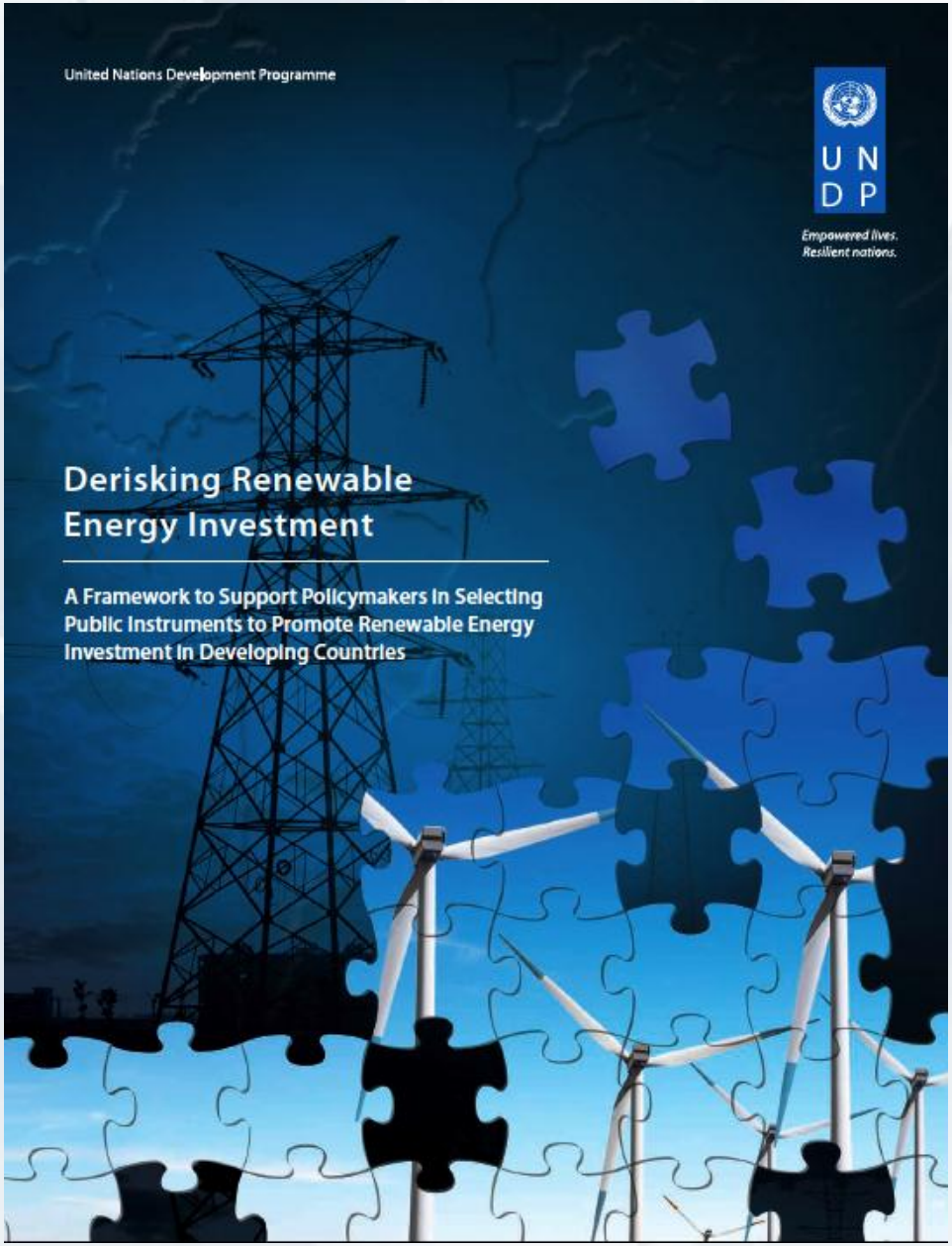

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Questions?

Toby D. Couture
Founder and Director

E3 Analytics
toby@e3analytics.eu

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