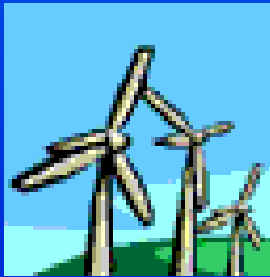


Emerging Energy Technologies for Manitoba

Presented to
Provincial Council of Women of Manitoba, Inc.
Annual General Meeting
Morris, Manitoba
April 19, 2008



By



Tom Molinski, P.Eng. EOE

Emerging Energy Systems



Manitoba Hydro

- **5000 MW (hydro) 98% energy**
 - **Surplus Hydro till 2020 - 2024**
 - **5000 MW undeveloped**
- **495 MW (thermal) 1.9% energy**
- **100 MW (wind)* 0.1% energy**
- **Winter Peak - 4250 MW (2008)**
- **Export 25% of energy**
- **Goal to export 40%**



* Purchased wind energy

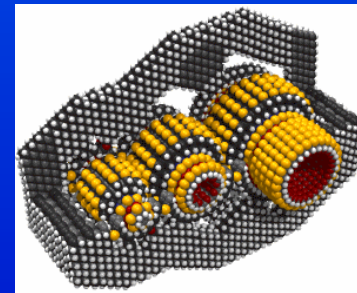
What are Emerging Energy Technologies

- Not Conventional Energy Systems



Includes:

- Small Hydro
- Wind
- Fuel Cells
- Bioenergy
- Solar
- Energy Storage
- Engines
- PHEV & EV

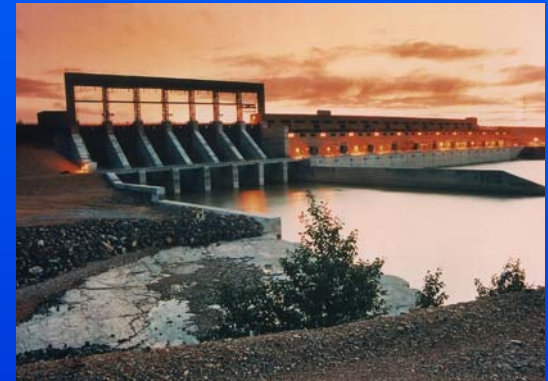
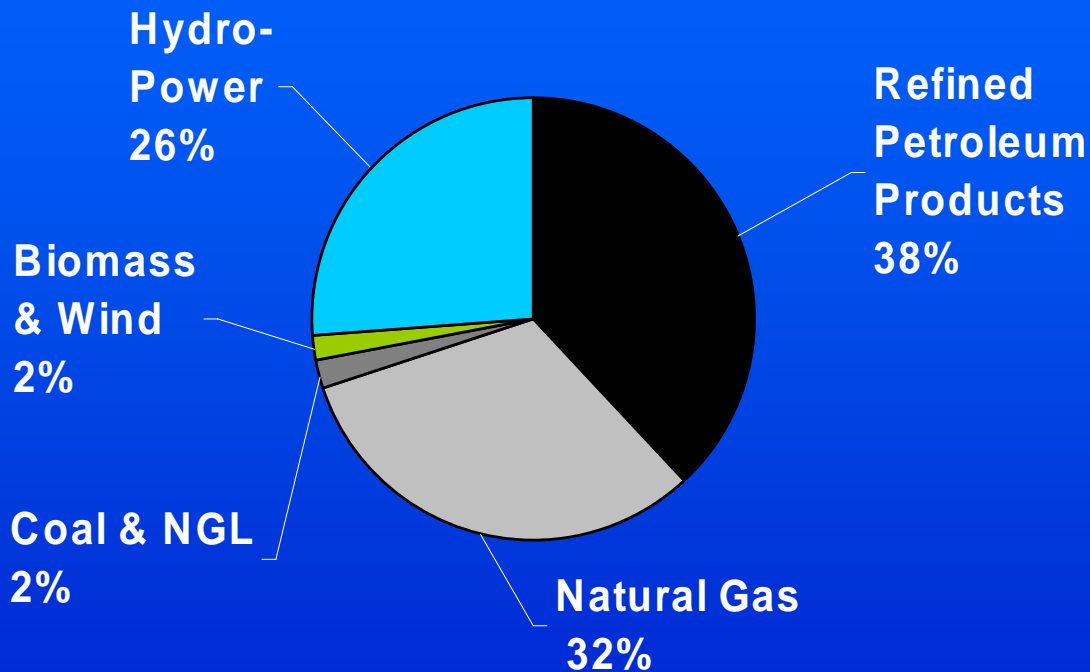


Why Is MH Interested in Emerging Energy Technologies

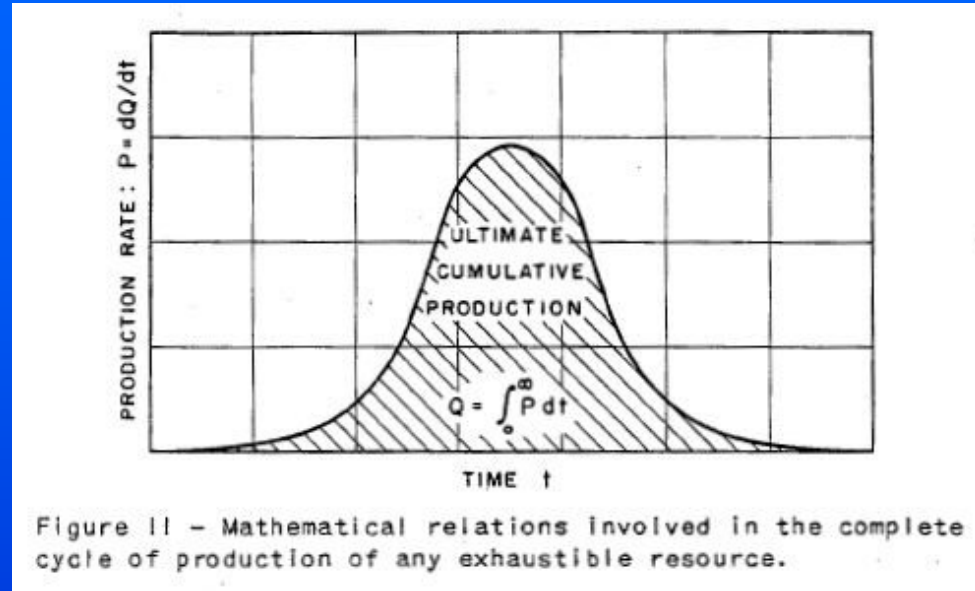
- Prepares MH to Adopt New Technologies
- Niche Applications
 - Waste to Energy
- Inherent Balance of TBL Factors
- Stakeholder Interest



Energy Consumption in Manitoba

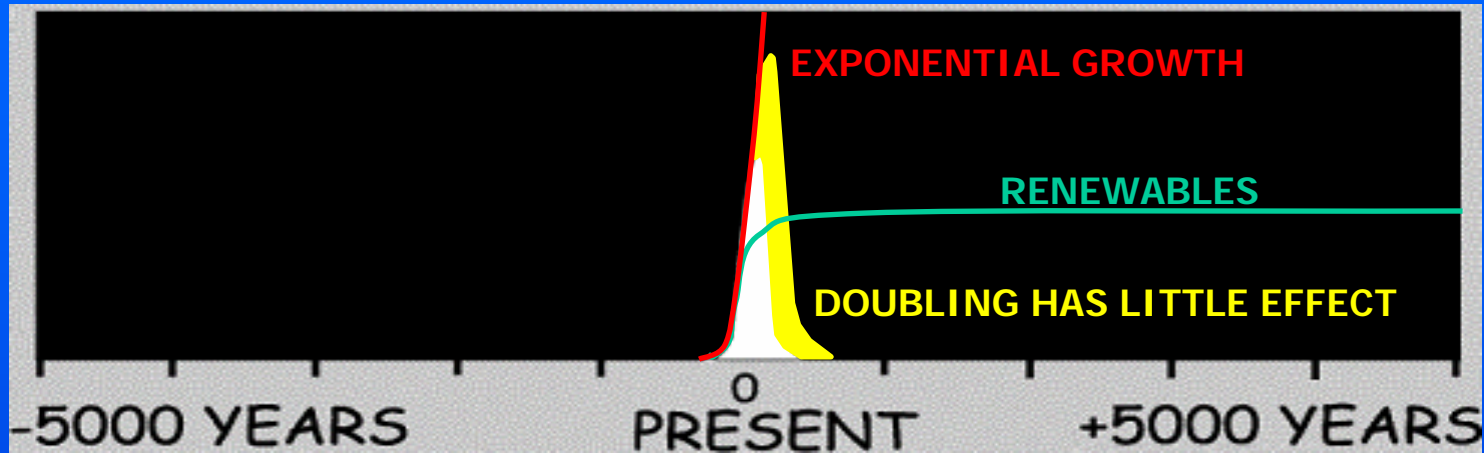


M. King Hubbert (1903-1989)



- Published Hubbert Curve in 1949
- 1956 predicted US peak to be 1970
- World peak after 2006

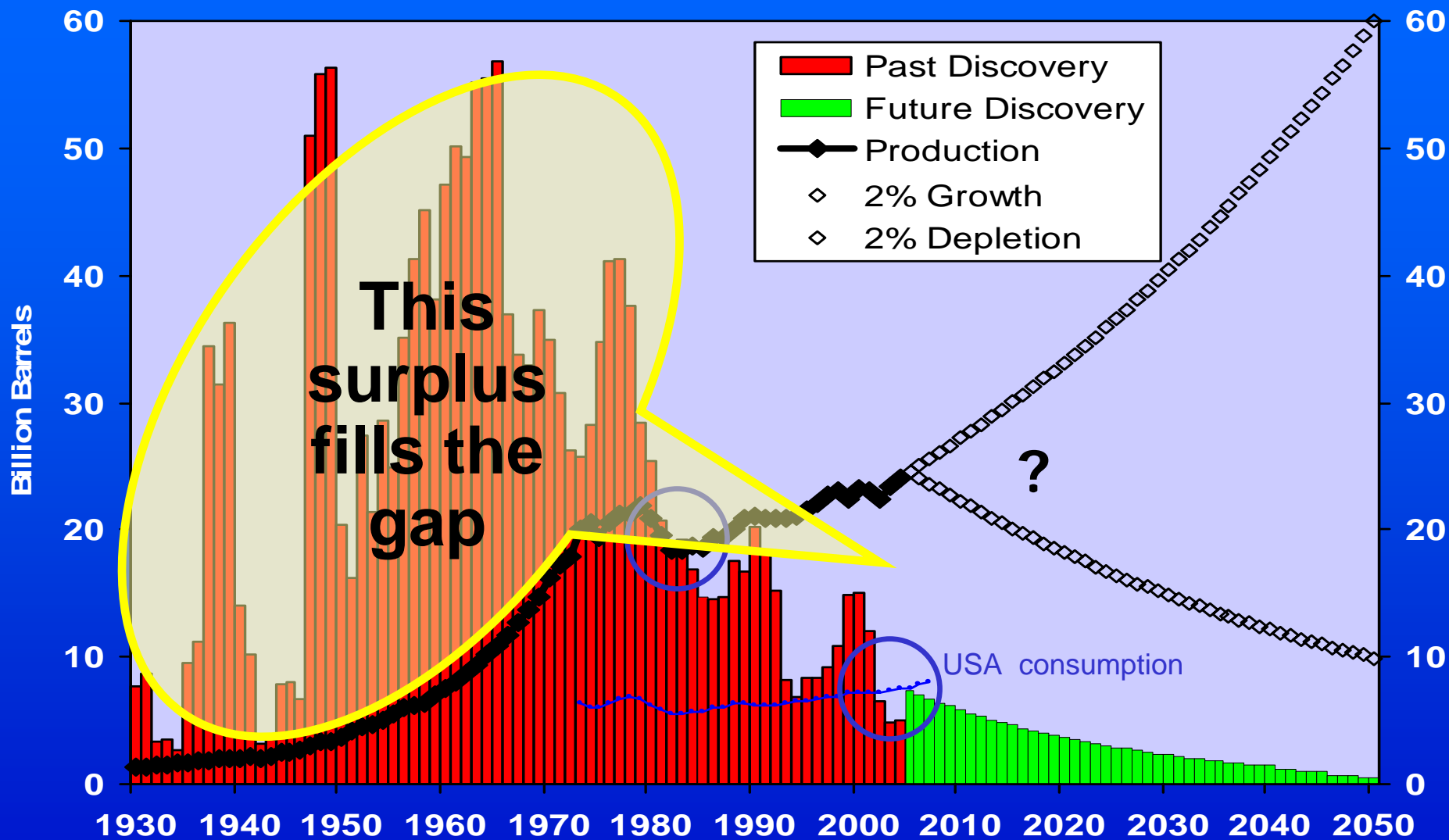
The Long Term Hubbert View



M. King Hubbert, 1949



Oil Discovery vs Production Trends



- Rapidly increasing demand for a declining fossil resource?

Not Just For Transportation



Some Of Our Current Projects

- PHEV
- Kinetic Turbine
- Composite Tower
- Brady Road landfill
- Gasify Bullrushes

