

SUSTAINABLE CITIES & COMMUNITIES (2017)

May 4, 2017

SLIDE 1 Sustainable Cities and Communities – RURAL MEETS URBAN

64th Annual Ontario Small Urban Municipalities Conference

2 URBAN TSUNAMI IS UPON US! WORLD POPULATION HAS GROWN FROM 2 BILLION IN 1930, TO 6 BILLION IN 2000, AND IS FORECASTED TO BE 10 BILLION IN 2050 --- THE GROWTH FROM 6 BILLION - 10 BILLION IS THE EQUIVALENT TO THE POPULATION OF 3 CHINAS'. THERE ARE MANY CHALLENGES FOR RURAL COMMUNITIES.

3 SLUM PHOTO - UN-HABITAT

4 CITIES PHOTO - RURAL TO URBAN - 2000-2025 - 2050

THE MAJORITY OF THE WORLDS' POPULATION LIVE IN CITIES. 2.0 BILLION PEOPLE WILL LIVE IN 600 OF THE LARGEST GLOBAL CITIES - IN 2025 - 25% OF THE GLOBAL POPULATION.

THE ALREADY STRAINED CITIES OF THE DEVELOPING WORLD WILL NEED TO COPE WITH APPROXIMATELY 2.4 BILLION MORE PEOPLE NOT INCLUDING CONTINUED RURAL TO URBAN MIGRATION.

IN CANADA - 1867 - 20% - URBAN -----2016 - 80% URBAN

5 PHOTO - TRAFFIC

6 PHOTO - URBAN STRESS - SUCH RAPID GROWTH PLACES A TREMENDOUS STRESS ON THE WORLD'S PHYSICAL AND SOCIO-ECONOMIC ENVIRONMENTS. IN CITIES THE CONCENTRATION OF DOMESTIC AND INDUSTRIAL WASTES IS THE GREATEST PER CAPITA & WATER USE IS THE GREATEST!

URBAN SPRAWL THREATENS AGRICULTURAL LAND AND NATURAL HABITAT. URBAN DYSFUNCTIONALITY IS ALREADY COSTING SOME CITIES 5% TO 8% OF REGIONAL GOP.

7 CHALLENGES

1. URBAN TSUNAMI
2. UNSUSTAINABLE CITIES AND COMMUNITIES
3. OVERUSE/ABUSE OF NATURAL CAPITAL

8 THE CHALLENGES WE FACE ARE IMMENSE:

- HOW TO CREATE AND IMPLEMENT CITY SUSTAINABILITY STRATEGIES;
- HOW TO CREATE COMMUNITY ENERGY PLANS THAT REDUCE GHG EMISSIONS;
- HOW TO HAVE GOVERNMENTS AND THE PRIVATE SECTOR COOPERATE AND WORK TOGETHER TO CREATE SUSTAINABLE HIGH QUALITY OF LIFE IN OUR CITIES AND COMMUNITIES.

9 CHOICES & CONSEQUENCES

HOW DECISIONS HAVE SHAPED A CITY

10 SYLVIA HOTEL - 1956

11 SYLVIA HOTEL - 1967

12 SYLVIA HOTEL - 1972

13 VANCOUVER ONCE DECAYING WAREHOUSES, AUTO-BODY SHOPS, BORDERED BY VACATED RAILWAY LANDS.

14 COAL HARBOUR - NOW

15 BURRARD STREET BRIDGE - SOUTHEAST FALSE CREEK

BEFORE AND NOW

16 RE-ENERGIZE INNER CITIES - RE-INVENT THE BURBS, TOWN CENTRES, ENABLE “QUANTUM LEAP” IN GREENER TRANSIT.

17 SURREY CITY CENTER

18 SURREY HIGH RISES & TRANSPORTATION

19 SURREY TRANSPORTATION

20 QUEST - 6 PRINCIPLES NEEDED TO GUIDE ENERGY USE IN CANADA TO ACHIEVE THE ENERGY AND GHG REDUCTIONS THAT ARE NEEDED FOR US TO TRANSFORM OUR ENERGY SYSTEMS.

1. REDUCE THE ENERGY INPUT REQUIRED FOR A GIVEN LEVEL OF SERVICE;
2. AVOID USING HIGH-QUALITY ENERGY IN LOW-QUALITY APPLICATIONS. I.E., ELECTRICITY FOR BASEBOARD HEATING, GENERATED BY BURNING NATURAL GAS/HUNDREDS OF KILOMETRES AWAY;
3. CAPTURE ALL THERMAL ENERGY/AND RE-USE IT. HOT WATER FROM SHOWERS ETC. IS CURRENTLY SENT DIRECTLY INTO SEWER SYSTEMS - THIS HEAT CAN BE CAPTURED AND REUSED;
4. USE ALL AVAILABLE ENERGY SOURCES, STARTING WITH LOCAL SOURCES - LANDFILL GAS, MUNICIPAL, AGRICULTURAL,

INDUSTRIAL AND FORESTRY WASTE ARE ALL POTENTIAL SOURCES OF ENERGY AND SHOULD BE USED RATHER THAN DISCARDED AS WASTE. I.E. BURNS BOG

5. RENEWABLE RESOURCES NEED TO BE TAPPED INTO AND USED - GEOTHERMAL, SOLAR, WIND - DETERMINING WHICH IS THE MOST PREVALENT AND USEFUL TO ANY GIVEN COMMUNITY IS CRITICAL FOR OVERALL SYSTEM EFFICIENCY;
6. SMART AND FLEXIBLE ENERGY NETWORKS, CAPPABLE OF PROVIDING FUELS, ELECTRICITY AND HEATING AND COOLING PROVIDE ANOTOHER RESOURCE OPPORTUNITY AND SHOULD BE USED AS SUCH, SMART GRID METERS ETC.

21 SMART ENERGY COMMUNITIES

2016 - 200 REPRESENTING 50% OF CANADA'S POPULATION

2017 - 275 COMMUNITIES 60% OF CANADA'S POPULATION

2030 - ALL CANADIAN COMMUNITIES BEING SMART ENERGY COMMUNITIES, IMPLEMENTING COMMUNITY ENERGY PLANS, AS PART OF THEIR SUSTAINABLE CITY AND COMMUNITY STRATEGIC PLAN.

22 CITY OF GUELPH

CEP PRIORITIZED STRATEGIES 2007-2031

- ABOVE CODE EFFICIENCY STANDARDS
- ALL CONSTRUCTION - NEW AND RETROFIT
- ENERGY PERFORMANCE LABEL - EU APPROACH

- REQUIRED ON ALL CONSTRUCTION - NATIONAL PILOT
- TRANSPORT EFFICIENCY
- URBAN DESIGN AND VEHICLE CHOICES
- HEAT RECOVERY
- INVEST IN NEW DISTRICT ENERGY INFRASTRUCTURE
- RENEWABLES
- BIOMASS IN SOLAR IN LARGE SCALE
- RESTRUCTURED MULTI-UTILITY ENERGY SERVICES SUPPLY COMPANY
- CHANGES NEEDED TO REGULATORY STATUS-QUO
- IMMEDIATE START ON SCALE PROJECTS
- BUILD SCALE AREAS THAT WILL EVENTUALLY LINK ACROSS THE CITY

23 WHAT IS A SMART ENERGY COMMUNITY

1. **INTEGRATE CONVENTIONAL ENERGY NETWORKS**
ELECTRICITY, NATURAL GAS, DISTRICT ENERGY, AND TRANSPORTATION FUEL NETWORKS ARE BETTER COORDINATED TO MATCH ENERGY NEEDS WITH THE MOST EFFICIENT ENERGY SOURCE.
2. **MAKE SMART LAND USE DECISIONS**
RECOGNIZING THAT POOR LAND USE CAN RESULT IN ENERGY WASTE.
3. **HARNESS LOCAL ENERGY OPPORTUNITIES**

ENERGY EFFICIENCY, GREEN BUILDING, RENEWABLE ENERGY, COMBINED HEAT AND POWER, STORAGE AND MANY OTHER OPPORTUNITIES TAILORED TO COMMUNITY NEEDS

24 PROJECT SPOTLIGHT - GETTING TO IMPLEMENTATION

180 COMMUNITIES ACROSS CANADA (50% OF THE POPULATION) HAVE A CEP; ALL COMMUNITIES ARE FACING CHALLENGES WHEN IT COMES TO IMPLEMENTATION.

25 CHALLENGES AND HUGE OPPORTUNITIES

KICK START THE WORLD ECONOMY, WITH CITY BUILDING REQUIRES \$350 TRILLION OVER THE NEXT 25 - 30 YEARS, ACCORDING TO A 2008 BOOZ ALLEN REPORT. THAT'S \$12 - 14 TRILLION A YEAR IN A WORLD ECONOMY OF \$70 TRILLION.

26 or SHRINKING ICE CAP

SUMMARY

- CANADA IS INCREASINGLY A HIGHLY URBAN COUNTRY, BUT STILL A LARGE PART OF OUR ECONOMIC WEALTH COMES FROM OUR RURAL BASED RESOURCE INDUSTRIES:
- MANY OF CANADA'S RURAL COMMUNITIES, WHAT I CALL "RUBURBS" ARE CLOSE TO CITIES, AND THEIR INNER CITY AND SUBURBAN AREAS;
- CITIES AND RURAL AREAS ARE INCREASINGLY DEPENDENT ON EACH OTHER FOR WEALTH CREATION, TRANSPORTING, SERVICES:
- SO, POLITICAL ATTEMPTS TO DIVIDE URBAN AND RURAL, INNER CITY AND SUBURBAN CITIZENS ARE SHALLOW, SHORTSIGHTED AND DESTRUCTIVE.
I BELIEVE THIS TO BE TRUE WHETHER AS THE MAYOR OF VANCOUVER, WHEN I DESCRIBED VANCOUVER AS "DOWNTOWN

BRITISH COLUMBIA”, PREMIER OF B.C., WHEN I BROUGHT IN THE GROWTH STRATEGIES ACT, OR NATURAL RESOURCE PLANNING PROCESSES.

- HUGE POPULATION SHIFT TO CITIES
- MASSIVE CONSUMPTION OF EARTH’S SCARCE RESOURCES, REQUIRES 4 EARTH’S AND THERE IS BUT ONE
- CHOICE - STATUS QUO - MORE OF THE SAME, GIGAWATT KING MEGA PLANTS, ROADS AND CARS, OR INNOVATE
- OPPORTUNITIES WITH A NEW APPROACH - TRILLIONS