VIA Needs for RSPs

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Scenario Development and IAV/IAM Interactions

Snowmass CCI/IA Workshop XV

July 27, 2010

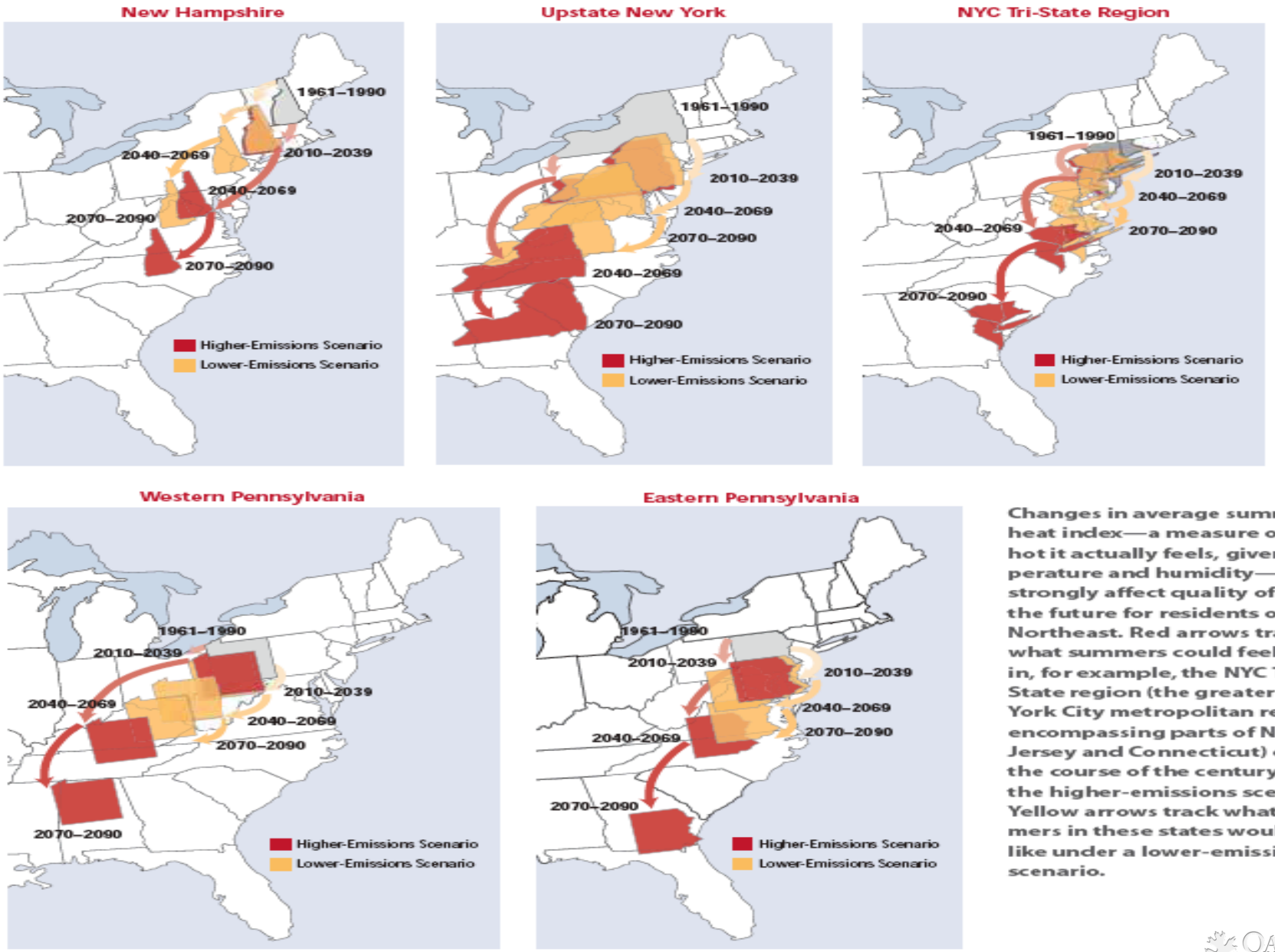
U.S. DEPARTMENT OF ENERGY

OAK RIDGE NATIONAL LABORATORY
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

What Does the VIA Community Need in the Way of Climate Scenarios and Socioeconomic Scenarios/Narratives/Pathways (I)?

- **Generally, the VIA community is not focused on scenarios:**
  - **VIA research usually starts with attention to:**
    - **(traditionally) Sensitivities of systems to changes in parameters**
    - **(increasingly) Responses of systems to a *range* of possible changes: associated with risk management strategies**
  - **It tends to see scenarios as only one of a number of possible starting points for VIA research:**
    - **Useful to frame VIA issues, not not generally used to define parameters for VIA research**
    - **Useful as a foundation for developing consistent *quantitative* projections that provide useful *qualitative* insights, but extensively used in only a few sectors (mainly those relatively modeling-oriented)**
  - **Climate and socioeconomic scenarios, viewed together, are of potential interest to VIA for framings and insights about: *vulnerabilities to climate change impacts* (nature and possible magnitudes of multiple stressors), *adaptive capacities for responding to vulnerabilities and impacts* (ranges of possible impacts, multiple stressors again), and *risk management strategies* (near and longer-term)**

FIGURE 2: Migrating State Climates



Changes in average summer heat index—a measure of how hot it actually feels, given temperature and humidity—could strongly affect quality of life in the future for residents of the Northeast. Red arrows track what summers could feel like in, for example, the NYC Tri-State region (the greater New York City metropolitan region, encompassing parts of New Jersey and Connecticut) over the course of the century under the higher-emissions scenario. Yellow arrows track what summers in these states would feel like under a lower-emissions scenario.

Atlantic City: Today's 100-Year Flood Could Become a Two-Year Flood by 2100

The top image shows the location of Atlantic City, NJ, on Absecon Island. The light blue area in the bottom image depicts today's FEMA 100-year flood zone (which extends beyond the area shown). Currently, this area has a 1 percent chance of being flooded in a given year. By 2100, this approximate area is projected to flood, on average, once every year or two under either emissions scenario, inundating high-tourist-value hotels and casinos. Under the higher-emissions scenario, the new 100-year flood height would be roughly four feet greater in 2100 than today, flooding a far greater area than the current FEMA flood zone.

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  - **<u>Potentially</u>, climate and socioeconomic scenarios, viewed together, are of interest to VIA for framings and insights about: *vulnerabilities to climate change impacts* (nature and possible magnitudes of multiple stressors), *adaptive capacities for responding to vulnerabilities and impacts* (ranges of possible impacts, multiple stressors again), and *risk management strategies* (near and longer-term)**

What Does the VIA Community Need in the Way of Climate Scenarios and Socioeconomic Scenarios/Narratives/Pathways (II)?

- **Socioeconomic scenarios/narratives/pathways are potentially of interest for:**
  - **Informing research on *vulnerabilities*, e.g.:**
    - **Population distributions relative to especially vulnerable areas**
    - **Insights about multiple stressors and their interactions: e.g., changes in temperature and/ or precipitation extremes as they interact with climate-sensitive economic sectors; locations of human activities relative to intensities and locations of extreme weather events; sea-level rise in geologic and socioeconomic context – affected by trends in economic growth, demographics, land use, technological development, institutional change**
  - **Informing research on *adaptive capacities*, e.g.: changes in dimensions of coping capacity such as wealth and governance**
  - **Informing research on *risk management* strategies, e.g.: integrated with climate change scenarios, possible needs for tranformational adaptation rather than incremental adaptation – tipping points?**

What Does the VIA Community Need in the Way of Climate Scenarios and Socioeconomic Scenarios/Narratives/Pathways (III)?

- **Socioeconomic scenarios/narratives/pathways are most likely to be valuable if:**
  - **They combine the best available quantitative projections of variables of interest (e.g., economic and demographic change) with alternative possible futures for dimensions that are difficult to quantify (e.g., governance, social attitudes/values) – note that projections of many variables beyond a few decades are not easy to find, and some variables (such as land use and technological transformations) are not projected very far into the future**
  - **They arise from interactions between the communities, including bottom-up perspectives from VIA communities in developing regions, rather than being delivered top-down as boundary conditions – the VIA community is deeply resistant to a linear process of socioeconomic pathway development which engages them only in the latter stages**
  - **They combine broad shared representative pathways for *global* change with *regional* perspectives about pathways of most interest for their contexts -- interactively**